

# Software Construction and Testing Project Winter 2024

Dr. Ahmed Maghawry  
TA Nadeen Serag  
TA Menna Singergy

## 1 Project Overview

### 1.1 Team Formation

A team should consist of 4-5 members.

### 1.2 Project Idea

This project should cover any of the suggested ideas:

- **Restaurant Reservation and Management System**
- **E-commerce Website**
- **Personal Finance Tracker with Budget Recommendations**
- **E-Learning Course Management System**
- **Any Idea of your own ; however, you will need to discuss it with the TA**

### 1.3 Idea Description

Description of the previously mentioned ideas:

- **Restaurant Reservation and Management System** : Implement a web application where customers can reserve tables, order food, and provide feedback. The admin side could manage bookings, view feedback, and update menu items.
- **E-commerce Website** : Develop a website that allows users to browse, search, purchase products online, and get notifications while providing a seamless shopping experience and robust administrative features. The

- **Personal Finance Tracker with Budget Recommendations** : Create an app to track expenses and incomes, set budgets, and offer spending recommendations. Include **data visualizations** and reports.
- **E-Learning Course Management System** : Build an online course platform where instructors can create courses, add lessons, upload resources, and manage students. Students can enroll, view content, and track their progress.

## 1.4 Points To Be Covered In Project

The points that **must** be covered throughout the project:

- **Programming Paradigms** : Look for the use of declarative and imperative programming styles.
- **Design Patterns** : Assess the implementation of design patterns.
- **Test-Driven Development (TDD)** : Evaluate the use of TDD in the project.
- **Testing Techniques and Coverage** : Examine the testing techniques used (unit testing, integration testing , etc.) and the test coverage achieved (front-end and backend testing) .
- **Code Quality** : Ensure adherence to clean code principles, SOLID principles, and separation of concerns. Evaluate the code's maintainability, readability, and modularity.

## 2 Milestone 1 (Deadline: 15/11/24)

This milestone holds 10% of the total grade.

- **Task**: Draw the proposed system architecture (monolithic, tiered/layered, microservices) and select the desired programming framework.
- **Bonus** : Drawing the desired architecture diagrams (class diagram, sequence diagram, entity diagram, etc)
- **Submission** : A Google Form will be sent to upload your system architecture and diagrams.

## 3 Milestone 2 (Deadline: 7/12/24)

This milestone holds 15% of the total grade.

- **Task**: Deliver the beta version of the software with no syntax errors, ensuring it works for the happy path scenarios.

- **Review :** TA reviews the beta version and provides feedback.
- **Evaluation :** Evaluation will be made during the normal labs. Scheduling is made on a first-come, first-served basis. (you can choose any lab you like since cross-teams are allowed). Each team has 20 mins to showcase their project.

*Note: The beta version is a sample of your compiled code.*

## 4 Enhancement Phase

Apply feedback provided by TA or further enhance the project (refactor, review, and regression testing).

## 5 Milestone 3 (Deadline: 23/12/24)

This milestone holds 15% of the total grade.

- **Final Delivery :** Complete and discuss the final version of the project.

## 6 Cheating Cases

- **Case 1:** If your diagrams/code was generated using any AI tool, this will result in 0 for the whole project.
- **Case 2 :** If 2 teams have the same code, this will result in 0 for the whole project.