Lab 2

1. Write a program that takes a student's score as input and outputs the corresponding grade based on the following scale:

A: 90-100

B: 80-89

C: 70-79

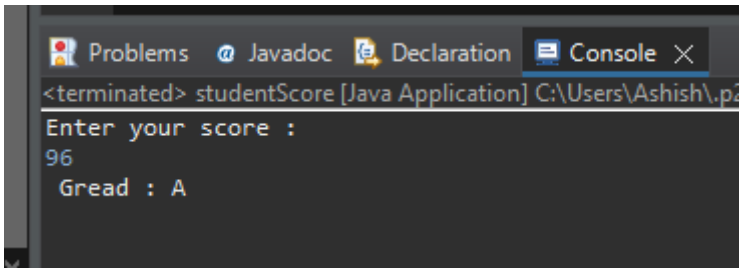
D: 60-69

F: 0-59

Code :

```
package hellow;

import java.util.*;

public class studentScore {
  public static void main(String arg[]) {
    Scanner sc = new Scanner(System.in);

    System.out.println("Enter your score : ");
    int s = sc.nextInt();  // Read the input score and store it in the variable 's'

    // Check if the score is between 90 and 100 inclusive and assign grade 'A'
    if (s >= 90 && s <= 100) {
      System.out.println("Grade : A");
    }
    else if (s >= 80 && s <= 89) {
      System.out.println("Grade : B");
    }
    else if (s >= 70 && s <= 79) {
      System.out.println("Grade : C");
    }
    else if (s >= 60 && s <= 69) {
      System.out.println("Grade : D");
    }
    else if (s >= 0 && s < 60) {
      System.out.println("Grade : F");
    }
    // If the score is not within the valid range, prompt the user to enter a valid
score
    else {
      System.out.println("Enter a valid score between 0 and 100.");
    }
    sc.close();  // Closeing the Scanner
  }
}
```

Output :

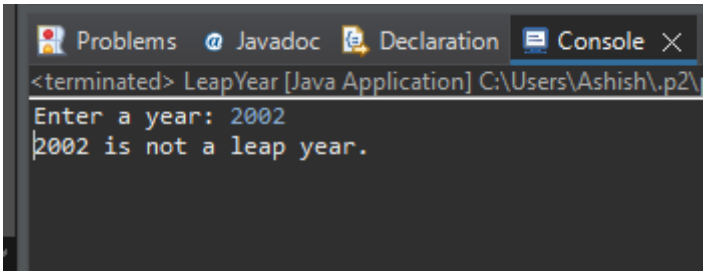


2. Write a program to check if a given year is a leap year. (A year is a leap year if it is divisible by 4 but not by 100, or it is divisible by 400.)

Code :

```
package hellow;

import java.util.Scanner;

public class LeapYear {
  public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter a year: ");
    int year = sc.nextInt();
    // conditions mention in quetion are :
    // If the year is divisible by 400, is a leap year. And
    // If the year is divisible by 4 but not by 100, it is a leap year .
    if ((year % 400 == 0) || (year % 4 == 0 && year % 100 != 0)) {
      System.out.println(year + " is a leap year.");
    } else {
      System.out.println(year + " is not a leap year.");
    }

    sc.close();  // Closeing the Scanner object to free up resources
  }
}
```

Output :



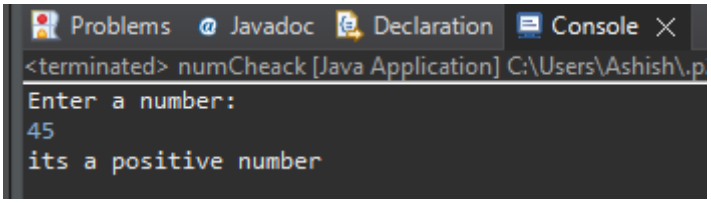
3. Write a program that takes an integer as input and checks if it is positive, negative, or zero.

Code :

```
package hellow;

import java.util.Scanner;
public class NumCheack {
```

```
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);

    System.out.println("Enter a number: ");
    int num = sc.nextInt();

    // using the condition , checking the the number
    if (num < 0) {
      System.out.println("It's a negative number");
    }
    else if (num > 0) {
      System.out.println("It's a positive number");
    }
    else {
      System.out.println("It's zero");
    }

    sc.close();
  }
}
```

Output :

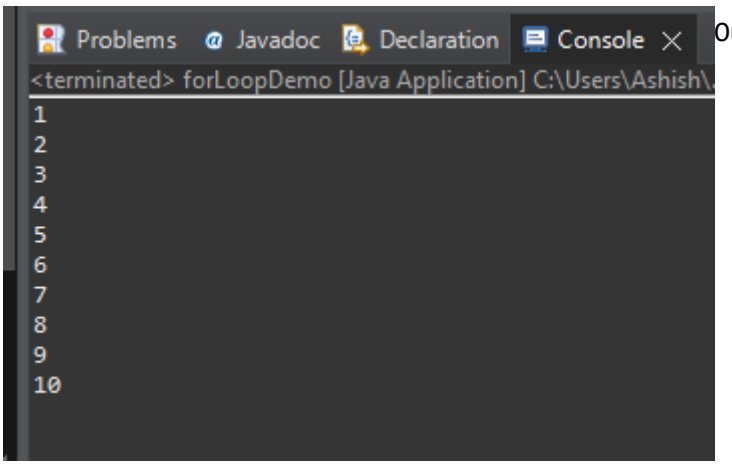


4. Write a program that prints numbers from 1 to 10 using a loop.

Code :

```
package hellow;

public class forLoopDemo {

  public static void main(String[] args) {
    for (int i = 1; i <= 10; i++) {
      System.out.println(i);  // Print the current value of i
    }
  }
}
```

Output :

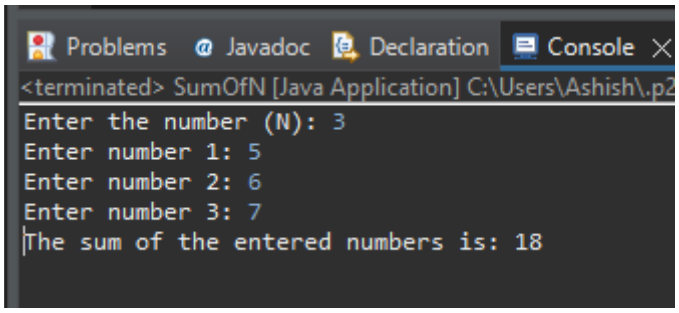


5. Write a program that takes an integer N as input and calculates the sum of entered numbers.

Code :

```
package hellow;

import java.util.Scanner;
public class SumOfN {

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

    System.out.print("Enter the number (N): ");
    int N = sc.nextInt();

    int sum = 0;  // Initializeing  a variable sum to store the sum of entered numbers
    for (int i = 1; i <= N; i++) {         // Useing a for loop to read N numbers
      System.out.print("Enter number " + i + ": ");
      int number = sc.nextInt();
      sum += number;  // Add the entered number to the sum
    }
    System.out.println("The sum of the entered numbers is: " + sum);  // Output
    sc.close();
  }
}
```

Output :



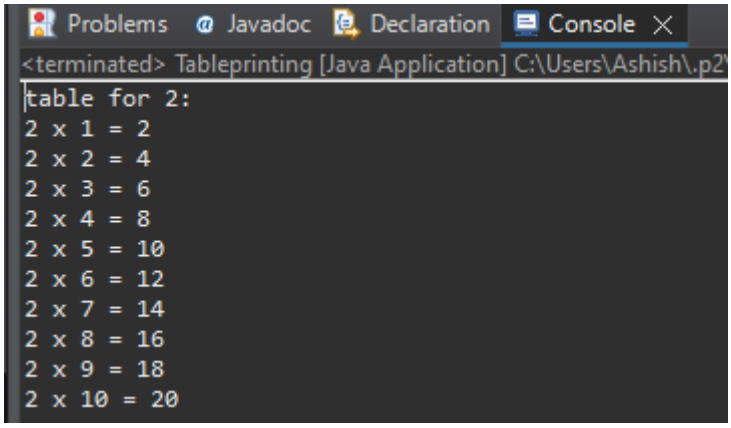
6.Write a program that takes an integer as input and prints its multiplication table up to 10.

Code :

```
package hellow;

import java.util.Scanner;
public class Tableprinting {

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

    System.out.print("Enter an integer: ");
    int number = sc.nextInt(); //getting input
    System.out.println("table for " + number + ":");
```

```
    // Use a for loop to generate and print the multiplication table up to 10
    for (int i = 1; i <= 10; i++) {
      int result = number * i;
      System.out.println(number + " x " + i + " = " + result);
    }

    sc.close();
  }
}
```

Output :

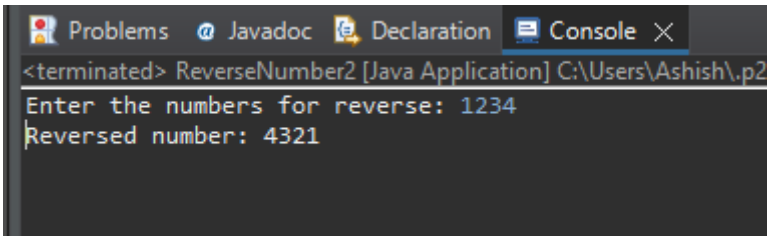


7.Write a program that takes a positive integer as input and prints its digits in reverse order.

Code :

```
package hellow;

import java.util.Scanner;

public class ReverseNumber2 {

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

    System.out.print("Enter the numbers for reverse: ");
    int number = sc.nextInt();
    System.out.print("Reversed number: ");
    while (number > 0) {  // Use a while loop to reverse the digits of the number
      int digit = number % 10;  // for last digit of the number
      System.out.print(digit);  // Print the extracted digit
      number /= 10;
    }
    System.out.println();
    sc.close();
  }
}
```

Output :



8. Create a class Animal with a method makeSound() that prints "Some generic animal sound". Create another class Dog that extends Animal and overrides the makeSound() method to print "Bark". Write a main method to demonstrate calling the makeSound() method on an Animal reference holding a Dog object.

Code :

```
package hellow;

class Animal {

  public void makeSound() {
    System.out.println("Some generic animal sound");
  }
}
// Defining the Dog class that extends Animal
class Dog extends Animal {
  public void makeSound() {
    System.out.println("Dog always Bark");
  }
}
// Main class to demonstrate inheritance and method overriding
public class InheritanceDemoo {
  public static void main(String[] args) {
    Animal a = new Dog();
    a.makeSound();  // Call the makeSound method
  }
}
```

Output :