MEGA – UE6

In this assignment, you will create a **small** interactive visual analytics system that focuses on the exploration and analysis of healthcare, biology, or medical data. This system should empower users to explore key trends, perform simple analyses, and gain insights from a biological or healthcare dataset **of your choice.**

If you would like to use the dataset (and your solutions as a basis) from UE5, you are more than welcome; otherwise, you can choose any dataset that you might find interesting. Potential sources of inspiration can be https://data.cdc.gov, https://www.kaggle.com, https://www.who.int/data/, etc.

Make sure **you choose a manageable dataset** that fits the healthcare or biological theme and that you sufficiently process/prepare it for use.

Deliverables:

- The **dataset** that you used (or a link to it).
- A **working visual analytics system** (code or file + instructions on how to get it to run).
- A **short video** (2-3 mins) that showcases how your system works – perhaps by showcasing one of your insights derived in Part 3. This is needed in case we are not able to run your code, as a backup, and to see the interactivity of your system.
- A **short report of 500-800 words** that summarizes what you did in Parts 1-3 above (i.e. describe the dataset and its context/users/tasks, and explain the system's features and insights).

Part 1:

Answer the following points:

- Clearly define **what dataset** your visual analytics system uses, including its source, size, and key attributes. Briefly explain why this dataset is relevant or interesting.
- Identify **who your intended users** are (e.g., healthcare professionals, researchers, policymakers, patients, or educators). Describe their needs or challenges that your system addresses.
- Specify **the tasks your system supports**, such as identifying trends, comparing categories, analyzing correlations, or filtering subsets of data.

Part 2:

Build the core functionality of your visual analytics system. You can use **any kind of environment/tool** that you feel comfortable with. Some suggestions include:

- Python: Streamlit, Dash, or Plotly (maybe within an interactive jupyter notebook; TUWEL may also be able to support it)
- JavaScript: Chart.js or D3.js.
- Shiny R that supports building interactive web apps from both R and Python.
- Low-code platforms: Tableau Public for a visual-first approach.

Make sure that you comply with the following requirements:

- Include **at least one automated data analysis component** (similar to what you saw in UE5) in your system.
- Include **at least two visualizations** (e.g., bar chart, line chart, scatter plot, heatmap, or histogram) for data analysis in your system.
- Include **interaction across visualizations** (e.g., Brushing/Linking, Focus+Context, Filtering, etc..) in your system.

Part 3:

Summarize 2–3 key insights that you have been able to derive from your dataset using your visual analytics system. Include how the different components of your system support the process of insight derivation.