COP 2535: Data Structures, Term Project

Step 02, Iteration 2, Design

1 Introduction

For the design phase of Iteration 2, you will complete the Activity Diagram to implement the Use Case for Iteration 2. This project follows an iterative, incremental development model. It is *iterative* in that you will repeat the same series of steps four times through the term. It is *incremental* in that you will add to the functionality of your project during each of the four iterations. Each iteration will consist of the same four phases.

Requirements Analysis In this phase, you will determine the functional requirements to be implemented in this iteration.

Design In this phase, you will design the software to be implemented. In some respects, this is the hardest phase.

Implementation In this phase, you will implement your design in code. The deliverable is your source code.

Testing In this phase, you will test your implementation against the requirements. That is, you will answer the question, "Does the code do what the requirements expect?" Your deliverable will typically be a text document containing the output of the code when run.

2 Instructions

For the Use Case you submitted last week, prepare an Activity Diagram that f7ully implements that Use Case.

3 Deliverable

Common UML design documents consist of Class Diagrams, System Sequence Diagrams, State Diagrams, and Activity Diagrams. To keep things simple, we will only use activity diagrams. Later on we will explore some other kinds of UML diagrams.

An *Activity Diagram* is similar to a flow chart. (If you do not know what a flow chart is, that's okay — we will not be discussing flow charts.) An activity diagram shows the flow of a program or a component from its beginning to its end. It helps to visualize exactly how a component or a block of code is written.

Your deliverable is a activity diagram. That is, it's an image file, preferable a PDF. Take your use case that you developed in Step 1, and create an activity diagram showing how the use case will be coded in a program.

- `https://modernanalyst.com/Resources/Articles/tabid/115/ID/1830/An-Introduction-to-Activity-Diagram aspx`
- `https://www.lucidchart.com/pages/uml-activity-diagram`
- `https://support.microsoft.com/en-us/office/create-a-uml-activity-diagram-19745dae-2872-4455-a906-1`