# DATE:26.12.23 JAVA- QUIZ-1

**1. a) Write a Java program that prompts the user to enter an integer, reads the input, and displays the enter on the console**

```
import java.util.Scanner;

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

      System.out.print("Enter an integer: ");
      int Integer = scanner.nextInt();

      System.out.println("Entered integer: " + Integer);

   }

}
```

**b) Develop a Java program that reads two floating-point numbers from the user, calculates their average, and displays the result on the console with two decimal places.**

```
import java.util.Scanner;

public class Demo {

   public static void main(String[] args) {

      Scanner scanner = new Scanner(System.in);

      System.out.print("Enter the first floating-point number: ");

      double number1 = scanner.nextDouble();

      System.out.print("Enter the second floating-point number: ");

      double number2 = scanner.nextDouble();

      double average = (number1 + number2) / 2;

      System.out.printf("Average: %.2f%n", average);

   }

}
```

**2. Implement a Java program that simulates a basic calculator with functionalities to perform addition, su multiplication, and division.**

**PROGRAM CODE:**

```
import java.util.Scanner;

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

      System.out.print("Enter the first number: ");
      double num1 = scanner.nextDouble();

      System.out.print("Enter the operator (+, -, *, /): ");
      char operator = scanner.next().charAt(0);

      System.out.print("Enter the second number: ");
      double num2 = scanner.nextDouble();

      double result = 0;
      switch (operator) {
         case '+':
            result = num1 + num2;
            break;
         case '-':
            result = num1 - num2;
            break;
         case '*':
            result = num1 * num2;
            break;
         case '/':

            if (num2 != 0) {
               result = num1 / num2;
            } else {
               System.out.println("Error: Division by zero is not allowed.");

            }
            break;
         default:
            System.out.println("Error: Invalid operator.");

      }


      System.out.println("Result: " + result);

   }
}
```

**3. Write an Java program to determine if a number n is happy. A happy number is a number defined by the following process: Starting with any positive integer, replace the number by the sum of the squares of its digits. Repeat the process until the number equals 1 (where it will stay), or it loops endlessly in a cycle which does not include 1.Those numbers for which this process ends in 1 are happy. Print true if n is a happy number, and false if not**

**PROGRAM CODE:**

```
import java.util.HashSet;
import java.util.Set;

public class Demo {
   public static void main(String[] args) {
      int n = 19;
      boolean isHappy = isHappyNumber(n);

      System.out.println(isHappy);
   }

   private static boolean isHappyNumber(int n) {
      Set<Integer> Numbers = new HashSet<>();

      while (n != 1 && !Numbers.contains(n)) {
         Numbers.add(n);
         n = sumofsqur(n);
      }

      return n == 1;
   }

   private static int sumofsqur(int num) {
      int sum = 0;
      while (num > 0) {
         int digit = num % 10;
         sum += digit * digit;
         num /= 10;
      }
      return sum;
   }
};
```