Assignment 5: Software Design

In this assignment, you are requested to create a software design for a **chain** of Floor Supply Stores, an application for managing inventory whose requirements are listed below. To do so, you should follow the same approach that we presented in class, that is, analyze the requirements to identify and refine (1) classes, (2) attributes, (3) operations, and (4) relationships in your design. Just to be completely clear, **your task is to design the system, not to implement it**. Please note that not all requirements will necessarily affect your design in a direct way. For example, you do not have to do anything about the GUI in your design. For another example, the fact that a DB is mentioned does not mean that you have to actually model a DB.

Your design should be expressed using a UML class diagram, and the level of detail of the design should be analogous to the level of detail used in the following videos: A Tale of Analysis & Design. Basically, you have to provide enough details for the design to be self contained and for allowing us to assess whether the design is suitably realizing the system requirements. To help with this, you must also provide a "design information" document in which you **concisely** describe, for each of the requirements listed below, how that requirement is either realized in your design or not considered because it does not affect it. For example:

…
2. The application must contain a database (DB) of items and corresponding item types.
To realize this requirement, I added to the design a class X with attributes Y and Z. Class X...
...
11. The User Interface (UI) must be intuitive and responsive.
Not considered because it does not affect the design directly.

Optionally, you can also provide in the document additional information about your design, such as assumptions or rationale for some design decisions.

You can use any UML tool to create your design. If you are not familiar with any specific tool, we recommend that you ask on Piazza for suggestions. In fact, on Piazza there is already some discussion about that.

Requirements

1. As a user of the system I want to be able to see each store's offering and the amount of product in stock by square feet.
2. The application must allow employees to add new products to the system. As well as delete and edit them.

3. The different categories of floors available are tile, stone, wood, laminate and vinyl
4. The application must contain a database (DB) of floors.
5. Users must be able to search for products by picking from a hierarchical list, where the first level is the floor category, and the second level is the floor type.
6. Users must also be able to specify an item by typing its name (search functionality).
7. All floors regardless of their category have an associated color, size, brand, type and price
8. Categories tile and stone have different materials they are made of, e.g. Tile - porcelain, ceramic, resin; Stone - marble, pebble, slate
9. Wood floors have both a type (solid, engineered, bamboo, etc) and species (oak, hickory, maple, etc.)
10. Laminate can be regular laminate or water resistant, whereas vinyl can be water resistant or waterproof
11. The User Interface (UI) must be intuitive and responsive.

To submit your assignment, you should do the following:

- Create a directory called Assignment5 in the usual **personal GitHub repository we assigned to you**.
- Save your UML class diagram in the Assignment5 directory as a PDF file named "`design.pdf`".
- Save the "design information" document in the same directory, in markdown format, and name it "`design-information.md`".
- Commit and push your file(s) to your remote repository.
- Submit the commit ID for the files on Blackboard.