Pak-Austria Fachhochschule
Institute of Applied Sciences andTechnology, Haripur
LAB 02 – Spring 2025

Name: Inshirah Hassan Reg NO.: B22F0064SE112
Subject: Software Development and Construction Instructor: Dr. Nabeel Ahmed
Time Allowed: 2 hr 30 min. Lab Engineer: Zainab Tahir

1. Write a Java program that checks if a number is even or odd using an **if** statement. Print "**Even**" if the number is even and "**Odd**" if the number is odd.

Code:

```
package Task2;

import java.util.Scanner;

public class Q1 {
    Run | Debug
    public static void main(String[] args) {
        try(Scanner sc = new Scanner(System.in);){
        int num;
        System.out.println(x:"Enter a num below:");
        num = sc.nextInt();
        if (num % 2 == 0) {
            System.out.println("Number " + num+ " is even" );
        }
        if (num % 2 != 0) {
            System.out.println("Number " + num+ " is odd" );
        }
        }
    }
}
```

Output:

```
pData\Roaming\Code\User\workspaceStorage\
Enter a num below:
8
Number 8 is even
PS D:\6th sem\Construction\lab>
```

2. Create a Java program that checks if a person is eligible to vote. The eligibility is determined if the person's

age is **18** or older. Use an if-else statement to print "**Eligible to vote**" if the person is 18 or older, and "**Not eligible to vote**" otherwise

```java
package Task2;

import java.util.Scanner;

public class q2 {
    Run | Debug
    public static void main(String[] args) {
        System.out.println(x:"This program is to cheak the eligibiity for vote");
        try(Scanner sc =new Scanner(System.in)){
            System.out.println(x:"Enter your age below");
            int age= sc.nextInt();
                if (age >=18) {
                    System.out.println(x:"Your are eligible for vote");
                    } else{
                        System.out.println(x:"You are not eligible for vote");
                    }

        }
    }
}
```

Output:

```
This program is to cheak the eligibiity for vote
Enter your age below
52
Your are eligible for vote
PS D:\6th sem\Construction\lab>
```

3. Write a Java program that determines the grade of a student based on a score. Use else-if to print "**A" for scores 90** and a**bove**, "**B" for scores 80-89,** "**C" for scores 70-79**, "**D" for scores 60-69**, and "**F" for scores below 60.**

```java
package Task2;
import java.util.Scanner;
public class q3 {
    Run | Debug
    public static void main(String[] args) {
        System.out.println(x:"Grade system");
        System.out.println(x:"Enter your makrs below ");
        try(Scanner sc = new Scanner(System.in)){
            int marks = sc.nextInt();
            if(marks >= 90 && marks <= 100)
           { System.out.println(x:"Grade A");}
            else if(marks >= 80 && marks < 89)
            {
                System.out.println(x:"Grade B");
            }else if(marks >= 70 && marks < 79)
            {
                System.out.println(x:"Grade C");
            }
            else if(marks >= 60 && marks < 69)
            {
                System.out.println(x:"Grade D");
            }
            else
            { System.out.println(x:"Grade F");}
    }
}
}
```

Output:

```
n' 'Task2.q3'
Grade system
Enter your makrs below
78
Grade C
PS D:\6th sem\Construction\lab>
```

4. Write a Java program that simulates a traffic light system. The program should use a `switch` statement to print the action to take based on the current traffic light color. The traffic light colors are represented by integers as follows:

   - `1` for Red
   - `2` for Yellow
   - `3` for Green

   The program should print the following actions:

   - **Red**: `"Stop"`
   - **Yellow**: `"Get Ready"`

- **Green**: `"Go"`

```java
package Task2;

import java.util.Scanner;

public class q4 {
    Run | Debug
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.println(x:"Enter the traffic light color (1 for Red, 2 for Yellow, 3 for Green):");
        int color = scanner.nextInt();

        switch (color) {
            case 1:
                System.out.println(x:"Red: Stop");
                break;
            case 2:
                System.out.println(x:"Yellow: Get Ready");
                break;
            case 3:
                System.out.println(x:"Green: Go");
                break;
            default:
                System.out.println(x:"Invalid traffic light color!");
        }

        scanner.close();
    }
}
```

Output:

```
Enter the traffic light color (1 for Red, 2 for Yellow, 3 for Green):
 3
Green: Go
PS D:\6th sem\Construction\lab>
```

5. Develop a Java program that prints the name of the month based on the month number (1-12) using a switch statement. For example, if the month number is 3, it should print "March".

```java
package Task2;
import java.util.Scanner;
public class q5 {
    Run | Debug
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.println(x:"Enter the month number (1-12):");
        int month = scanner.nextInt();
        switch (month) {
            case 1:
                System.out.println(x:"January");
                break;
            case 2:
                System.out.println(x:"February");
                break;
            case 3:
                System.out.println(x:"March");
                break;
            case 4:
                System.out.println(x:"April");
                break;
            case 5:
                System.out.println(x:"May");
                break;
            case 6:
                System.out.println(x:"June");
                break;
            case 7:
                System.out.println(x:"July");
                break;
            case 8:
                System.out.println(x:"August");
                break;
            case 9:
                System.out.println(x:"September");
                break;
            case 10:
                System.out.println(x:"October");
                break;
            case 11:
                System.out.println(x:"November");
                break;
            case 12:
                System.out.println(x:"December");
                break;
            default:
                System.out.println(x:"Invalid month number!");
        }
        scanner.close();
    }
}
```

Output:

```
Enter the month number (1-12):
8
August
PS D:\6th sem\Construction\lab>
```

6. Create a Java program that calculates the sum of all even numbers from 1 to 50 using a while loop. Print the total sum after the loop finishes

```java
package Task2;

public class q6 {
    Run | Debug
    public static void main(String[] args) {
        int sum = 0;
        int number = 1;

        while (number <= 50) {
            if (number % 2 == 0) {
                sum += number;
            }
            number++;
        }

        System.out.println("Sum of all even numbers from 1 to 50: " + sum);
    }
}
```

Output:

```
PS D:\6th sem\Construction\lab>  & 'C:\Program Files\Jav
pData\Roaming\Code\User\workspaceStorage\d9275f8f5d2fc8b
Sum of all even numbers from 1 to 50: 650
PS D:\6th sem\Construction\lab>
```

7. Write a do-while loop that calculates the sum of all positive integers entered by the user. The loop should terminate when the user enters a negative number.

```java
package Task2;

import java.util.Scanner;

public class q7 {
    Run | Debug
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int sum = 0;
        int number;

        do {
            System.out.println(x:"Enter a positive integer (or a negative number to exit):");
            number = scanner.nextInt();

            if (number >= 0) {
                sum += number;
            }
        } while (number >= 0);

        System.out.println("Sum of all positive integers entered: " + sum);

        scanner.close();
    }
}
```

Output:

```
Enter a positive integer (or a negative number to exit):
4
Enter a positive integer (or a negative number to exit):
7
Enter a positive integer (or a negative number to exit):
-8
Sum of all positive integers entered: 11
PS D:\6th sem\Construction\lab>
```