Description

Code walkthrough is an informal process where code is reviewed for technical accuracy with the objective of finding errors and improving the quality of the code. The author(s) of the code lead the code walkthrough. The main purpose of walkthrough is to help team members gain an understanding of the content of the project and identify its potential flaws. Note that the goal of a walkthrough is an error detection (logical, compiler, run-time, output format, against development standards, etc.), not error correction. When the walkthrough is finished, the author of the output is responsible for taking the necessary actions to correct the errors.

Steps in Software Design and Development

Before participating in the code walkthrough, you must have developed your software requirements, software design (UML diagrams) and make a significant progress towards the implementation of your proposed project.

Please read sections 7.1 and 7.2 for the details of the software development activities. Overall, the following steps are typically taken during the software development process.

- Establishing the **software requirements**: *what* a program must accomplish.
- Creating a **software design**: *how* a program will accomplish its requirements.
- **Implementing** the design: process of writing the code (translating design into a programming language).
- **Testing**: ensuring that a program will solve the intended problem.

Specifically, you should first identify the objects from the software requirements, similar to an example in Figure 7.1. Then, decide what is an object and what is an attribute of another object. Next, determine if there is a need for supporting class(es), in addition to classes that represent objects. Finally, assign responsibilities to each class (behaviors/methods of the class).

Code Walkthrough Process

Code Walkthrough is a peer review of the code in which an author of the code leads the review process and the reviewers ask questions and spot possible errors. Teaching assistants and the instructor will act as the reviewers. Each project’s team members (or a single member) is considered
to be an author of the code and should equally contribute during the walkthrough process. A group of reviewers will conduct a walkthrough with each project’s team (authors). Team members of each project should decide beforehand who will be responsible for leading which portion of the review. The process we will utilize for each team is as follows:

1. A team member will describe project’s software requirements and design by utilizing any supplemental materials, such as requirements documentation and diagrams/flowcharts. Reviewers may ask questions to better understand the overall goals of the project.

2. For each existing class, a team member will describe the written program by going through the code line by line and explaining the purpose of each line or a sequence of lines.

3. The reviewers will provide feedback at the end of the review of each class or a complete review of classes, as appropriate.

4. At the end of the walkthrough, the reviewers will report a list of findings and also identify high level action items, which will include the required next steps for the project’s team members to take. This report will be shared with each team following the walkthrough.

**Evaluation**

The code walkthrough will be evaluated based on the following (all team members must contribute):

- The progress of the project completion. You should be close to being half-way finished with your implementation.

- The quality of the supporting materials (such as software requirements and software design including flow charts/UML diagrams, etc.) and their explanation to assist reviewers with their understanding of the entire project.

- The quality of the code explanation. You should demonstrate a clear understanding of the code you present.