United International University
Department of Computer Science and Engineering

CSE 3421: Software Engineering Mid: Spring 2025

Total Marks: 30 Time: 1 hour and 30 minutes

Any examinee found adopting unfair means will be expelled from the trimester / program as per UIU disciplinary rules.

Answer all the questions. The numbers on the right of the questions denote their marks.

1. (a) **Write GIT commands** for the following tasks: (6)

   I Make a new GIT repository on your machine from this link www.github.com/MASK

   II Create 2 new files named **Steel.txt** and **Scorpio.txt** and save a version of the files

   III Create 2 new branches named **Tower** and **Queens**

   IV On the Queens branch, save the recent edit of the Scorpio.txt file

   V On the Tower branch, save the recent edit of the Steel.txt file

   VI Create a new file named **Shield.txt** and save it to the Queens branch

   VII You forgot to set your name and email. Set your name and email.

   VIII You want to see what changes your teammates have made. Bring the recent version of the project on your machine.

   IX Merge all the work and branches and upload your work to GitHub

2. (a) What is the **difference** between **Functional** and **Non-Functional Requirements**? **Explain** with **an example**. (2)

   (b) A new bank recently got many new customers. So they decided to make an online banking platform. However, due to the rapid and irresponsible development, it is facing several issues. (4)

   - Users' passwords are stored in plain text, making them easily accessible if the database is breached.
   - Transactions can be modified by an attacker before being processed.
   - The service often becomes unavailable during peak hours, preventing users from making urgent transactions.

   Analyze which **security principles** are being **violated** and **explain the risks** associated with these issues.

3. (a) How is **User-End Documentation different** from **Technical Documentation**? Provide **examples**. (2)

   (b) A large government agency is developing a highly regulated system for handling tax records. The project requires extensive documentation and strict approval at each stage before moving forward. Any changes in the later stages would be costly and time-consuming. Which **software development model** would be the best fit for this project? **Explain** with **proper reasoning**. (4)

4. (a) How does the **Sprint Review** differ from the **Sprint Retrospective** in Scrum? (2)

   (b) **Explain** how the **Spiral** model incorporates **risk management** at **different stages of development**. How does this **differ** from risk handling in the **Waterfall** model? (4)

5. (a) What **problems** arise when you directly edit a function's parameters? How do you **refactor** such a code? (2)

   (b) **Refactor** the following code: (4)

```
public class A {
    String a;
    double b;

    A(String a, double b) {
        this.a = a;
        this.b = b;
        System.out.println("Name: " + a + ", CGPA:
             " + b);
        if(b>3.5) System.out.println("Best");
        if(b>3.0) System.out.println("Better");
        if(b>2.0) System.out.println("Good");}
}
```

```
public class B {
    double b[4];

    double p1(){
        int x = b[0]+b[1]+b[2]+b[3];
        x = x/4;
        return x;}
}
```