CPEN 321 Software Engineering
Winter 2023

M3A: Initial Design (Wednesday, October 11, 3pm PT)

This is a group assignment. The deliverable for this assignment is a document specifying **the initial version of your project design**, for the project idea selected by your client.

This submission will not be graded (only the final version of design will be graded). However, **you will lose marks** for the next milestone (final design, M3B) if you fail to submit this report on time.

The use of any assistive AI technology at any stage of working on this assignment is **strictly prohibited**.

You are allowed to use **one electronic device per group** throughout the duration of the lab. It must be used only **for browsing course material** (Canvas, Piazza, and lecture notes) and/or completing the submission. All other usages, including email, chat, and web browsing are **strictly prohibited**. Please remember to submit your assignment starting at 2:40 pm.

Submission. Submit a PDF file that includes the following information (handwritten or in an electronic format):
- A list of main modules, databases, and external components whose APIs you plan to use in your project's back-end (aim for 3-4 modules, not counting databases and external components). Explain in 1-2 sentences the purpose of each element.
    - Remember to consider the single responsibility, least knowledge, and other architectural principles.
- For each module, a list of its interfaces:
    - Each interface must have a meaningful name, parameters, and return value.
    - You can use Java-style method calls.
- Frameworks you plan to use (MongoDB or MySQL, cloud provider, etc.).
- A diagram showing dependencies between modules and dependencies between modules and dataπbases/external components.
    - "Boxes" in the diagram correspond to modules and links show call dependencies between the modules. Links must be directional, i.e., A→B means that module A calls B via at least one interface defined in B. A←→B means that A calls B via at least one interface defined in B, and B calls A via at least one interface defined in A.
    - Note: This is a free-form diagram rather than a class diagram. Also, we do not ask you to specify the front-end design for this milestone. Yet, you can add "front-end" to your diagram as one "box", to help visualize calls from the front-end to the back-end.
- Select 2-3 most important non-functional requirements specified in M2B (you can refine them if needed). For each, describe in 1-2 sentences how you plan to implement your project so that the requirement is realized.
- Describe your design for the main project "complexity". E.g., if you plan to implement a complex algorithm, specify its inputs, outputs, main computational logic (as pseudo-code), and state why it is complex.

Please make sure your handwriting and drawings are clean and legible.

Good Luck!