Year Project

This is an *individual* assignment. Your task is to develop a standalone **GUI application using Python and Tkinter.** Your application must:

- [10 points] Use a layered architecture pattern (with a facade pattern) or a Model-View-Controller pattern for your project.
- [10 points] Create a design class diagram to show the software architecture.
- [10 points] Pick an arbitrary scenario and create a sequence diagram for that scenario.
- [5 points] Display results graphically (e.g., with graphs and/or animation).
- [5 points] Be responsive, that is, when it is busy doing some work in the background, the application must not freeze and should always let the user know what it is doing.
- [5 points] Interact with the user to control the data processing parameters via appropriate GUI widgets.
- [5 points] Read data from local files and/or online resources, then process them with NumPy and/or Pandas.
- [5 points] Visualize data through 3 types of graphs: distribution graphs (histogram and boxplots), everyday graph, and network graph.
- [5 points] Provide informative descriptive statistics and correlation from data.
- [15 points] Model a part of the project as a graph problem (reachability, shortest path, 2-coloring, etc.), then use an appropriate graph algorithm to solve it.
- [5 points] Be portable, that is, other people can run it on their own machine and on other major operating systems such as Windows, macOS, and Linux.
- [5 points] Follow good coding practices. Your application shouldn't crash when unexpected events occur.
- [5 points] Include informative description and explanation in its repository's README.md file.
- [5 points] Include a demonstration video.

[5 points] Be evaluated and scored by your classmates.