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Faculty of Electrical Engineering, Computer Science and Information Technology Osijek

Project task in the subject

DATA VISUALIZATION

[Task Name]

Student: [Name and surname, study]

Mentor: [Name and surname]

In Osijek, [month and year]

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1.KV1 - Defining a Project Task

1.1. Project Task

[Describe the main objective of the project and the purpose of data visualization.

This task requires a clear defining the problem being tried to be solved. It is necessary to set clear goals and boundaries of the project, as well as determine what data will be collected and analyzed to solve the problem.]

Task name:

Problem description:

Task description:

Objective of the project:

Link to git repository of the project:

1.2. Data

[Find data sources and describe the data to be used for visualization.]

- Z-1.2.1. *In this task, you need to find the appropriate data sources to use to solve the problem defined in the first task. It is important to ensure that the data is of high quality and relevant to the problem being addressed and that it is available for use.*
- Z-1.2.2. *It is necessary to describe the selected data as well as to specify the corresponding sources.*

1.3. Data processing

[Describe the data processing and linking operation performed.]

- Z-1.3.1. *Process the collected data and link it to create a complete set of data. This includes cleaning and processing of data, as well as checking their consistency, topicality, integrity, i.e. quality and correctness.*

1.4. Relevant display types for the data used

[Suggest several different ways of displaying data that would be appropriate for this project]

- Z-1.4.1. *Suggest possible ways to display data that will help understand the data and solve the problem that was set in the first task. This may include choosing the most appropriate way to visualize data, but this is the task of the next exercise.*

2. KV2 - Data visualization design.

2.1. Questions that visualization answers

[Specify and describe which questions the visualization will provide an answer to.

Specify the questions answered by visualizing the data. It is necessary to ensure that questions are clearly formulated and can be answered on the basis of available data.]

Z-2.1.1. A list of questions that visualization provides an answer to.

2.2. Data visualization draft

[Show sketches of different ways of displaying data, explaining their purpose]

Z-2.2.1. *Create sketches of the final data visualization, which will include all the elements necessary to solve the problem. This includes different types of graphs, diagrams and other visual elements that will be included in the visualization of data.*

2.3. Existing solutions and examples

[Provide examples of similar projects or codes that will be useful for creating this project with related links and clarification of which elements/parts are planned to be used]

Z-2.3.1. *Search the available pages with data visualization collections that are useful in this project.*

Z-2.3.2. *Find code examples for similar visualizations.*

Z-2.3.3. *Analyze code examples and specify which parts of the code will be used in the project and explain why, i.e. what problem is solved using a single example code.*

2.4. Customizing data

[Describe the necessary data adjustments and adjust them to the selected display mode]

Z-2.4.1. *Prepare data for visualization.*

Z-2.4.2. *Select the appropriate format of the data.*

Z-2.4.3. *Edit data for visualization and display it in a table or other appropriate format.*

Z-2.4.4. *Show with an image that the data has been successfully adjusted and displayed in the graphical representation.*

2.5. Colors and data

[Define colors used in visualization and link between visual/graphic elements and data]

Z-2.5.1. List of colors used with the accompanying rationale.

3. KV3 - Creating prototype data visualization

[Elaboration of the concept, defining functionality and behavior - prototyping.]

3.1. Basic functionalities and behaviors

[Specify basic visualization functionalities and their behavior]

- Z-3.1.1. Identify key functionalities that will be required to display data.
- Z-3.1.2. Define basic types of behavior.
- Z-3.1.3. Select elements with which users will be able to interact and define interactions between users and visualizations with the corresponding description.

3.2. Advanced functionalities and behaviors:

[Specify advanced visualization functionalities and their behavior]

- Z-3.2.1. Identify the advanced functionalities that will be required for data analysis.
- Z-3.2.2. Define advanced types of behavior
- Z-3.2.3. Define interactions that will allow users to further analyze data.

3.3. Implementation of basic functionalities

[Describe and support with evidence the process of implementing basic functionalities]

- Z-3.3.1. Create code that allows predefined functionalities. Prove by describing an example code.
- Z-3.3.2. Test functionalities and ensure that they are correct, i.e. to function in the expected way. It needs to be confirmed by a picture.

3.4. Implementation of basic behavior

[Describe and support the process of implementing basic behavior with evidence]

- Z-3.4.1. Create code that allows predefined behavior. Prove by describing an example code.
- Z-3.4.2. Test behavior and ensure it is correct, i.e. to function in the expected way. It needs to be confirmed by a picture.

4. KV4 - Creating the final data visualization

4.1. Implementation of basic functionalities

- Z-4.1.1. Complete the implementation of the code for the missing basic functionality.
- Z-4.1.2. Test basic functionalities and ensure that they are correct, i.e. to function in the expected way. It needs to be confirmed by a picture.

4.2. Implementation of basic behavior

- Z-4.2.1. Complete code implementation for missing basic interactions.
- Z-4.2.2. Test basic behavior and ensure it is correct, i.e. to function in the expected way. It needs to be confirmed by a picture.

Or

4.3. Implementation of advanced functionality

- Z-4.3.1. Identify advanced functionalities that will be implemented.
- Z-4.3.2. Implement advanced functionalities. Prove by describing an example code.
- Z-4.3.3. Test advanced functionalities and ensure that they are correct, i.e. to function in the expected way. It needs to be confirmed by a picture.

4.4. Implementing advanced behavior

- Z-4.4.1. Identify advanced behaviors that will be implemented.
- Z-4.4.2. Implement advanced behaviors. Prove by describing an example code.
- Z-4.4.3. Test advanced behavior and ensure it is correct, i.e. to function in the expected way. It needs to be confirmed by a picture.

5. KV5 - Completing the project task and writing documentation

5.1. Possible modifications and refinements of the solution - in agreement with the teacher

[This task refers to potential changes and refinements that need to be made on the solution of the terms of reference, which are agreed with the teacher. It is possible that it is necessary to change some functionalities, corrections in the code or any other finishing to ensure a quality and complete solution.]

5.2. Preparation of documents - project documentation

[In this task, it is necessary to prepare project documentation that will describe the process of preparation and achieved results of the terms of reference. Project documentation usually includes a description of the project task, the necessary tools, the work process, a description of the design and visualization of data, reports on conducted tests and results, conclusion and the like. The goal is to keep the documentation clear, detailed and complete so that others can understand and use your solution.]

- Z-5.2.1. Project hierarchy.
- Z-5.2.2. List of technologies used, without description.
- Z-5.2.3. Setup instructions.
- Z-5.2.4. Instructions for use.

Literature

Annex I

Link to git repository of the project:

Program code