



United International University

Department of Computer Science and Engineering

CSE 3421: Software Engineering Mid: Fall 2024

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. Numbers to the right of the questions denote their marks.

1. (a) **Write GIT commands** for the following tasks: (6)
 - i) Download a GIT repository from this link www.github.com/CoolRepo
 - ii) Create 2 new branches named **Audio** and **Video**
 - iii) Create 2 new files named **Song.txt** and **Movie.txt**
 - iv) Edit the Song.txt file and commit it to the Audio branch
 - v) Update the Movie.txt file and commit it to the Video branch
 - vi) Create a new file named **Party.txt** and commit it to the Audio branch
 - vii) Revert back to the previous commit in Audio branch
 - viii) Merge all the branches to the main branch and upload your work to GitHub
2. (a) **Explain the difference between Requirement Verification and Requirement Validation.** (2)
(b) Mr. X, a novice programmer, has created a social media software, with lots of bugs. For example, you can log in to any account by retyping the username as the password. Also, when you visit someone's profile to check their status, you find a editable text which you can change easily. During rush hours 9-11 PM, the social media suddenly freezes for a few users. Which of the **security principles** are **violated** in the above scenario? **Explain with proper reasoning.** (4)
3. (a) How are **Architectural Documentation** different from **Technical Documentation**? **Explain with suitable examples.** (2)
(b) Due to the heavy natural disasters in the country, the government has decided to build a software that can predict the probability of the occurrences and locations of the natural disasters. The project needs to work with data from sensors which are highly sensitive. The calculations are complicated and need to be precise to accurately predict the time and location. The government has decided to invest significant funds to this project to protect the people of the country. Which **model** will be the **best fit** for the scenario above? **Explain with proper reasoning.** (4)
4. (a) How does the **role** of a **Scrum Master** vary from that of a **Product Owner** in Scrum model? (2)
(b) Write **1 advantage** and **1 disadvantage** each for the following **XP Principles** : (4)
 - **On-Site Customer**
 - **Pair Programming**
5. (a) How can you **refactor** a code that has a **repeating temporary variable** for almost every operation? (2)
(b) **Refactor** the following **code** (*See both the pages*) (4)

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

    A(String a, double b) {
        this.a = a;
        this.b = b;
    }

    void f1() {
        System.out.print("Comedy - ");
        System.out.println("Name: " + a + ", Price: " + b);
    }

    double f2(int a) {
        return a*b;
    }

    void f3(int star) {
        if(star>4) System.out.println("Great");
        else System.out.println("Moderate");
    }
}
```

```

public class B {
    String a;
    double b;

    B(String a, double b) {
        this.a = a;
        this.b = b;
    }

    void f1() {
        System.out.print("Horror - ");
        System.out.println("Name: " + a + ", Price: " + b);
    }

    double f2(int a) {
        double x = 0;
        for(int i=1; i<=a; i++) x += b;
        return x;
    }

    void f3(int star) {
        if(star>4) System.out.println("Great");
        else System.out.println("Moderate");
    }
}

```

```

public class C {
    String a;
    double b;

    C(String a, double b) {
        this.a = a;
        this.b = b;
    }

    void f1(){
        System.out.print("Science Fiction - ");
        System.out.println("Name: " + a + ", Price: " + b);
    }

    double f2(int a) {
        int i = 1;
        int x = 0;
        while(i <= a) {
            x += b;
            i++;
        }
        return x;
    }

    void f3(int star) {
        if(star>4) System.out.println("Great");
        else System.out.println("Moderate");
    }
}

```