



مدرس المقرر



أحمد كريم

ITCS107/114

Computer Programming II

Final Exam Revision



سجّل الآن
عبر موقعنا



www.olearninga.com



[olearninga](https://www.instagram.com/olearninga)



66939059

Past Final Exam

First Semester, 2024/2025

Question 1

(A) Find Output

```
int [] one = {1, 20, 4, 22};
int [] two = {10, 4, 20, 15};
int x = 2;
for(int i = 0; i < one.length; i++)
{
    try
    {
        if (one[i] == two[3-i])
        {
            x = one[i];
            throw new Exception("out");
        }
        one[i] = x * 2;
        x++;
        System.out.println(x);
    }
    catch(Exception exp) {
        System.out.println(exp.getMessage()); }
}
for(int i = 0; i < one.length; i++)
    System.out.println( one[i] );
```

(B) Find Output

```
public static void main(String[] args)
{
    int [] list = {50,10,5,10,30};
    int R = compute (list, 0, 4);
    System.out.println("Result =" + R );}

public static int compute (int [] list, int n, int m)
{
    System.out.println(m);
    if (n == m)
    {
        System.out.println(n);
        return 0;
    }
    else if (list[n] == list[m])
    {
        System.out.println(list[m]);
        return n;
    }
    else
        return 1 + compute(list, n+1, m-1);
}
```

Question 2

Select the Correct answer

1. Which of the following is true about inheritance in Java?
 - A. A class can inherit from multiple classes.
 - B. A class can inherit from only one superclass.
 - C. Java supports multiple inheritance through classes.
 - D. Inheritance is achieved through interfaces only.

2. Which of the following is a valid interface declaration in Java?
- A. `interface TestInterface { void testMethod(); }`
 - B. `class TestInterface { void testMethod(); }`
 - C. `interface TestInterface { void testMethod() {} }`
 - D. `abstract interface TestInterface { void testMethod(); }`

3. What is the keyword used to inherit a class in Java?

A. extends

B. implements

C. inherits

D. include

4. What will happen if a subclass does not override a method from its superclass?
- A. The subclass will inherit the superclass method.
 - B. The subclass will not be able to access the superclass method.
 - C. The subclass will create a new method.
 - D. The subclass will have a compile-time error.

Question 3

Write a **recursive** method that takes an integer n as parameter (*where* $n \geq 1$).). The method should compute and return the sum of the following series based on the value of n .

$$find(n) = \frac{1}{1} + \frac{1}{3} + \frac{1}{5} \dots + \frac{1}{n}$$

For example,

$$\text{if } n = 1: \quad find(1) = \frac{1}{1} = 1.0$$

$$\text{if } n = 2: \quad find(2) = \frac{1}{1} = 1.0$$

$$\text{if } n = 3: \quad find(3) = \frac{1}{1} + \frac{1}{3} = 1.333$$

$$\text{if } n = 4: \quad find(4) = \frac{1}{1} + \frac{1}{3} = 1.333$$

```
public static double find (int n){
```

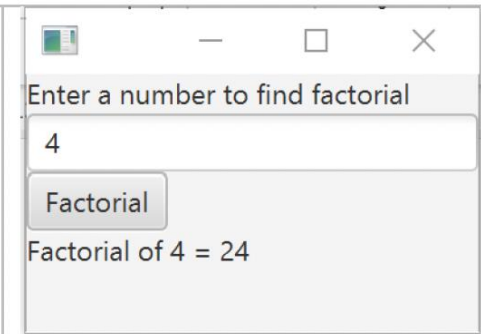
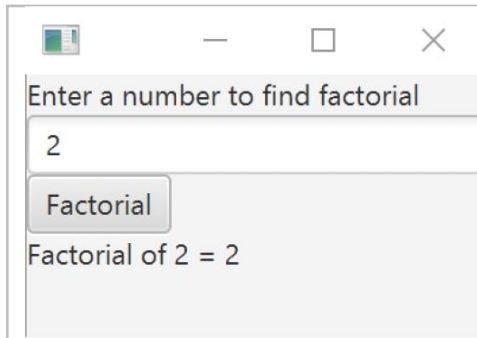
Question 4

Consider the Following GUI Application and the corresponding Start method.

```
public class Factorial extends Application {  
    private Label lblFactorial;    private TextField tfNum;    private Button btnCountFact;  
    @Override  
    public void start(Stage primaryStage) {  
        Label lblMessage = new Label("Enter a number to find factorial ");  
        tfNum = new TextField("0");  
        lblFactorial = new Label("Result");  
        btnCountFact = new Button("Factorial");  
        VBox VB1 = new VBox(lblMessage,tfNum,btnCountFact,lblFactorial);  
        btnCountFact.setOnAction(this::findFactorial);  
        Scene scene = new Scene(VB1, 400, 300);  
        primaryStage.setScene(scene);  
        primaryStage.show();  
    }  
}
```

Write Java code to implement the **findFactorial** method. The method should calculate the Factorial of a given number and display on the label.

The Factorial of a whole number 'n' is defined as the product of that number with every whole number less than or equal to 'n' till 1. For example, the factorial of 4 is ($4 \times 3 \times 2 \times 1 = 24$), and factorial of 2 is ($2 \times 1 = 2$)



Question 5

The file "book.txt" contains a list of books in an inventory. The file includes the title, author, price, stock, and year of publication. The file has an unknown number of lines and uses a comma-separated format. The first line in the file is a header line, and the second line contains the average price.

Your program should write the following to an output file named "out.txt":

1. The books that were published after 2020, have more than 10 in stock, and have a price higher than the average price.
2. Additionally, your program should output the number of books and the average price of the books satisfying the given condition.

Format the output file as shown in the sample.

book.txt

```
Title, Author, Price, Stock, Year
AveragePrice=60.55
Deep Learning with Python,François Chollet,39.99,5,2020
Data Structures and Algorithm Analysis in C++,Mark Allen Weiss,89.99,15,2022
Data Structures and Algorithms in Python,Michael T. Goodrich,60.99,12,2021
Java-The Complete Reference,Herbert Schildt,54.99,8,2018
Java Concurrency in Practice,Brian Goetz,49.99,20,2006
Cloud Computing-Principles and Paradigms,Rajkumar Buyya,79.99,10,2011
Fundamentals of Database Systems,Ramez Elmasri and Shamkant B Navathe,89.99,25,2021
SQL Performance Explained,Markus Winand,39.99,5,2021
```

Out.txt

Title	Stock	Price	Year
Data Structures and Algorithm Analysis in C++	15	89.99	2022
Data Structures and Algorithms in Python	12	60.99	2021
Fundamentals of Database Systems	25	89.99	2021

Number of Books = 3 and Average Price = 80.32333333333332

```
import java.io.PrintWriter; import java.io.FileNotFoundException;
import java.io.IOException; import java.io.File; import java.util.Scanner;
public class fileDemo{ public static void main(String [] args){
```