5430: Software Engineering

Exercise – 8

1. (30 points) Explain the objective of requirements modeling and how it bridges the gap between a system-level description and a software design. Provide examples of requirements modeling
2. (20 points) Explain class-based modeling and how it is used to identify analysis classes. Provide examples of UML modeling notation used to define hierarchies, relationships, associations, aggregations, and dependencies among classes.
3 (50 points) Write a Python program to create a class-based model for a library management system. Use information derived from user scenarios and other written application descriptions to identify analysis classes. Use a grammatical parse to extract candidate classes, attributes, and operations from text-based narratives. Define criteria for the definition of a class using the parse results.

Instructions:

Submit the IPYNB /Code file, it should be simple and well-documented showing the algorithm/pseudocode and explaining each module clearly. This includes inline comments, all output generated during run time, a Readme file with a set of instructions for executing the code, and images related to the code in a ZIP, to Canvas. Finally, submit a short documentation of the in-class project. Please note that Code ZIP files and PDF/Word files should be submitted separately but not in zip. The maximum allowed for plagiarism is 15%. This is an open-source exercise. You may use the internet to complete the task, but you are not allowed to get help from your class members. The documentation should include screenshots and a detailed explanation of your ICE. The minimum word count in the report should be between 1200 – 2000.

Deadline: Wednesday, April 26th, 2023, at 11:59 PM. But you should start working during the class.