Information and Communication technology 2

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Basic information

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The number of hours of direct education: 0 hours

The number of hours of self-study: 14 hours

The inclusion of the course: 2. semester

Syllabus

The course is based on the project European Computer Driving Licence (ECDL).

- Spreadsheets
- Using databases
- Presentation
Icons in the text

**Objectives**
At the beginning of each chapter is a list of objectives.

**Time required**
Indicates approximately how much time you need for studying the chapter.

**The terms to remember**
A list of important terms and the main points that the student in the study of the topic should not miss.

**Note**
In the note are various less important or clarifying informations.

**Control questions**
Examine to what extent the student understand the text and problems, memorizing relevant and important information.

**Summary**
Summary of topic.

**Literature**
Used in the study material to complement and extend the findings.
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1 Spreadsheets

Objectives (ECDL Module 4)

Spreadsheets requires the candidate to understand the concept of spreadsheets and to demonstrate an ability to use a spreadsheet to produce accurate work outputs.

The candidate shall be able to:
- Work with spreadsheets and save them in different file formats.
- Choose built-in options such as the Help function within the application to enhance productivity.
- Enter data into cells and use good practice in creating lists. Select, sort and copy, move and delete data.
- Edit rows and columns in a worksheet. Copy, move, delete and appropriately rename worksheets.
- Create mathematical and logical formulas using standard spreadsheet functions. Use good practice in formula creation and recognize error values in formulas.
- Format numbers and text content in a spreadsheet.
- Choose, create and format charts to communicate information meaningfully.
- Adjust spreadsheet page settings and check and correct spreadsheet content before finally printing spreadsheets.

Time required

5 hours of basic studies and individually more time to practice.

The terms to remember

- workbook
- sheet
- cell
- row
- column
- address of the cell
- relative address
- absolute address
- formula
- function
- copy
- moving
- types of graphs
- editing graphs
- print

1.1 Use a spreadsheet

There are various spreadsheets. For further work we will deal with processor Microsoft Excel.

1.1.1 Working with tables

In a previous study of the Information and Communication Technology 1 students were very good informed of a way to use icons, menus, etc.

Therefore, in the next chapters each workflow will shown very briefly using a simple symbology using tab sheet, icons, arrows, menu or submenu, buttons etc.
Running Microsoft Excel

or

Exit the spreadsheet

If the edited file was not saved in its current version, then in the two previous cases, a dialog box is displayed in which you can identify next steps for end of work with spreadsheets
Opening an existing document

After running a spreadsheet enter Soubor → Otevřít.

In dialog box select the folder, file and click on the button Otevřít.

Create a new blank document

After running a spreadsheet enter Soubor → Nový.
Create a new document based on a template

After running a spreadsheet enter → . Appropriate template, select from the following menu by clicking on the appropriate item.

Save the document

→ We use to first save a new document.
→ We use to save the document under a new name or in a different folder or in another format.
In both cases in the dialog box select the folder, enter the name of the document, eg. *Excel.xlsx*, and its type that we can choose from menu.
Continuous saving the file during the editing.

- Click on the icon [File] [Save],
- or click on the icon [File] [Save As],
- or enter the key combination Ctrl + S, which is listed in the help.

Switching between two open documents

In the status bar, set the mouse cursor over the icon [File] [Switch Between Documents] and then click on the preview of the selected document.

1.1.2 Improving the efficiency of work

Basic settings spreadsheet

- Changing the name of the author: in the edit field insert author name [Vladimír Jehlička] → [OK].
• Change the default folder for saving files:

In the edit fields you specify a folder in which to be stored relevant files.
Help on a particular topic we get so that you press the F1 key or click the icon 📌.
In the next dialog box, select the next process to find help by entering the password in edit box or click on the appropriate password in the pop-up menu help chapters.

Selection scale of table view

On the tab ☐ Zobrazení click on icon 100%. Table is displayed in the basic scale.

Or: ☐ Zobrazení → . Dialog window is displayed.
Select the desired scale display table. In addition, scale can be changed using the slider bar on the scale, which is located in the lower right corner of the status bar of the window spreadsheet.

**Toolbars**

Hides the toolbar: \( \text{Domů} \rightarrow \). Instead of the original display, will only display the names of each card.

Re-display toolbars: \( \text{Domů} \rightarrow \).
1.2 Cells

In MS Excel spreadsheet data are stored in a workbook that contains one or more worksheets. Each sheet has its name (Sheet1, Sheet2, etc.), which is indicated on the sheet tab at the bottom of the MS Excel.

Data are stored inside the sheet into cells that are arranged in rows and columns. Each cell is identified by its address, which contains the letter of column and number of row. Current cell in which the cursor is located, is surrounded by a black frame. Color indicates letter of column and number of row (e.g., A2). At the same time the address of cell is entered before editing field, where is showing the text contained from the cell.

Each table cell has only a single data type. This means: text, number, date, etc. We create tables always coherently, so that did not contain blank rows or columns.

1.2.1 Inserting and selection

Inserting data

Data write to the active cell. Text data is implicitly left alignment, the figures on the right. Press Enter to complete data entry into cells - an automatic transition to a cell on the line.

Selecting cells

- Selection of contiguous area of cells: place the cursor to the first selected cells. Press the Shift key and using the arrow keys to mark the entire area of selected cells. Similarly, this range may be selected with the mouse while holding the left mouse button.
- Selection of non-contiguous area of cells: while holding down the Ctrl key with the mouse gradually knocking on the cells you want to select.
- Selection of entire worksheet: enter the key combination Ctrl+A.

**Automatic data entry**

MS Excel allows you to automate entering text and numbers. To cells enter the desired text and select the cell.

Then hold down the left mouse button, drag the black square, which is located in the lower right corner of the box with selected cells, and move it down. If the selected cell contains unknown text, then copying text remains preserved in other cells. But, if the text is identified as part of a known sequence, then this sequence of text automatically created.

You can automatically generate a numerical sequence - arithmetic series. In that case, you must enter the first two numerical values generated sequence. Then select both cells, or more pairs of cells.

While pressing the left mouse button again, move the handle in the shape of a black square down to the next row of the sheet. Incurred sequence representing the arithmetic series.
1.2.2 Editing and sorting

Editing cell contents
Click the cell whose contents you want to change. Then place the cursor in the edit box, which displays the contents of the cell. Place the cursor in the text at the character you want to change. For the editing will use the standard key to delete the character before or after the cursor position as when editing text in a word processor MS Word.

Undo and Redo commands
Click on the icon to get the previous version of the worksheet.
If you click on the black arrow in icon , then we can choose several recent actions that you also want to cancel and click the last cancellation of shares.
If we canceled too many recent events, it can be canceled last action undone by clicking on the blue arrow icon.

A few last canceled action can return by clicking on the black arrow in icon and then selecting and clicking the last selected action.

Finding cell contents

In the edit box enter search text, and click the button. The cursor will automatically move to the cell with the search text.

But if in the previous dialog box, click the button, then the dialog will expand the lines in which are listed all the findings of specified text.
Replacement cell contents

In the editing dialog box, enter the text you want to find and text that you want to replace.

Then click on the button ![Nahradit](image). This will replace the text in a cell.
Alphabetically sorting of cell contents

If we want to table contents

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jměno</td>
<td>Výška</td>
</tr>
<tr>
<td>Petr</td>
<td>1.85</td>
</tr>
<tr>
<td>Pavel</td>
<td>1.75</td>
</tr>
<tr>
<td>Jitka</td>
<td>1.70</td>
</tr>
<tr>
<td>Marcel</td>
<td>1.75</td>
</tr>
<tr>
<td>Karel</td>
<td>1.80</td>
</tr>
<tr>
<td>Alena</td>
<td>1.65</td>
</tr>
</tbody>
</table>

Sort alphabetical order, then place the cursor in any cell with the name.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jměno</td>
<td>Výška</td>
</tr>
<tr>
<td>Petr</td>
<td>1.85</td>
</tr>
<tr>
<td>Pavel</td>
<td>1.76</td>
</tr>
<tr>
<td>Jitka</td>
<td>1.70</td>
</tr>
<tr>
<td>Marcel</td>
<td>1.75</td>
</tr>
<tr>
<td>Karel</td>
<td>1.80</td>
</tr>
<tr>
<td>Alena</td>
<td>1.65</td>
</tr>
</tbody>
</table>

Similarly, data can be sorted alphabetically in descending order, if in the previous procedures, click on the button ![Seřadit a filtrovat od A do Z](image)

If we want to sort the data in the table in ascending order according to the desired height, then place the cursor in any cell with height.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jměno</td>
<td>Výška</td>
</tr>
<tr>
<td>Alena</td>
<td>1.65</td>
</tr>
<tr>
<td>Jitka</td>
<td>1.70</td>
</tr>
<tr>
<td>Karel</td>
<td>1.80</td>
</tr>
<tr>
<td>Marcel</td>
<td>1.75</td>
</tr>
<tr>
<td>Pavel</td>
<td>1.76</td>
</tr>
<tr>
<td>Petr</td>
<td>1.85</td>
</tr>
</tbody>
</table>
Cell content is automatically sorted according to the specified criteria.

Similarly, you can sort the data by the numeric values in descending order, if in the previous procedures, click on the button ![Sort from A to Z](image).

### 1.2.3 Copy, move, delete

**Copy cell contents**

The principle of copying, moving, deleting the contents of the cells in the spreadsheet program MS Excel is the same as the principle of copying text within a text editor MS Word.

1. Select the cell or multiple cells whose contents you want to copy,
2. enter the command Copy (or Ctrl+C),
3. place the cursor in the cell, which begins the area where the copied content will be copied,
4. enter the command Paste (or Ctrl+V).

Target area to copy the selected data, may be located on the worksheet or on another sheet of the workbook, or it may be any worksheet cells another workbook.
Or you can enter the Copy command by clicking the right mouse button and display dialog box, in which click on .

Command Paste can be similarly entered using the above dialog and subsequent click one of the items for insertion.
If you click on an item, we obtain more options for input using a dialog box.

Moving cell contents
In contrast to the above procedure we not insert the Copy command, but insert the Cut command. It can be entered using key combination Ctrl + X or again using the dialog box above and clicking on.

Delete cell contents
Select the cell whose contents you want to delete and press the Delete key.

1.3 Management of tables
1.3.1 Rows and columns
Selecting of rows
- Select one row: click on the row number, for example 5.
- To select multiple adjacent rows: click on the number of the first row and hold the left mouse button to select the other rows.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3</td>
<td>15</td>
<td>0.3</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>20</td>
<td>0.4</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>25</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Or click on the number of the first row, press the Shift key and use the down arrow key to select additional rows.
- To select multiple non-adjacent rows: click on the number of the first row, press the Ctrl key and gradually click the mouse on number of other rows.
Selecting of columns

- Select one column: click on the column letter, for example B.
- To select multiple adjacent columns: click on the letter of the first column and hold the left mouse button to select the other column.

Or click on the letter of the first column, press the Shift key and use the down arrow key to select additional columns.

- To select multiple non-adjacent columns: click on the letter of the first column, press the Ctrl key and gradually click the mouse on letter of other columns.

Inserting and deleting rows and columns

- Inserting a new row: place the cursor in any cell of row before that you want to insert a new row and click on \( \rightarrow \) In floating menu.

- Deleting of row: place the cursor in any cell of row that you want to delete and click on \( \rightarrow \) In floating menu.

- Inserting a new column: place the cursor in any cell of column before that you
want to insert a new column and click on \textbf{Domů} $\rightarrow$ \textbf{Vložit}. In floating menu click on \textbf{Vložit sloupce listu}.

- Deleting of column: place the cursor in any cell of column that you want to delete and click on \textbf{Domů} $\rightarrow$ \textbf{Odstranit}. In floating menu click on \textbf{Odstranit sloupce listu}.

Set the width of columns
- Changing the column width by cell contents: double-click on the border between cells with letters columns in the worksheet headers.
- Setting of exactly defined column width: select any cell in the column that is the width we want to set \textbf{Domů} $\rightarrow$ \textbf{Formát}. 
In floating menu

![Floating menu]

click on [Šířka sloupců...]

In dialog box

![Dialog box]

specify the desired width of the column in the edit field and click on the button [OK]

**Setting the height of row**

- Changing the row height by cell contents: double-click on the border between cells with numbers of rows on the left edge of the worksheet.
- Setting of exactly defined row height: select any cell in the row that is the height we want to set

![Setting row height]

---

---
In floating menu

In dialog box

specify the desired height of the row in the edit field and click on the button

Freeze panes for rows and columns

If a worksheet contains a large table, that cannot be the whole show at the same time, then it is possible to freeze panes. Cells that are located above or to the left of the inserted partition walls, remain always displayed when scrolling table.

Select the cell that is located in the upper left corner of the scrollable section of the table.
Click on \(\rightarrow\). In floating menu

specify whether will be frozen rows above the selected cell or column to the left of the selected cell or they will be docked rows and columns. Inserted partitions are shown by black line.

1.3.2 Worksheets in a workbook

To switch between worksheets in a workbook

If we want in open the workbook, switch from one worksheet to another, then just click on the worksheet tab in the workbook.

Insert and remove of the sheet

- Insert of a new sheet: right-click on the worksheet tab (in the following example, Sheet2), before which we want to insert a new worksheet
In floating menu

In window

double-click on the icon . A new worksheet is automatic inserted before the worksheet, on which the bookmark at the beginning, we right-clicked.
- Remove of the sheet: right-click on the tab of the worksheet, that we want to delete.
  In floating menu

click on ![Odstranit](image)

The worksheet is automatically deleted from the workbook.

### Naming of worksheets

Basic worksheet names are distinguished only by numbers, which is not easy. Therefore, the default names replace with the names that are meaningful and increase the transparency of the entire workbook.

Right-click a worksheet tab, that we want to rename.
In the floating menu

click on ![Přejmenovat](image)

Worksheet tab is highlighted in black. If you click on the tab of the worksheet, the worksheet name is accessible and can be
edited. The name of worksheet may contain any characters. Changing of the name to confirm by clicking on the Enter key.

Similarly, you can edit the name of the worksheet if double-click on the worksheet tab.

**Move sheets within a workbook**

When you pressed the left mouse button drag the tab of the worksheet on the chosen place in the list of tabs of the worksheets.

**Move and copy worksheets**

Right-click on the worksheet tab which will be moved or copied

In floating menu

In dialog window
we have the ability to specify not only the order of the sheets in the workbook, but you can move between open workbooks, worksheets, or we can create a copy of the sheets. Then click on the button **OK**.

### 1.4 Formulas and functions

Formulas are mathematical expressions, which we in the cells for the purpose of realization of a specific calculation. If they contain any parameters, formulas, or constants, then their values we do not enter directly into the formula. Values we write in individual cells on which is given reference in a formula.

#### 1.4.1 Formulas

**Formulas with basic mathematical operations**

When you paste formulas always first insert the character `=` followed by the address of the cells and the appropriate mathematical operators. Formulas are evaluated from left to right with the standard mathematical operations and priority. For example, multiplication takes precedence over addition. In case of necessity it is possible to insert parentheses in formulas, and even fold into itself nested.

- Add the contents of two cells

<table>
<thead>
<tr>
<th>POWER</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a=</td>
<td></td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>b=</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>c=</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>a+b=</td>
<td>=B1+B2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>a/b=</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>(a+b)c=</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Divide the contents of two cells

<table>
<thead>
<tr>
<th>POWER</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a=</td>
<td></td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>b=</td>
<td></td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>c=</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>a+b=</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>a/b=</td>
<td>=B1/B2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>(a+b)c=</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Addition and multiplication of cells
Error messages
If creating formulas is the wrong then spreadsheet MS Excel provide error messages. The most important messages are as follows.

- When you create a formula to with a nonsensical link

```
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a=</td>
</tr>
<tr>
<td>2</td>
<td>b=</td>
</tr>
<tr>
<td>3</td>
<td>c=</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>a+b=</td>
</tr>
<tr>
<td>6</td>
<td>a/b=</td>
</tr>
<tr>
<td>7</td>
<td>(a+b)c=</td>
</tr>
</tbody>
</table>
```

then when you press Enter in a cell pops up an error report

```
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a=</td>
</tr>
<tr>
<td>2</td>
<td>b=</td>
</tr>
<tr>
<td>3</td>
<td>c=</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>a+b=</td>
</tr>
<tr>
<td>6</td>
<td>a/b=</td>
</tr>
<tr>
<td>7</td>
<td>(a+b)c=</td>
</tr>
</tbody>
</table>
```
- If we try to divide by zero, then outputs the error message

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a=</td>
<td>52</td>
</tr>
<tr>
<td>2</td>
<td>b=</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>c=</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>a+b=</td>
<td>64</td>
</tr>
<tr>
<td>6</td>
<td>a/b=</td>
<td>4,333333</td>
</tr>
</tbody>
</table>
| 7 | (a+b)c | #DÉLENI_NULOV

Error message not fit in the cell. Therefore the poklepeme on the name of column (B). This column (B) expands to display the full error message.

---

Relative and absolute cell address

- Relative addresses contain only the column letter and row number (e.g. A1).
- Absolute addresses contain the the $ sign before the column letter and row number (e.g. $A$ 1).
- Mixed addresses contain the $ sign in front of the letter of the column or the row number (e.g. $A 1 or $ 1).
- The $ sign, we can insert in the address after switching the keyboard to English mode or in the edit line when typing formulas put the cursor on the appropriate address, and press the F4 key. By repeatedly pressing this key the address changes from relative to absolute, mixed and back to a relative.

Formulas with relative, absolute, and mixed cell addresses

When you copy a formula, with relative addresses, the cell references in the formula is amended so that when you copy a formula in a column is changing the row numbers of the individual addresses of cells and when you copy formulas in row is changing the letters of the addresses of cells.

When you copy formulas with absolute addresses, these addresses do not change.

When you copy a formula, with relative addresses are part of the address, which includes the $ sign does not change, but the remaining part of the address change.
Use formulas with absolute and relative addresses of cells

Our task is to create formulas for evaluating the purchase of four types of goods referred to in the following table.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Nákup</td>
<td>Sezba DPH</td>
<td>0,2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Název</td>
<td>Cena za kus</td>
<td>Počet kusů</td>
<td>Cena bez DPH</td>
<td>DPH</td>
<td>Cena celkem</td>
</tr>
<tr>
<td>4 aaa</td>
<td>52</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 bb</td>
<td>1850</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 ccc</td>
<td>452</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 odd</td>
<td>13</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Price exclusive of value added tax (VAT) calculate so that multiply the price per unit with the number of pieces. In the formula, we use relative addresses of cells.

\[
\text{POW} = \text{B4} \times \text{C4}
\]

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Nákup</td>
<td>Sezba DPH</td>
<td>0,2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Název</td>
<td>Cena za kus</td>
<td>Počet kusů</td>
<td>Cena bez DPH</td>
<td>DPH</td>
<td>Cena celkem</td>
</tr>
<tr>
<td>4 aaa</td>
<td>52</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 bb</td>
<td>1850</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 ccc</td>
<td>452</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 odd</td>
<td>13</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Value of added tax (VAT) calculate so that the price without VAT multiply with tax rate. Because in the next step a formula we copy to other rows for the remainder of the purchased items, is necessary to the cell address with the price without VAT write relatively and VAT rate cell address absolutely.

\[
\text{POW} = \text{D4} \times \text{E}^1
\]

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Nákup</td>
<td>Sezba DPH</td>
<td>0,2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Název</td>
<td>Cena za kus</td>
<td>Počet kusů</td>
<td>Cena bez DPH</td>
<td>DPH</td>
<td>Cena celkem</td>
</tr>
<tr>
<td>4 aaa</td>
<td>52</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 bb</td>
<td>1850</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 ccc</td>
<td>452</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 odd</td>
<td>13</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We calculate the total price as the sum of the prices without VAT and sales tax. The cells in the formula, we will addressed relatively.
Now we copy the formula from the 4. row in the other three rows. Select cell D4 and F4, and when you pressed the left mouse button move the black square in the lower right corner of the frame down.

The resulting table will then contain this data.

If we want to see all the formulas that we have created in the table, then click on the icon Zobrazit vzorce.
In columns D and F not changed the numbers of the rows on the addresses of the cells. The numbers of the rows is changed in column E. Change is only for the relative address the absolute address of a cell where is the VAT rate remains preserved.

To return to the original view, table click on \( \text{Zobrazit vzorce} \).

1.4.2 Function

We can insert functions that are on the tab grouped into individual component libraries.

Click on the icon for the selected library of functions, and then click on the function that you want us. For example if we want to calculate the arithmetic average of the entered data, then we click on \( \text{Statistické} \).

Simple totals you can enter by clicking on, but also directly from the card.

The base frequently used functions can also be invoked by clicking on the black arrow icons, or by clicking on the black arrow icons. In both cases is displayed the floating menu with other
functions.

Examples of the use of basic functions

On the table with the purchase we will show how to enter some of the functions.

- **Sum**: we select the cell F8, and click on \( \sum \) \( \text{Automatické shrnutí} \). The formula is automatically created, are marked cells whose contents will be added and also the appropriate help is displayed. The proposed formula we can confirm by clicking on the Enter key, or we can change the addresses of the cells and press Enter.

- **Average**: we select the cell F9, and click on \( \sum \) \( \text{Automatické shrnutí} \) \( \rightarrow \) \( \text{Průměr} \). Automatically designed a range of cells F4: F8 but it is necessary to change to the F4: F7.
Similarly, you can enter a formula to calculate the minimum or maximum values.

Use logical functions When

Now in the table with the purchase we enter a logical function When. Function writes the word "under" in column (G) if the total price for the purchased item is less than the arithmetic mean. Otherwise, it outputs the word "over".

Click on $\texttt{Vzorce} \rightarrow \text{KDYŽ}$. In the editing fields of the dialog window
we insert data that represent the parameters of the function. Relational < sign we write after switch the keyboard into the English mode. The address of the cell in which it is stored average is addressed absolutely. We created the formula that may be copy into other rows.

Entering a function terminate by clicking on the button \(\text{OK}\). Formula we can copy in the remaining rows.
1.5 Formatting cells

1.5.1 Number and date

Select the range of cells whose contents we want to format. After click on In the following window, specify how to format the contents of the selected cells.

Format numbers

Numeric values in columns B, C and D will show without a decimal part with the separation of thousands. Numeric values in columns E and F will show with two decimal places, and with separation of thousands.
The table with the purchase after you format.

<table>
<thead>
<tr>
<th>L19</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nákup</td>
<td></td>
<td></td>
<td></td>
<td>0,2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Název</td>
<td>Cena za k.</td>
<td>Počet kusů</td>
<td>Cena bez DPH</td>
<td>Cena celkem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>aaa</td>
<td>52</td>
<td>5</td>
<td>260</td>
<td>52,00</td>
<td>312,00 pod</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>bbb</td>
<td>1850</td>
<td>2</td>
<td>3700</td>
<td>740,00</td>
<td>4440,00 nad</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>ccc</td>
<td>452</td>
<td>3</td>
<td>1356</td>
<td>271,20</td>
<td>1627,20 pod</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>cdd</td>
<td>13</td>
<td>14</td>
<td>182</td>
<td>36,40</td>
<td>218,40 pod</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Součet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6597,60</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Průměr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1649,40</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Minimum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>218,40</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Maximum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4440,00</td>
<td></td>
</tr>
</tbody>
</table>
Percent format

Cell with VAT rate is formatting so that the specified decimal number is expressed as a percentage with no decimal part.

![Percent format window](image)

Formáty procen: rásobí hodnotu buňky číslem 100 a výsledek zobrazí s symbolem procent.

Formatted table.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nákup</td>
<td></td>
<td>Sazba DPH</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Název</td>
<td>Cena za kl.</td>
<td>Počet kusů</td>
<td>Cena bez DPH</td>
<td>Cena s DPH</td>
<td>Cena celkem</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>aaa</td>
<td>52</td>
<td>5</td>
<td>260</td>
<td>52,00</td>
<td>312,00</td>
<td>pod</td>
</tr>
<tr>
<td>5</td>
<td>bbb</td>
<td>1850</td>
<td>2</td>
<td>3700</td>
<td>740,00</td>
<td>4440,00</td>
<td>nad</td>
</tr>
<tr>
<td>6</td>
<td>ccc</td>
<td>452</td>
<td>3</td>
<td>1356</td>
<td>271,20</td>
<td>1627,20</td>
<td>pod</td>
</tr>
<tr>
<td>7</td>
<td>ddd</td>
<td>13</td>
<td>14</td>
<td>182</td>
<td>36,40</td>
<td>218,40</td>
<td>pod</td>
</tr>
<tr>
<td>8</td>
<td>Součet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6597,60</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Průměr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1649,40</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Minimum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>218,40</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Maximum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4440,00</td>
<td></td>
</tr>
</tbody>
</table>
The format of the data

Under the table write the date of the last update this table and specify the date display format.

Formatted table.
Currency format

The Data in column F, we can add a currency symbol.

Formatted table.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nákup</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Název</td>
<td>Cena za kč</td>
<td>Počet kusů</td>
<td>Cena bez DPH</td>
<td>DPH</td>
<td>Cena celkem</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>aaa</td>
<td>52</td>
<td>5</td>
<td>260</td>
<td>52,00</td>
<td>312,00 Kč</td>
<td>pod</td>
</tr>
<tr>
<td>5</td>
<td>bbb</td>
<td>1 850</td>
<td>2</td>
<td>3 700</td>
<td>740,00</td>
<td>4 440,00 Kč</td>
<td>nad</td>
</tr>
<tr>
<td>6</td>
<td>ccc</td>
<td>452</td>
<td>3</td>
<td>1 356</td>
<td>271,20</td>
<td>1 627,20 Kč</td>
<td>pod</td>
</tr>
<tr>
<td>7</td>
<td>ddd</td>
<td>13</td>
<td>14</td>
<td>182</td>
<td>36,40</td>
<td>218,40 Kč</td>
<td>pod</td>
</tr>
<tr>
<td>8</td>
<td>Součet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 597,60 Kč</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Průměr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 649,40 Kč</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Minimum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>218,40 Kč</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Maximum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 440,00 Kč</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Datum poslední aktualizace tabulky</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22. prosinec 2013</td>
<td></td>
</tr>
</tbody>
</table>
1.5.2 The contents of cells

Format font

First select cells for formatting. Then proceed as with font formatting in the text editor MS Word. For formatting we can use clicking on any of the icons on the tab.

If you click , then displays a standard dialog box for formatting the contents of the cells.

The background of cells

When formatting the cell content can specify the background color, which can be uniform or may contain a variety of selected effects.

Beware of too different formatting cells within a table. The resulting effect can be undesirable, the clarity of the table can significantly worsen.
Copy format

Select the cell whose format we want to copy. Then click on \[\text{Copírovat formát}\]. With pressed of the left mouse button to select the target cells, to which we want to copy the format from the default selected cell.
1.5.3 Alignment, and border of the cell content

Alignment of text

Select the cell in which you want to perform the alignment of the text and wrap into rows (if text in a cell is very long). Then click \(\text{Format} \rightarrow \text{Cell} \rightarrow \text{Alignment} \). The specific values of the alignment of the text will be entered in the dialog box.

![Format cell dialog box]

Merge cells and center alignment

Select the cells for merge and click \(\text{Merge} \rightarrow \text{Alignment} \rightarrow \text{Center} \). The selected cells are merged into a single cell, in which the text is centered.
Cell borders

Select the cells. Form the border will be entered by using the dialog box.

The resulting table with the purchase can have eg. the following form.
1.6 Charts

1.6.1 Creating charts

First select the cells that contain the data for the chart. The selected cells may form a contiguous area, but also may not. Then set the chart type.

A pie chart

For the table with the purchase of select cell A3:A7 and F3: F7. Then click on

Get the default graph, which can be further edited.
Selection chart

We choose a chart type which optimal graphically express the data from the table. If chart is created, then we can change its type. Then click on \( \text{Návrh} \rightarrow \text{Změnit typ grafu} \). In window is offer all types of charts, from which you can select the type by standard procedure.
The essential difference is between line charts and scatter charts. For line charts, the data are plotted in the equidistant distances. This means that on the horizontal axis are plotted specified values, which may not be numeric, but it can also be a text type, January, February, March, etc.

Scatter charts are carried, so that the data on the horizontal axis are specified by the numeric values that represent the real numbers.

Both types of charts you can compare, for example with data from the table

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x</td>
<td>y</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>2,5</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>2,7</td>
<td>8,4</td>
</tr>
<tr>
<td>6</td>
<td>2,8</td>
<td>8,5</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>13</td>
</tr>
</tbody>
</table>

in which the values of the dependent variable calculated from the linear dependence, so the graph should be a straight line.

Line chart = false solutions.
Scatter chart = the right solution.

To move a chart
The first by click on the chart to select it. The frame of the chart will be highlighted. Move the mouse cursor over the chart so that the cursor has changed in the four-headed arrow and floating help text appeared. When you pressed the left mouse button you can move a chart to any location on a worksheet.

To change the size of the chart
Click to select the chart. The mouse cursor is placed in the middle of one of the sides of a frame of the chart. The cursor changes to a double-headed arrow. When you pressed the left mouse button you can change the size of the chart in the direction of the arrow.

If the mouse cursor is placed into one corner of the frame of the chart, then when you pressed the left mouse button at the same time, we can change the width and height of the chart, in the direction of the arrow.

1.6.2 Editing charts

Chart captions
Select the chart, click on the tab and choose another method for entering caption.

- The name of the chart: To the chart so inserts a text field into which we enter the specific name of the chart.

- Horizontal axis title:
In the edit field type the name of the horizontal axis.

- The name of the vertical axis: In the edit field type the name of the vertical axis.
- The name of the legend: if they are in the chart plotted at least two different dependencies, then you need to distinguish between the two curves using legend.

Data labels

Select the chart, click on . The next menu will depend on the specific type of the chart. For example, for the above chart →

The background color of the chart

Select the chart, place the mouse cursor over the graph so that in floating help will be text . Right-click in displayed area and in the floating menu click
Format the area will be entered in the following dialog box.

The color of the slice or column chart
Click any slice in the chart, select all of the slices, which then subsequently we can edit it. If you click twice on slice, then the will be selected only this one specific slice.
Right-click to display a floating menu, in that click on Fill the slices then we define using the dialog box.

To change the font
Select the text and then proceed in a standard way for font formatting as in the text editor MS Word.
The chart after formatting.
Nákup

bbb; 4 440,00 Kč

ccc; 1 627,20 Kč

ddd; 218,40 Kč

aaa; 312,00 Kč
1.7 Preparation of print outputs

1.7.1 Setting

Basic print settings is performed after entering . For the next procedure you choose commands from the menu.

The edge of the sheet

Preset values we choose from the menu.
If we enter an item, then we can set custom margins in the dialog box.
Change the orientation of the print

In the next step select the print orientation to portrait or landscape.

Paper format

In the next step select the paper size from the menu.
Print scaling

In the next step select print scaling, when we can define a range of cells on the worksheet that will be printed on a single page.

The header and footer

On the tab in the chapter click on the black arrow. In the displayed dialog box, switch to the header/footer tab, where we enter the required texts.
For additional customization options for header, such as inserting the date, page numbers, etc., allows you to click on the button [vlastní záhlavi...], which displays a dialog box.

Similarly, you can edit the footer of the printed pages.
1.7.2 Review and print

Edit the worksheet

On the tab in the chapter click on the black arrow. In the dialog box we can specify other printing options. This is setting the rows or columns that will be printed on all the pages repeatedly, displaying the grid, etc. Before we print, click on the button, which is used to display the printed page before its own printing.

You can also display the dialog box by typing commands →

Print range

In the next step you can specify the print range.
Print the chart

Select the chart and click on **Tisk**.

Print

If we have finished all editing the formatting, we enter the last command to print the pages.
2 Using databases

Objectives (ECDL Module 5)
Using Databases requires the candidate to understand the concept of a database and demonstrate competence in using a database.
The candidate shall be able to:
- Understand what a database is and how it is organized and operated.
- Create a simple database and view the database content in various modes.
- Create a table, define and modify fields and their properties; enter and edit data in a table.
- Sort and filter a table or form; create, modify and run queries to retrieve specific information from a database.
- Understand what a form is and create a form to enter, modify and delete records and data in records.
- Create routine reports and prepare outputs ready for distribution.

Time required
5 hours of basic studies and individually more time to practice.

The terms to remember
- database
- data
- table
- record
- field
- the data type
- field properties
- the primary key
- index
- relationships
- query
- sort data
- form
- report
- print

2.1 Understanding databases
Work with databases will be demonstrated with the use of Microsoft Access.

2.1.1 Key concepts

Databas
The term database refers to the application that contains the data of subjects with the same or similar parameters and characteristics.

Large scale database
The database can be organized in the framework of an institution, such as the universities and its students, the library database and its database of books and library customers. At the national level databases are created for the registration of citizens of
the republic, records of registered cars, etc. At the international level can be a database, banks, airlines, etc.

**Data and information**

The data represent the specific information on the subjects to which the database is concerned. In the database of university students it is eg. date of birth, permanent address, start date of study, etc.

The information is the overall knowledge about a given subject. This means, for example information about the success or failure of the study of the student.

**Organizing databases**

- **Table:** data is stored in tables in the databases, which are organized into records and fields. One of the tables in a database of University students can be for example the table that contains the personal information of students.
- **Records:** in each of the rows of the table are stored the data relating to individual students. The rows of the table are referred to as records in a database table.
- **Fields:** for each student is then in each column of the table mentioned his name, surname, date of birth, etc. These columns of the table are referred as a field in a database table.

### 2.1.2 The structure of the database

**The contents of the tables**

Every table in the database should contain data that relate to only one type of subject. In the database of the university so the data in one table that relate to the personal data of students, in another table are the data relating to a particular field of study, etc.

**The contents of fields**

Each table field should contain only one type of data. Is not good, so in the same field at the same time it was stated the surname of the student and, for example the date of his birth.

**The date type**

The contents of a field in a table is always associated with the corresponding data type. For example: the array into which will be written surname of students will be the text data type. The array into which the data will be written the birth date of the students, will be the date type.

**Field properties**

Each field has its own properties. For example a text field in which the name of students will be stored, has its size, i.e. the number of characters that specifies the maximum length of the name of students. Similarly, the date fields to store the data of birth has the specified format for storing data.

**The primary key**

A primary key is a unique field in a table, which use for implementation by the binding between the tables. University student in the database have a number, which is
assigned when the registration of the student to study. Using this primary key then it is possible to link a table on a student's personal data with other tables that relate to the course of study of the student.

**Index**

In large tables, it is possible to index the records, which later will speed up data retrieval.

### 2.1.3 Relationships

Relationships represent the link between the individual tables in the database.

**The importance of relationships**

Relationships between tables are created primarily because at two different locations database would not be the same data.

**The importance of the key for creating relationships**

Key represents a unique field from one table, which corresponds to a field in another table. The data in both tables are interconnected and created so the relationships between the tables in your database.

**Referential integrity**

Maintaining the relationships between tables in the database, it is important to maintain referential integrity, therefore integrity of the relationships between the tables in the database.

### 2.1.4 Operation

**Database creators**

Database create professional database specialists based on the requirements of the contracting authority.

**Users of databases**

Entering data into the database, retrieving data and information realize by users of the database. For example the user of the information system of the university are not only worker of study department of the individual faculties, but also academic staff, students and other employees of the university.

**The database administrator**

Database administrator granted rights to database users for access to certain data. For example in the database of the university have each teacher the right to write the study results of students in the subject which they are teaching. Students then have the right to get these results only to read and print.

**Responsibilities of database administrator**

The database administrator is responsible for trouble-free operation of the database. In the event of an accident is obliged to restore the functioning of the database.
2.2 The use of database applications

2.2.1 Working with databases

Run database applications

- Run database applications
  - Run database applications: Microsoft Access 2010
  - or on the desktop click on the icon.

Exiting database application

- Exiting database application
  - Exiting database application: Microsoft Excel 2010
  - or if the updates of database has not been saved in its current version, then in both previous cases, displays a dialog box in which you can specify additional to their work with database applications.

Open a saved database

- Open a saved database
  - Run database applications: Otvírít
select the folder and file → Otevřít

Create a new database

Run database applications: Soubor → Nový →

Create a new database based on a template

Run database applications: Soubor → Nový → an appropriate template, select from the menu by clicking on the appropriate item.
Save the database

In the dialog window select the folder in which we want to save the database and specify a database name, for example. **Database1.accdb** → **Uložit**.

Switching between two open databases

On the status bar, set the mouse cursor over the icon, and then click on the preview of the selected document.
Toolbars

Click on the icon to hide the toolbars, so instead of the original view will display only the names of the individual cards.

Redisplay the toolbars provide by clicking on the icon 🔄.

Working with help

Basic information about the databases → Nápověda

Help to a specific topic we obtained by pressing key F1 or by click on the icon 🤔.
In the following dialog window, select next procedure to find the help by typing the desired password into the editing box, or by clicking on the password help in chapters menu that appears.

2.2.2 Common tasks

Create a new table, query, form, report

Open the database application and then we'll work on the card.

- To create a table: 
  - Vytvoření → Tabulka
  - or: Vytvoření → Návrh tabulky

- To create a query: 
  - Vytvoření → Průvodce dotazem
  - or: Vytvoření → Návrh dotazu
To create a form:  

To create a report: 

Opening, saving and closing of tables, queries, forms and reports

Individual procedures will be listed for the table. Similarly we proceed when working with queries, forms and reports.

- **Opening tables**: in the list of objects click on the specific table name, for example

- **Saving tables**: for continuous save during editing using any of the following procedures:
  - or 
  - or 
  - or press Ctrl+S, which is listed in the help

When you create a new table, then at the first store will automatically display a dialog box
asking for the name of the new table.

If we want to create a new table from another table with a different name, then we click on and in the following dialog box specify a name for the new table.

- **Closing tables**: the cursor is placed in the top right corner of the window with the table. Automatically highlights the black cross on a light background, and also floating help, which informs about what will follow, if we click on the cross button. Then click on . In addition, we can right-click on the table and in the floating menu click on .

**Switching between the two display modes**

The procedure will be given again just for the table. Similarly, we work with queries, forms, or reports.

- **Table design view**: . In this view, we can propose the structure of the table. This means that define each of the fields and formats data in which will be the data entered in the fields.
• **Working table view:** In this view, you can enter data into each of the fields and records. The view is also useful for editing data stored in tables.

**Delete a table, query, form, or report**

The procedure will be given again just for the table. Similarly, we work with queries, forms, or reports.

The table that you want to delete, we need to first close. Then, in the list of tables we right-click on the name of the table that you want to delete, for example **Tabulka2**. This displays a floating menu in which we click on **Odstranit**. If you try to delete a table that is open, then the information window appears.

**Move between records in a table, query, or form**

Open the table in the working mode. By clicking left mouse button to place the cursor in the cell in the open table. Move to another field, or to another record, you can
implement not only using the mouse, but also by using the arrow keys.
Similarly, we work with queries, and forms.

**Sort data in a table, form, or query output**

Place the cursor in the field of open output, by which we want to sort the data in the table. The data in that field is highlighted.

<table>
<thead>
<tr>
<th>Číslo</th>
<th>Jméno</th>
<th>Příjmení</th>
<th>Datum naro</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Petr</td>
<td>Novák</td>
<td>20.3.1990</td>
</tr>
<tr>
<td>2</td>
<td>Alena</td>
<td>Malá</td>
<td>15.4.1992</td>
</tr>
<tr>
<td>3</td>
<td>Josef</td>
<td>Karásek</td>
<td>10.6.1989</td>
</tr>
</tbody>
</table>

Then for the ascending alphabetical or numeric sort, click in the tab on the icon. List of persons sorts in ascending order by their last name alphabetically.

<table>
<thead>
<tr>
<th>Číslo</th>
<th>Jméno</th>
<th>Příjmení</th>
<th>Datum naro</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Josef</td>
<td>Karásek</td>
<td>10.6.1989</td>
</tr>
<tr>
<td>2</td>
<td>Alena</td>
<td>Malá</td>
<td>15.4.1992</td>
</tr>
<tr>
<td>1</td>
<td>Petr</td>
<td>Novák</td>
<td>20.3.1990</td>
</tr>
</tbody>
</table>

If we want the data in the same table sort by birth date in descending order, then place the cursor in the field of birth day and then click on the icon. The list of people will be sorted.

<table>
<thead>
<tr>
<th>Číslo</th>
<th>Jméno</th>
<th>Příjmení</th>
<th>Datum naro</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Alena</td>
<td>Malá</td>
<td>15.4.1992</td>
</tr>
<tr>
<td>1</td>
<td>Petr</td>
<td>Novák</td>
<td>20.3.1990</td>
</tr>
<tr>
<td>3</td>
<td>Josef</td>
<td>Karásek</td>
<td>10.6.1989</td>
</tr>
</tbody>
</table>

### 2.3 Table

#### 2.3.1 Records

**Adding and deleting records in a table**

- **Add the record**: on the tab in the group click on the icon. After the last record in the table creates a new blank record to which we can insert data.
- **Delete a record**: a record that we want to delete, select, so that click on the cell to the left before record. The selected record will be bounded by color.
Then we enter **Domů** → **Záznamy** → **Odstranit**.

Or select any portion of the record, which is color highlighted

Then we enter **Domů** → **Záznamy** → **Odstranit**.

**Editing data in records**

Deletion, overwriting and inserting other characters in the cells is performed in the same way as when editing text in a word processor MS Word.

**2.3.2 Table design**

**Create a table**

As a rule we create a table directly in Design view → **Vytvoření** → **Návrh tabulky**.

In the new database is automatically created a new empty table.
Click on the icon \( \text{Zobrazení} \) to switch the table to design view. First a dialog box appears asking for the name of the table.

After you type the name of the newly created table and you click OK. Type the names of the fields and their data types.

When is created the new field is the data type set on \( \text{Text} \). Click on the black arrow to display the menu of the data types, from which we select the suitable type.

For example of birth day will be entered in a field with the data type of the date and time.
Field properties

The individual data types have their properties that are implicitly set to their default values, which can be changed.

For example by default text fields allow you to store the text in a length of 255 characters.

For storing names and surname of the student certainly don't need to reserve a field size of 255 characters. Therefore the number 255 we can override which for example on 20.

For the date of birth we can eg. choose the format to write the date of birth. First click into a cell in the data type list. Then displays the properties of a given type and we click in the line Formát. You will now see a black arrow, on which we click. Then displays a menu of formats for storing data from which we choose, according to our requirement.
Similarly, you can define the property values of other data types. For example in the year field of study it is possible to set the default value of the new students is 1.

**Validation rules**

Defining of a validation rule is used to ensure that the cells of the field could not be accidentally enter nonsensical information. For example in the year of study cannot be specified a value less than 1. Therefore, we can provide the following validation rule.

**Change the data type**

When creating tables it is necessary to always think about the data types of each field. If we additionally change the data types of the fields that already contain data, it may happen that the violation occurs or directly to the cancellation of the previously entered data.
The primary key

We set a primary key for a field that is unique throughout the database. In that case, it was the student's identification number.

Indexing fields

To speed up lookups in large databases it is appropriate to allow the indexing fields with disabling the duplicates.

Add a field to an existing table

To an existing table in design view, you can add additional fields in the same way as when creating a table and defining a default of its fields.

Change the width of the table fields

In the working view place the cursor in the table on the interface between field names and when you pressed the left mouse button, move the interface according to their requirements.

2.4 Obtaining information

2.4.1 Main operations

Find the specified data in a table and in a form

Open the table and place the cursor in a field in which we want to search for the required information and we enter → . A dialog box appears
in which we search and we specify additional search requirements.

- **Area of search:**
  - **Porovnat:**
    - **Oblast hledání:**
      - **Porovnat:**
        - **Hledat:**
          - Vše
          - Část pole
          - Celé pole
          - Jakákoli část pole

- **Compare:**
  - **Porovnat:**
    - **Oblast hledání:**
      - **Porovnat:**
        - **Hledat:**
          - Vše
          - Nahoru
          - Dolů
          - Vše

**Filtering data in tables and forms**

To filter the data in tables and forms, we use the commands that can be entered by clicking on the selected icon on the tab **Domů**, in the group **Filtr**.

Place the cursor in any cell of the selected field, then you can click on the icon **Vstupné** to sort the data in the table alphabetically in ascending order according to the dates that are stored in that field. Similarly you can sort the data in descending order by clicking on the icon **Stupné**.

To filter the data in the table, click on the icon **Filtr**, you display a dialog box in which we request a way to filter by using the data of the selected field. For example if we want to from the table...
select only students residing in Prague, then in the dialog box specify the following values.

The fact that the table data is filtered by a particular field, it is represented by an icon in the shape of the funnel, which is located next to the name of the field.

You can filter the data in a similar way also in the forms.

Delete a filter

First click on the filter icon in a dialog box and we enter [select values] and click on the button [OK].
2.4.2 Queries

Queries are used to search for information and for data analysis.

Create query over one table

As a rule we create a query in design view. In the dialog box specify a table from which information will be drawn and click on the button.

In the query can be included the data from all fields in the table, but also may be listed only the data from certain fields. The field may not be listed in the same order in which they are in the default table.

Gradually enter the required fields from which information will be drawn. The fields to be displayed, they must be indicated on the line. If we want to display a list of students who have discontinued the study, then it should be in the interruption of studies to set the criterion to true.
Then it is necessary to save the query under the name that will be entered in the dialog box.

In addition to the above procedure, you can also use the wizard to create a query. Then just follow the wizard.

**Run the query**

Click the icon to switch to the design view of the query. A list of students who have discontinued the study is displayed.

**The relational operators**

In queries, you can use the relational operators $=\$, $<>\$, $<$, $<=$, $>$, $>=$. We can create for example a query that lists the students, who are studying at least a second year.

If we add to table one student that studies 3. year, then the newly created query lists the students.
Logical operators

All of the criteria, which you write in one row, in queries are understood in the sense of a logical and. This means that both requirements must be fulfilled at the same time. If first criteria you write to the first row and the second criterion you write to the following row, then these requirements are associated within the meaning of a logical or. This means that one must be met from the specified criteria, or both at the same time.

Therefore, if we want list, for example of students from Prague and from Chrudim, then you need to specify these requirements within the meaning of the logical operator or. There is not a student who was at the same time from Prague and from Chrudim. Either is from Prague, or is from Chrudim.

Criteria but can also be written in a single row by using the logical or operator.

The resulting list of students from Prague and from Chrudim.

The placeholders

In the criterion we enter the exact text, but we can use insert wildcard characters

- `*`: he represents one or more characters,
- `?`: represents one character.
Therefore, if we want, for example list of students whose last name begins with the letter N, then into the criteria row in the last name field write the characters N and click on the Enter key. The command will automatically add the quotation marks.

<table>
<thead>
<tr>
<th>Pole:</th>
<th>Jméno</th>
<th>Příjmení</th>
<th>Bydliště</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tabulka:</td>
<td>Studenti</td>
<td>Studenti</td>
<td>Studenti</td>
</tr>
<tr>
<td>Řadit:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zobrazit:</td>
<td></td>
<td>Like &quot;N*&quot;</td>
<td></td>
</tr>
<tr>
<td>Kritéria:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nebo:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Save the query under a new name, and after its launch is displayed a list of students.

**Editing criteria**

We can open again at any time criteria and arbitrarily change the original criteria. We can for example create a new query based on an existing query.

If we want to create a query for example: students from Prague and from Pardubice, then open the query to the students from Prague and from Chrudim. In the criterion overwrite Chrudim using the command →, and save the query under a new name.

The resulting list of students.
Work with fields in queries

In design view, you can edit query and modify their fields.

- **Insert a new field**: to the next column we insert a new field in the same way as when you create a new query.

- **Delete a field**: click above to deleting the field. Right-click to display a floating menu

from which choose the item **Vyjmout**.

- **Moving the field**: cursor is placed over the field. When you pressed the left mouse button then this field move to the desired location.

- **Display field**: in the query are displayed only those fields that are indicated on the display in the row.

Query the students from Prague and from Chrudim so we can eg. edit the following way.

List of students.
2.5 Objects

2.5.1 Forms

Forms are a means to display, inserting and editing of records in the database tables.

Create a form

First we select a table, to which we want to create the form.

Then click on . It automatically creates a default form.

The form is a good idea to store under the same name as it is stored the table to which will be entered and edited of data.

In addition to the above procedure, it is also possible to create a form to use form creation wizard . Then just follow the wizard.

Inserting new records

Form, a table or a query, we can show not only in design but also in form view. To
In form view is seen always just one record.

At the bottom of the form are the buttons to control movement in the form.

Click on the button to display empty editing the form fields into which you can enter the data of the newly inserted record.

**Editing of data**

Use the arrow keys to display the edited record. Then select the appropriate entry in the record, and then we can it normally edit as when editing the text in the text editor MS Word.

**Form headers and footers**

First we click on . In design view we can click in the header entry field and enter the new text.
We switch to form view, and then we see the overall appearance of the form.

Similarly you can also type the text in the footer for the form.

2.6 Outputs

2.6.1 The report, export of data

The report is used to display and print the information selected from tables and queries.

To create a report

To create a report first select the table or query to which you want to create a report. For example: when we click on and then type the command . The report is created automatically and displayed in layout view, in which you can then edit.
In addition you can use the wizard to create a report.

We enter Vytvoření → Průvodce sestavou. In the dialog box

select the field that you want to specify in the report and click on >. If we want to select all the fields, then click on >>.
When you click the button ![Next Button](image2), a dialog box appears.

For example, if we want to in the report, arrange the data so that students can be sorted by year of study, then this field highlight and click on. In the dialog box shows the future arrangement of the data.
If we click on the button [Možnosti seskupení...], then we get additional options to group data in a report.

Click on the button [Další >] to display a dialog box.
you can define the order in which be sorted of data. In that case, it is possible to students within a given year sort first by last name, where they are identical, then by name, and if the name is the same, then by numbers.
that is very important in cases where we want to create a report with calculations, for example totals, average values, etc.

When you click the button a dialog box appears in which we define the report layout and the orientation of the print. Finally in the dialog box
type the name of the report and click on . The resulting report you can further edit in design view.

**Editing report**

We display the report in design view. Click any cell in the report. This cell is marked in colour and can then be used when pressed the left mouse button to modify the width and the height of the display field. In the following illustration edited a space for listing the names of the students.

If we want for example to change the header of the individual fields, or entire report header, then double click in the selected field, which is highlighted in white, and then we can change, for example the header text of the entire report.
If for example the resulting adjustment is as follows,

then we get the final report.

Exporting reports to other formats
The resulting report can be exported to various other data formats.
If for example click on the icon ![Excel](image), then in the next window, specify a folder, the file name and format.

Click on the button ![OK](image) to save the new file in the format for the spreadsheet MS Excel. The exported file can then have the following format.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rok studia</td>
<td>Příjmení</td>
<td>Jméno</td>
<td>Číslo</td>
<td>Bydliště</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Malá</td>
<td>Alena</td>
<td>2</td>
<td>Hradec Králové</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Novák</td>
<td>Petr</td>
<td>1</td>
<td>Pardubice</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>Slabá</td>
<td>Jirina</td>
<td>3</td>
<td>Chrudim</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>Jirásek</td>
<td>Karel</td>
<td>4</td>
<td>Praha</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Němec</td>
<td>Aleš</td>
<td>5</td>
<td>Praha</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>Tlustá</td>
<td>Marie</td>
<td>6</td>
<td>Hradec Králové</td>
</tr>
</tbody>
</table>
2.6.2 Print

Print a table

First open the table by double-clicking the icon with its name.

Then we enter...

Displays the preview page with the table before printing.

Click one of the icons we can define print portrait or landscape page.

Additional requirements for printing, we can specify the type.

Displays a standard print dialog box.
Click on the button [Vlastnosti] to open the other standard dialog box, in which you can specify additional requirements such as the format of the paper, on which we will print.
Then we click on the button **OK**.
Similarly we proceed to print outputs from queries or reports. The printing options are the same for all Microsoft Office programs.
3 Presentation

Objectives (ECDL Module 6)
Presentation requires the candidate to demonstrate competence in using presentation software.
The candidate shall be able to:
- Work with presentations and save them in different file formats.
- Choose built-in options such as the Help function within the application to enhance productivity.
- Understand different presentation views and when to use them, choose different slide layouts and designs.
- Enter, edit and format text in presentations. Recognize good practise in applying unique titles to slides.
- Choose, create and format charts to communicate information meaningfully.
- Insert and edit pictures, images and drawn objects.
- Apply animation and transition effects to presentations and check and correct presentation content before finally printing and giving presentations.

Time required
4 hours of basic studies and individually more time to practice.

The terms to remember
- presentation
- slide
- view
- template
- draft
- the slide background
- header
- footer
- inserting texts
- inserting objects
- editing objects
- transitions
- animation
- projection
- print

3.1 Use the application for presentation
The presentation will be created in Microsoft PowerPoint.

3.1.1 Working with presentations
Run the application for the presentation

Microsoft PowerPoint 2010
or double click on the desktop on the icon.

Exit the applications for presentation

or

If the edited file is not stored in your current version, then in both previous cases, a dialog box appears

in which it is possible to specify another procedure for their work with the application for presentation.

Open an existing presentation

Run the application for the presentation and in the dialog box,
select the folder, file → Otevřít

Or start Windows Explorer, open the folder and double click on the file that was created in the application for presentation (*.pptx).

Create a new blank presentation

Run the application for the presentation → Soubor → Nový →

Create a new presentation based on a template

Run the application for the presentation → Soubor → Nový → an appropriate template select from the menu
by clicking on the appropriate item.

**Save a presentation**

- **File → Save** We use for first save a new presentation.
- **File → Save as** We use for save of the presentation under a new name or in a different folder, or in another format.

In both cases then in the dialog window select the folder, type the name of the document for example **Prezentace1.pptx** and its type,
which we can select from the menu

For continuous saving of presentation during its editing using any of the following procedures:

- Soubor → Uložit
- or
- or enter the key combination Ctrl+S, which is listed in the help
- Switching between two open documents

On the status bar set the mouse cursor over the icon and then click on the preview of the selected presentation.
3.1.2 Improve work efficiency

The basic settings for the presentation

Preference settings can be done within the options of Power Point:

- Change the author name of a table in the dialog window, that opens when you click

and into the editing box type the name of the user.
- Change the default folder for opening and saving files set in the dialog window that opens when you click on

and in the editing box will be entered folder into which the files are stored

Working with help

Basic information about the application for presentation
Help to a specific topic we get so that press press F1 or click on the icon ![icon](image) and in the following dialog window
choose another procedure for finding help by typing the desired password into the editing box, or by clicking on the password in menu of help chapters.

The choice of scale for the slide show view

On the tab click on the icon . Slide of the presentation is displayed in the optimal magnification relative to the current size of the window. The same functionality can be called if we click on the icon , which is located in the lower right corner of the window.

Click on the icon to display a dialog box in which we choose the desired magnification of your presentation.

In addition at any time you can change the magnification using the slider on the scale, which is located in the bottom right-hand corner of the window status bar.

Toolbars

If we click on the icon to hide the toolbars, then instead of the original view will display only the names of the individual cards.
3.2 Presentation preparation

3.2.1 Slide show view

The presentation can be viewed in different formats. Changes of view we realize on the tab **Zobrazení**.

**Normal view**

Click on the icon ![Normal view icon](image). View is used for the basic creation of presentation slides.

**Slide sorter**

Click on the icon ![Slide sorter icon](image). View is used for an overview of the sort of slides in the presentation and for moving of images.
Notes

Click on the icon . View is used for writing notes to each slide of the presentation.
Reading view

Click on the icon . View is used for viewing the entire presentation, when gradually over the entire screen renders a slide by slide.

Switching between different views

Switching of the view can be easily done by clicking on the appropriate icon of view on the tab .
3.2.2 Slides

When creating new slides, we can create a slide without any draft or on the basis of some of the selected templates.

Work with templates

After you start the application is automatically created the first slide by the basic template type as the opening slide.

The opening slide is used to insert the title of your presentation. Create a new slide so, that the press the right mouse button on the preview of the first slide.
This displays a floating menu in which we click on \textcolor{blue}{Nový snímek}. Automatically creates a new slide based on the template with the content and the title.
When you click in the appropriate field, we can begin to insert the slide with title text and with bulleted of items.

**ECDL moduly**

- Základní pojmy informačních a komunikačních technologií
- Používání počítače a správa souborů
- Zpracování textu
- Tabulkový procesor
- Použití databází
- Prezentace
- Práce s internetem a komunikace
In addition we can on the tab \( \text{Domů} \) click the icon \( \text{Nový snímek} \). Displays a menu of templates from which you can choose the one that is optimal for the new slide.

**The background color of the slide or an entire presentation**

Select the first slide in which we want to change its background. We make the selection by clicking on the preview image. After entering \( \text{Návrh} \) → \( \text{Styly pozadí} \) we can style a slide background select from the menu.
Click on the item **Format background...**, then a dialog window appears in which you can define different types of fills the slide. The work is very easy, as the proposed fill types are always immediately applied to the slide in print preview. For
confirmation of the correctness of the choice click on .
If we want to set the background uniformly for all of the slides in the context of your entire presentation, then click on .

**Change the layout of the contents of the slide**

The contents of the slide is composed of different elements that can be edited. If for example in the opening slide

![Diagram of a slide with text: ECDL European Computer Driving Licence]

click the left mouse button on the title, then this title will be indicated by a frame.

When you pressed the left mouse button, can be this frame with text arbitrarily move around the surface of the slide. In addition the green circle of the frame allows you to once again when pressed the left mouse button to rotate the whole frame and to create an oblique texts.

**Copying and moving images**

If we want to create a new slide whose contents he is formally similar to the content of the already existing slide, then click on the selected slide and select it. The selected slide will be color coded to distinguish it from other frames.
Right-click on the selected item of menu in which we click on **Duplikovat snímek**. This creates a duplicate of the original
image, which you can then edit.

The above menu allows you to remove the slide, create a copy of the slide, move the slide to the new location in the presentation or to any location other open presentations, and create a copy of the slide. Menu also allows you to delete the selected slide.

For deleting a slide you can also use the abbreviated procedure, when the slide select and press the Delete key.

Move slides within the presentation. We select the slide and when you pressed the left mouse button move the slide up or down. The future location of the slide is indicated with a black horizontal line, which is located between two adjacent slides.

Moving slides is easier in slide show view. We select the slide again, and when you pressed the left mouse button, move the slide to a new location, which is indicated by a black vertical line between two adjacent slides.

3.2.3 Draft

If you want to place in the presentation slides for all the same elements, such as the logo of the institution, numbering of the slides, the date of presentation, etc., then we insert these elements in the draft which then connect with the slides in the presentation.

To insert a graphic into a draft

To create the draft enter . Then switch on the tab and the click for example on the icon . From the following menu to choose the type of font.
After you type the text we can make editing, i.e. we can change for example the font size, etc.

Then move the text box to the desired location in the draft.

**Footer of draft**

In the footer of draft you can insert any text, date, number, picture, etc. from the menu

First click the icon . Then we'll fill out the items in the dialog box.
Click on the button **Použít u všech**. Then the draft will be reflected in all the slides throughout the presentation. Click on the button **Použít**. Then it will only be reflected in the selected slide.

In the draft we can right-click on the icon for the selected object and then select item **Formát obrazce...** from the floating menu. Display dialog window
in which you can make additional adjustments.

Similarly when you click on , you can implement the adjustments using the editing dialog window.
Insert the draft into the presentation

If we have created a draft, then on the tab , click on the icon , and then click on . Created draft is reflected in all of the slides in your presentation.
3.3 Text

Working with text is very similar to working with text in the text editor MS Word. Therefore, it will be in the next described only briefly.

3.3.1 Text manipulation

Presentation slides should contain a short concise texts with the use of the bullets, numbering, and graphics.

Inserting text

In normal view of the presentation click on the selected slide object, which is reserved for inserting text, and insert the text that you want, such as ECDL.

Edit text

Click the left mouse button in the object in which the text is given, and then adjust the text by the standard way using the deletion and the addition of text.

Edit and move text within a presentation

The procedure is the same as in the text editor MS Word. For example, to copy text, select the copied text, type the command Copy, move the cursor to the destination location in presentation and specify the Paste command.

Deleting text

Select deleting text and press the Delete key.
Undo and Redo commands

The Undo command: we click on the icon. The Redo command: we click on the icon. Using both commands is the same in all MS Office applications.

3.3.2 Formatting

Text formatting

Select the formatted text, and on the tab, click on one of the icons for text formatting, or click on the arrow in the lower right corner of this group of icons to open the dialog box in which we specify the formatting requirements.

Paragraph formatting

Select the paragraph you want to format and on the tab, click on one of the icons for formatting paragraphs.
or click on the arrow in the lower right corner of this group of icons to open the dialog box

![Dialog box for text formatting]

in which we specify the formatting requirements.

### 3.3.3 Lists

**Bullets**

Select the bulleted text and on the tab click on the icon. From the floating menu

![Bulleted list options]

select the desired format bullets.
Or you can click an item and display a dialog window in which we can specify how to will format of bullets.

**Numbering**

Select the text that we want to number, and click on the tab on the icon. From the floating menu
choose the desired numbering format.

Or you can click an item and display a dialog box

![Numbering dialog box]

in which we can specify how to will format of numbering.

### 3.3.4 Table

Work with a table again is the same as working with a table in the text editor MS Word. Therefore in the next is given only a brief information about the tables.

**Insert a table**

Create a new slide with the template Title and content. In the middle of a blank slide appears the icons . Click on the icon with the table. In the dialog window

![Insert table dialog box]

then we specify the number of rows and number of columns in the table. Arises slide with an empty table.
Editing tables

Inserting text, inserting rows or columns, adjust the column widths and row heights shall be carried out similarly in the text editor MS Word.

3.4 Charts

Work with charts is very similar to working with charts in MS Excel spreadsheet. Therefore in the next is given only a brief information about the charts.

3.4.1 Using charts

Insert a chart

Create a new slide with the template Title and content. In the middle of a blank slide appears the icons. Click on the icon with the chart. In the dialog window
then we specify the chart type.

Arises slide with the basic chart.
At the same time opens the spreadsheet MS Excel with default data table.

Further work with the edits of the entire chart is therefore exactly the same as when you create a chart in a spreadsheet application MS Word.

**Editing the graph**

Inserting and editing of data, change the chart type, entering and editing the chart title, the name of the axis, adding data labels to a chart, the chart legend, work with changing the fill color, the fill chart columns or slices, etc., it's all we do exactly the same as when you create a chart in a spreadsheet MS Excel.

### 3.4.2 Organization charts

Organization charts use to graphically represent the organizational structure of the employees of a particular organization, where you can indicate the mutual subordination and superiority of individual employees.

**Create an organization chart**

Create a new slide with the template Title and content. In the middle of a blank slide appears the icons . Click on the icon with the SmartArt graphic. In the dialog window
select a category and a specific type of organization chart you choose eg, by clicking on the icon. Then click on the button to confirm the accuracy of the options. The slide appears with the basic layout of the organization chart.

Kliknutím vložíte nadpis.
Insert data into an organization chart

Click on the selected element of the organization chart and then we insert the text you want.

In the diagram, we can enter the name of a particular employee.

Similarly we can specify its organizational classification.

This way we can fill data throughout the organization chart.
**Insert a new object to the diagram**

If we want in the organization chart to include another worker, for example as a subordinate of the selected operator, then we select operator and in the group Návrh open the tab Přidat obrazec. Click on the icon and from the floating menu select for example Přidat obrazec pfg. In organizational chart is a new item, in which we can again add the employee name and job title.

Similarly, we could for example for economic director assign to referentku.

**Change the structure of your organization chart**

If we want to make a change in the organizational structure, for example the head of the IT department to include as a subordinate development director, then first by click we select the moved object. Now on tab Automatické přesuneme we click on Snížit úroveň. Automatically will move an object.
3.5 **Graphic objects**

Graphics objects are pictures, photos, clipart, symbols, drawing objects, etc.

### 3.5.1 Inserting and handling

**Insert a photo**

Create a new slide with the template Title and content. In the middle of a blank slide appears the icons. Click on the icon insert picture from a file. In the dialog window
select the picture you want to insert in the slide and click on the button. After we insert the title.
In addition you can insert the picture into the slide so that we open the slide, and then on the tab Vložení, click the icon Obrázek. Once again displays a dialog window in which we can specify the folder and file that you want to insert in the slide. Similarly you can create another slide for example with the current appearance of the two buildings.

If we want to compare the two photos next to each other on one slide, then you need to copy each photos on a slide and adjust their size.

**Copying and moving graphics**

First select the copied or moved object by clicking on it. The selected object is marked in a standard way. Then move the cursor to a new slide and specify the Paste command.

Copy and move objects between slides can be not only in one of the presentations, but also between two or more slides in the open presentations.

**Change the size of a graphic object**

First select an object. Then when you pressed the left mouse button you can change the size of the object. By sliding the squares in the middle of the perimeter of the parties of object changing the size of an object in the given direction. By sliding the wheels at the corners of the perimeter of the object will be at the same time changed the height and width of an object while maintaining the ratio of height to width.
Change the location of the graphics object on a slide

Choose an object and place the cursor over it. Cursor has changed in the four-headed arrow. Then when you pressed the left button of the mouse we can freely move with the object on the slide.

If we place the cursor into the surrounding green wheels over the object, then when you pressed the left mouse button can rotate the object according to our requirements.

In one slide so we can place both photos.

The alignment of the object relative to the slide

Select the object that you want to align. On the tab , click on the icon . To display a menu.
In the menu select an item to display the menu.

Now we decide about how my be to alignment. So for example. If we want to align the object to the left edge of the slide, then we click on.

3.5.2 Drawing

Insert a drawing object

Open the slide to which you want to insert the drawing object. Then on the tab, click the icon. The element, which we want to draw, choose from the menu.
If we want to draw, for example arrow, then from the menu we choose the direction, shape, and click on the corresponding icon. The arrow is placed on the desired location on the slide and we can adjust its size.

**Insert text in a drawing object**

Right-click on the drawing object. In the floating menu
click on [Upravit text]. Insert text and click on the Enter key.

Editing a drawing object

If we have selected, for example drawn arrow, then by move the yellow square we can to adjust the width of arrows or the length of its end.

If right-click on the drawing object, then a dialog box appears
in which we can define a type and a fill color, or line of the perimeter. It is also possible to set the type and width of the perimeter lines, the way the ends of the arrows, the 3-d effects, shadows, etc.

**Migrating objects in the foreground and in the background**

We are creating a complex object that is composed of several partial overlapping of cartoon objects. These objects are then gradually redrawn so that the new object always redraws a previously created objects.

We can for example gradually draw a rectangle, circle, and triangle, which overlap each other.

But if we want to render shapes so that the wheel has been in the foreground before the rectangle and triangle, then first click on the wheel and select it.
Then on the tab \texttt{Domů} will be entered \texttt{Uspořádat}. The wheel gets into the foreground.

The same we can ensure so that when you select wheel and on the tab click on \texttt{Přenést bílž}. Display a menu from which we can specify the shift the selected object up one level, or completely into the foreground.

Shift one level are reflected in the situation, when we create a very complex object with many mutually redrawing elements.

**Group drawing objects**

If we created an object composed of several sub-elements, then it should be all grouped into one unit. You hold down Ctrl key while gradually click on all graphic elements to be selected.

Then we enter \texttt{Uspořádat} \texttt{Skupina}. Alternatively, we can specify the \texttt{Skupina} \texttt{Skupina}. Drawing elements are grouped in a single object, which we can then move, copy, or we can
Separation of elements of the Group

Additionally, if we want to edit any of the created elements, then you must first divide the group by typing → . Alternatively, we can specify the → . Make the changes you want, eg. change fill of the wheel.

To regroup the incremental elements to the original group will be entered → .

3.6 Preparation of outputs

3.6.1 Preparation

Transition effects between slides

On the tab click on one of the offered types of transitions between slides.
Or click on the button to display the complete menu transition effects, from which you can choose.

Set transition effect is immediately displayed, so that we can assess its effect. If we for example click the icon, then click on icon and we can define additional parameters to the selected transition.

Click on the black arrow in items display the menu.
In it we can choose the sound that will be part of the transition between slides. We can also determine the duration of the transition (in seconds), use the gradient only for the selected slide or for the entire presentation. We can select the transition to the next slide when you click the mouse or after a defined time.

The animation slide objects

If they are placed in the selected slide, for example the bulleted texts, then it is possible to assign an animation to these texts. On the tab, click on one of the offered animations.

Or press the button to display the complete menu animations, from which you can choose.
Set the animation effect is immediately displayed, so that we can immediately assess its effect. If we for example click on the icon [icon], then click on [icon] and we can define additional parameters of the animation.
To created animations you can add more animation, set way to raise animation, its timing, etc.

Notes to the slides
In normal view of presentation is displayed the slide under each is space with the text 

Kliknutím vložte poznámky.
, to which you can write a comment to a slide.

Presentation settings
On the tab click on the icon to display the dialog window in which we can set the type of presentation.

- **Předvádění lektorem (celá obrazovka)**: the standard way of displaying a full-screen slide show.
- **Prohlížení jednotlivcemi (okno)**: at the bottom of the screen is the status bar in which is showing the number of the current slide on the left and on the right.
are buttons for switching between slides and to view additional floating menu

if we are to set timings for each slide, then you can start the automatic display of presentation slides.

**Hide slides**

If we want to hide a slide, and not projected him within a presentation, select the slide and then enter \( \rightarrow \). In the same way it is possible to restore the slide. In normal view of the presentation is marked with a crossed-out frame of slide number.

**Projection of presentation**

If you run your entire presentation from the beginning then enter \( \rightarrow \). Or click on the F5 key.

If we want to run a slide show from the selected slide, then first select the slide and then we enter \( \rightarrow \).

During the screening of the presentation we can invoke by right-clicking the floating menu, from which you can specify how to display slides in your presentation.
For stop displaying presentations we can use click the Esc key.

### 3.6.2 Revision

**The spelling checker**

Check the spelling is the same way as in the text editor MS Word by typing ▶️. 

**Print a presentation**

We enter ▶️. 

By the standard way then we can specify printing in portrait or landscape orientation.

Click on ▶️ to display the options menu presentation slides.
By click on the selected item will be displays the next preview of the page with images. For example if click on , then displays a preview of the stalls.
Other operations that are related to the way the press, are the same as when you print outputs from the text editor MS Word.
## 4 Dictionary of important terms

<table>
<thead>
<tr>
<th>English</th>
<th>Czech</th>
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</thead>
<tbody>
<tr>
<td>Absolute address</td>
<td>Absolutní adresa</td>
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<tr>
<td>Address of the cell</td>
<td>Adresa buňky</td>
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<td>Animations</td>
<td>Animace</td>
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<td>Cell</td>
<td>Buňka</td>
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