
Experiment 2: Write a Java program to perform various operations based on given data

(a) Temperature Conversion

Aim:

To write a Java program to convert temperature from Celsius to Fahrenheit.

Theory:

Temperature conversion is a basic numerical computation. The Fahrenheit temperature is calculated using the formula:

$$F = (C \times 9/5) + 32$$

Algorithm:

1. Accept temperature in Celsius.
2. Apply the conversion formula.
3. Display the temperature in Fahrenheit.

Program Code:

```
import java.util.Scanner;

public class TemperatureConversion {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter temperature in Celsius: ");

        double celsius = sc.nextDouble();

        double fahrenheit = (celsius * 9 / 5) + 32;
```

```
System.out.println("Temperature in Fahrenheit: " + fahrenheit);  
  
sc.close();  
  
}  
  
}
```

Result: The program successfully converts temperature from Celsius to Fahrenheit.

(b) Digit Extraction

Aim:

To write a Java program to extract digits from a given number.

Theory:

Digit extraction is done using modulus (%) and division (/) operators.

Algorithm:

1. Accept an integer number.
2. Extract digits using modulo and division.
3. Display each digit.

Program Code:

```
import java.util.Scanner;

public class DigitExtraction {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();

        while (num > 0) {
            int digit = num % 10;
            System.out.println("Digit: " + digit);
            num = num / 10;
        }
        sc.close();
    }
}
```

Result: The program successfully extracts and displays digits of the given number.

(c) Number Sign Check

Aim:

To write a Java program to check whether a number is positive, negative, or zero.

Theory:

Conditional statements are used to evaluate numerical conditions.

Algorithm:

1. Accept a number.
2. Use if-else conditions to check the sign.
3. Display the result.

Program Code:

```
import java.util.Scanner;

public class NumberSignCheck {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();

        if (num > 0)
            System.out.println("Positive number");
        else if (num < 0)
            System.out.println("Negative number");
        else
            System.out.println("Zero");
    }
}
```

```
    sc.close();  
}  
}
```

Result: The program correctly identifies the sign of the number.

(d) Profit or Loss Calculation

Aim:

To write a Java program to calculate profit or loss.

Theory:

Profit or loss is calculated by comparing cost price and selling price.

Algorithm:

1. Accept cost price and selling price.
2. Compare both values.
3. Display profit, loss, or no profit no loss.

Program Code:

```
import java.util.Scanner;

public class ProfitLoss {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter Cost Price: ");
        double cp = sc.nextDouble();
        System.out.print("Enter Selling Price: ");
        double sp = sc.nextDouble();

        if (sp > cp)
            System.out.println("Profit: " + (sp - cp));
        else if (cp > sp)
            System.out.println("Loss: " + (cp - sp));
```

```
else  
    System.out.println("No Profit No Loss");  
  
    sc.close();  
}  
}
```

Result: The program correctly calculates profit or loss.

(e) Student Admission Eligibility Based on Grade

Aim:

To write a Java program to determine student admission eligibility based on grades.

Theory:

Decision-making statements help determine eligibility criteria.

Algorithm:

1. Accept marks from the user.
2. Assign grade based on marks.
3. Display eligibility status.

Program Code:

```
import java.util.Scanner;

public class AdmissionEligibility {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter marks: ");
        int marks = sc.nextInt();

        if (marks >= 75)
            System.out.println("Grade A - Eligible for Admission");
        else if (marks >= 60)
            System.out.println("Grade B - Eligible for Admission");
        else if (marks >= 40)
            System.out.println("Grade C - Not Eligible");
        else
            System.out.println("Fail - Not Eligible");
    }
}
```

```
        sc.close();  
    }  
}
```

Result: The program correctly determines grade and admission eligibility.