جامعة الأميرة نورة بنت عبدالرحمن
كلية علوم الحاسب والمعلومات

IQ ACADEMY

CS110T: Programming Language1

Lab 5: Control Statements

Lab Objectives:

In this lab, the student will practice:

- ✓ Reading data values from the user.
- ✓ Using if and nested if statements

1st Semester 2025-2026

Lab Exercise 1: Code Tracing

Find and discuss the output for the following codes:

a.

```
String month = "March";
if (month.equals("February"));
     System.out.println(month+" has 28 days");
```

March has 28 days

b.

```
int mark = 58;
if (mark >= 60)
    System.out.println("Your mark is: " +mark);
    System.out.println("You are pass");
```

You are pass

Lab Exercise 2: Code Writing (1)

a. Write a program that ask the user to enter a number then print if the number is positive. (if statement)

Output sample:

```
Enter a number: 10
10 is positive
```

```
import java.util.Scanner;

public class PositiveNumber {
  public static void main(String[] args) {
    Scanner input = new Scanner(System.in);

    System.out.print("Enter a number: ");
    int number = input.nextInt();

    if (number > 0) {
      System.out.println(number + " is positive");
    }
  }
}
```

b. Write a Java program that checks whether a given number entered by user is even or odd. (if-else statement)

Output sample:

```
Entera number: 20
20 iseven
```

```
Entera number: 11

11 is
     odd
```

```
import java.util.Scanner;

public class EvenOdd {
   public static void main(String[] args) {
      Scanner input = new Scanner(System.in);

      System.out.print("Enter a number: ");
      int number = input.nextInt();

      if (number % 2 == 0) {
         System.out.println(number + " is even");
      } else {
         System.out.println(number + " is odd");
      }
   }
}
```

c. Update the solution of (b) using **ternary operator**.

```
import java.util.Scanner;

public class EvenOddTernary {
   public static void main(String[] args) {
      Scanner input = new Scanner(System.in);

      System.out.print("Enter a number: ");
      int number = input.nextInt();

      String result = (number % 2 == 0) ? "even" : "odd";
      System.out.println(number + " is " + result);

      input.close();
   }
}
```

Lab Exercise 3: Code Writing (2)

a) Problem Description: Write a Java program that prompts the user to enter an integer representing the day of the week (1to 7). The program should display the corresponding day name.

- "Invalid day" for numbers less than 1 or greater than 7.
- "Monday" for 1
- "Tuesday" for 2
- "Wednesday" for 3
- "Thursday" for 4
- "Friday" for 5
- "Saturday" for 6
- "Sunday" for 7 **Output Sample:**

```
Enter the day number: 5
Friday
```

```
import java.util.Scanner;

public class DayOfWeek {
   public static void main(String[] args) {
      Scanner input = new Scanner(System.in);

      System.out.print("Enter the day number: ");
      int day = input.nextInt();

      if (day < 1 || day > 7) {
         System.out.println("Invalid day");
      } else if (day == 1) {
         System.out.println("Monday");
      } else if (day == 2) {
         System.out.println("Tuesday");
      } else if (day == 3) {
         System.out.println("Wednesday");
      } else if (day == 4) {
         System.out.println("Thursday");
      } else if (day == 5) {
         System.out.println("Friday");
      } else if (day == 6) {
         System.out.println("Saturday");
      } else {
         System.out.println("Sunday");
      }
   }
}
```

b) Problem Description: Write a Java program that prompts the user to enter a numerical score (from 0 to 100). Based on the score, the program should display the corresponding letter grade according to the following scale:

- A for scores from 90 to 100.
- B for scores from 80 to 89
- C for scores from 70 to 79
- D for scores from 60 to 69
- F for scores below 60.
- "Invalid grade" for score less than 0 or greater than 100.

Output Sample:

```
Enter your score: 91
Your grade is A
```

```
import java.util.Scanner;

public class GradeCalculator {
   public static void main(String[] args) {
      Scanner input = new Scanner(System.in);

      System.out.print("Enter your score: ");
      int score = input.nextInt();

      if (score < 0 || score > 100) {
         System.out.println("Invalid grade");
      } else if (score >= 90) {
         System.out.println("Your grade is A");
      } else if (score >= 80) {
         System.out.println("Your grade is B");
      } else if (score >= 70) {
         System.out.println("Your grade is C");
      } else if (score >= 60) {
         System.out.println("Your grade is D");
      } else {
         System.out.println("Your grade is F");
      }
   }
}
```

c) Problem Description: Write a Java program that prompts the user to enter a number representing their speed (in km/h).

- "Invalid speed" for values less than 0.
- "Very Slow" for speeds between 0 and 20.
- "Normal Speed" for speeds between 21 and 60.
- "Fast" for speeds between 61 and 120.
- "Very Fast" for speeds above 120

Output Sample:

```
Enter your speed: 150
Very Fast
```

```
import java.util.Scanner;

public class SpeedCategory {
   public static void main(String[] args) {
      Scanner input = new Scanner(System.in);

      System.out.print("Enter your speed: ");
      int speed = input.nextInt();

      if (speed < 0) {
         System.out.println("Invalid speed");
      } else if (speed <= 20) {
         System.out.println("Very Slow");
      } else if (speed <= 60) {
         System.out.println("Normal Speed");
      } else if (speed <= 120) {
         System.out.println("Fast");
      } else {
         System.out.println("Very Fast");
      }
   }
}
```


IQ
ACADEMY