

Document formats

CSV

1. Complete the following tasks:
 - a) Open the **exampleCSV.csv** file in Notepad. Note the first line in this file.
 - b) Open the **exampleCSV.csv** file in MS Excel.
 - c) Split the data into appropriate columns (Data / Text as Columns).
 - d) Save the file as **exampleCSV.xlsx**.

XML

2. Opening of an XML document.
 - a) Download the **contacts.xml** XML document from the course.
 - b) Open the document in a web browser.
 - c) Indicate in the opened document: element, attribute, prologue, element value, attribute value, comment.
 - d) Add a new contact in the document. Enter your personal details.
 - e) View the document in a web browser.
3. Opening an invalid XML document.
 - a) Download from the course the XML document called **contacts-errors.xml** (the document is not syntactically correct).
 - b) Open the document in a web browser.
 - c) Observe how a web browser displays an XML document that is syntactically invalid.
 - d) Find and correct errors in the document. View the document again in the web browser.
 - e) Download **the restaurant.xml** file. Try to open it in your web browser. Remove all the errors contained in the file. Then re-open file in your web browser.
4. Create and modify an XML document.
 - a) Download the XML document **ShoppingList.xml** from the course listing the products to be purchased. Pay attention to the structure of the document.
 - b) Choose any 3 drinks and add them to your shopping list. Place the drinks in a separate item called "beverages".
 - c) View the modified document in the web browser. Expand and then collapse all the food categories that you need to purchase (meat, vegetables, dairy, beverages).
 - d) Modify the XML document. Remove all elements containing product categories (meat, vegetables, dairy, beverages) and put the product category as an attribute of the "product" element, e.g. `<product category = "meat"> ... </product>`
 - e) View the modified document in a web browser.
5. Data modeling.
 - a) Create a **films.xml** document containing information about the five movies you recently watched. The document should contain:
 - the title of the film,

- genre,
- year of production (year),
- rating of the film (personal_rating) (scale value 1..10),
- director,
- the main actors in the film.

You can also add any other information you see fit. Use at least two attributes to describe your data.

6. Data downloading.

- Using a web browser, find and view your own timetable for the entire semester. The timetable can be found at <http://planzajec.uek.krakow.pl>.
- Then add "& xml" at the end of the URL, which will make the timetable be displayed in xml format.
- Save the timetable to a file named **Schedule.xml**.
- Open the **Schedule.xml** file in Visual Studio Code.
- Open the **Schedule.xml** file in MS Excel. Analyze the structure of the table. Save it in **Schedule.xlsx** file.

7. XML Schema

- Open **payroll.xml** and **payroll.xsd** files in Visual Studio Code. Note how the structure of the xml document is defined in the xsd file.
- Using an online validator <https://www.corefiling.com/opensource/schemavalidate/> check whether **payroll.xml** (XML instance) is valid against **payroll.xsd** (XML Schema).
- Using the validator, check whether **payroll1.xml** is valid against **payroll.xsd**. Make **payroll1.xml** valid against **payroll.xsd** (make the necessary changes in **payroll1.xml**). Do the similar task for **payroll2.xml** and **payroll3.xml**.

JSON

8. Convert the **Schedule.xml** document to JSON format.

- <https://codebeautify.org/xmltojson>

9. Save the converted data in a file named **Schedule.json**.

Data modeling. Automatic data generation

10. Using the Mockaroo service (<https://mockaroo.com/>), create a data set consisting of 20 items, including:

- first_name (type: First Name)
- last_name (Last Name)
- email (Email Address)
- gender (Gender)
- age (Number, 20-80, without decimal places)
- car (Custom List BMW, Dacia, Fiat, Ford, Mazda, Opel, Renault)
- job (Job title)
- favorite_film (Custom List Romance, Horror, Action, Comedy, Drama, Thriller)

11. Download the data in CSV format and save under the name **Customers.csv**.

12. Download the XML file (set Root Element to customers, Record Element to customer) and save as **Customers.xml**.

13. Download the data in JSON format and save as **Customers.json**.
14. Open the files in Visual Studio Code and compare their contents.
15. Open the **Customers.xml** and **Customers.json** files in Firefox and compare their structure.

SVG - Scalable Vector Graphics (optional)

16. Follow the SVG tutorial available at: https://www.w3schools.com/graphics/svg_intro.asp Try out examples and play with them.
17. Create a webpage (a HTML file) with SVG graphics of your design.