1.Write a Program to print numbers in words using Nested if and Switch Case. in java.

Ans.

```
import java.util.Scanner;

public class PrintNumberInWords {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number between 0 and 999: ");
        int number = scanner.nextInt();

        printNumberInWords(number);
    }
    public static void printNumberInWords(int n) {
        if (n == 0) {
            System.out.println("Zero");
        } else if (n < 10) {

            switch (n) {
                case 1:
                    System.out.println("One");
                    break;
                case 2:
                    System.out.println("Two");
                    break;
                case 3:
                    System.out.println("Three");
                    break;
                case 4:
                    System.out.println("Four");
                    break;
                case 5:
                    System.out.println("Five");
                    break;
                case 6:
                    System.out.println("Six");
                    break;
                case 7:
                    System.out.println("Seven");
                    break;
                case 8:
                    System.out.println("Eight");
                    break;
                case 9:
                    System.out.println("Nine");
                    break;
            }
        } else if (n < 100) {

            int tens = n / 10;
            if (tens == 1) {
                System.out.print("Ten");
            } else {
```

```
                switch (tens) {
                    case 2:
                        System.out.print("Twenty");
                        break;
                    case 3:
                        System.out.print("Thirty");
                        break;
                    case 4:
                        System.out.print("Forty");
                        break;
                    case 5:
                        System.out.print("Fifty");
                        break;
                    case 6:
                        System.out.print("Sixty");
                        break;
                    case 7:
                        System.out.print("Seventy");
                        break;
                    case 8:
                        System.out.print("Eighty");
                        break;
                    case 9:
                        System.out.print("Ninety");
                        break;
                }
            }

            int units = n % 10;
            if (units != 0) {
                System.out.print("-");
                printNumberInWords(units);
            }
        } else if (n < 1000) {

            int hundreds = n / 100;
            printNumberInWords(hundreds);
            System.out.print(" Hundred");

            int remaining = n % 100;
            if (remaining != 0) {
                System.out.print(" and ");
                printNumberInWords(remaining);
            }
        } else {
            System.out.println("Number too large");
        }
    }
}
```

Output :

Enter a number between 0 and 999: 80 Eighty
Enter a number between 0 and 999: 25 Twenty Five

2. Write a program called PassFail which prints “PASS” if the int variable "mark" is more than or equal to 50; or prints "FAIL" otherwise. .

Ans.

```
import java.util.Scanner;

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

        System.out.print("Enter the mark: ");
        int mark = scanner.nextInt();

        if (mark >= 50) {
            System.out.println("PASS");
        } else {
            System.out.println("FAIL");
        }
    }
}
```

Output :

Enter the mark: 80
PASS .

Enter the mark: 40
FAIL .

3. Write a program called Odd Even which prints *Odd Number" if the int variable number" is Odd,or "Even Number" otherwise.

Ans.

```
import java.util.Scanner;

public class OddEven {
    public static void main(String[] args) {
        // Create a Scanner object to read input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter a number
        System.out.print("Enter a number: ");

        // Read the input as an integer
        int number = scanner.nextInt();

        // Check if the number is odd or even
        if (number % 2 == 0) {
            System.out.println("Even Number");
        } else {
            System.out.println("Odd Number");
        }

        // Close the Scanner to avoid resource leak
        scanner.close();
    }
}
```

Output:

Enter a number: 4

Even Number

Enter a number: 13

Odd Number

4.Write a Program to find sum & average of 10 no. using arrays.

Ans.

```
import java.util.Scanner;

public class SumAndAverage {
    public static void main(String[] args) {
        // Create an array to store 10 numbers
        int[] numbers = new int[10];

        // Create a Scanner object to read input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter 10 numbers
        System.out.println("Enter 10 numbers, one at a time:");

        // Read the input and populate the array
        for (int i = 0; i < 10; i++) {
            System.out.print("Enter number " + (i + 1) + ": ");
            numbers[i] = scanner.nextInt();
        }

        // Calculate the sum of the numbers
        int sum = 0;
        for (int i = 0; i < 10; i++) {
            sum += numbers[i];
        }

        // Calculate the average of the numbers
        double average = (double) sum / 10;

        // Display the sum and average
        System.out.println("Sum: " + sum);
        System.out.println("Average: " + average);

        // Close the Scanner to avoid resource leak
        scanner.close();
    }
}
```

Output:

Enter 10 numbers, one at a time:
Enter number 1: 1
Enter number 2: 4
Enter number 3: 2
Enter number 4: 3
Enter number 5: 5
Enter number 6: 6
Enter number 7: 7
Enter number 8: 9
Enter number 9: 8
Enter number 10: 2
Sum: 47
Average: 4.7

5. Write a program to display reverse of a digit no. using array.

Ans:

```
import java.util.Scanner;

public class ReverseDigits {
    public static void main(String[] args) {
        // Create a Scanner object to read input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter a number
        System.out.print("Enter a number: ");
        int number = scanner.nextInt();

        // Close the Scanner to avoid resource leak
        scanner.close();

        // Find the number of digits in the input number
        int originalNumber = number;
        int digitCount = 0;

        while (originalNumber != 0) {
            originalNumber /= 10;
            digitCount++;
        }

        // Create an array to store the digits
        int[] digits = new int[digitCount];

        // Populate the array with the digits of the input number
        originalNumber = number;
        for (int i = 0; i < digitCount; i++) {
            digits[i] = originalNumber % 10;
            originalNumber /= 10;
        }

        // Display the reverse of the input number
        System.out.print("Reverse of the number: ");
        for (int i = digitCount - 1; i >= 0; i--) {
            System.out.print(digits[i]);
        }
    }
}
```

Output:

Enter a number: 14
Reverse of the number: 14

Enter a number: 32
Reverse of the number: 32

6. Write a program to display grade according to the marks obtained by the student.

Ans.

```
import java.util.Scanner;

public class GradeCalculator {
    public static void main(String[] args) {
        // Create a Scanner object to read input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter the marks
        System.out.print("Enter the marks obtained: ");
        int marks = scanner.nextInt();

        // Close the Scanner to avoid resource leak
        scanner.close();

        // Determine the grade based on the marks
        char grade = calculateGrade(marks);

        // Display the grade
        System.out.println("Grade: " + grade);
    }

    // Function to calculate grade based on marks
    private static char calculateGrade(int marks) {
        char grade;

        if (marks >= 90) {
            grade = 'A';
        } else if (marks >= 80) {
            grade = 'B';
        } else if (marks >= 70) {
            grade = 'C';
        } else if (marks >= 60) {
            grade = 'D';
        } else {
            grade = 'F';
        }

        return grade;
    }
}
```

Output:

Enter the marks obtained: 54
Grade: F

Enter the marks obtained: 65
Grade: D

Enter the marks obtained: 72
Grade: C

Enter the marks obtained: 84
Grade: B

Enter the marks obtained: 99
Grade: A

7.Find the factorial of number if number is given by user using command line argument.

Ans.

```
import java.math.BigInteger;
import java.util.Scanner;

public class Factorial {

    public static void main(String[] args) {
        // Create a Scanner object to read input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter a number
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();

        // Close the Scanner to avoid resource leak
        scanner.close();

        // Calculate factorial using BigInteger
        BigInteger factorial = calculateFactorial(num);

        System.out.printf("Factorial of %d = %s", num, factorial);
    }

    // Function to calculate factorial using BigInteger
    private static BigInteger calculateFactorial(int n) {
        BigInteger result = BigInteger.ONE;
        for (int i = 2; i <= n; ++i) {
            result = result.multiply(BigInteger.valueOf(i));
        }
        return result;
    }
}
```

Output:

Enter a number: 5
Factorial of 5 = 120

Enter a number: 8
Factorial of 8 = 40320

8.Write a program to print Fibonacci series.

Ans.

```
import java.util.Scanner;

public class FibonacciSeries {
    public static void main(String[] args) {
        // Create a Scanner object to read input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter the number of terms in the Fibonacci series
        System.out.print("Enter the number of terms in the Fibonacci series: ");
        int n = scanner.nextInt();

        // Display the Fibonacci series
        System.out.println("Fibonacci Series:");

        for (int i = 0; i < n; i++) {
            System.out.print(fibonacci(i) + " ");
        }

        // Close the Scanner to avoid resource leak
        scanner.close();
    }

    // Function to calculate the nth Fibonacci number
    private static int fibonacci(int n) {
        if (n <= 1) {
            return n;
        } else {
            return fibonacci(n - 1) + fibonacci(n - 2);
        }
    }
}
```

Output:

Enter the number of terms in the Fibonacci series: 12

Fibonacci Series:

0 1 1 2 3 5 8 13 21 34 55 89

9.Write a program to display tables from 2 to 10.

Ans.

```
public class MultiplicationTables {
    public static void main(String[] args) {
        // Display multiplication tables from 2 to 10
        for (int i = 2; i <= 10; i++) {
            System.out.println("Multiplication table for " + i + ":");
            displayTable(i);
            System.out.println(); // Add a newline for better readability
        }
    }

    // Function to display the multiplication table for a given number
    private static void displayTable(int number) {
        for (int j = 1; j <= 10; j++) {
            System.out.println(number + " * " + j + " = " + (number * j));
        }
    }
}
```

Output:

Multiplication table for 2:2 * 1 = 2

2 * 2 = 4

2 * 3 = 6

2 * 4 = 8

2 * 5 = 10

2 * 6 = 12

2 * 7 = 14

2 * 8 = 16

2 * 9 = 18

2 * 10 = 20

Multiplication table for 3:

3 * 1 = 3

3 * 2 = 6

3 * 3 = 9

3 * 4 = 12

3 * 5 = 15

3 * 6 = 18

3 * 7 = 21

3 * 8 = 243 * 9 = 27

3 * 10 = 30

Multiplication table for 4:

4 * 1 = 4

4 * 2 = 8

4 * 3 = 12

4 * 4 = 16

4 * 5 = 20

4 * 6 = 24

4 * 7 = 28

4 * 8 = 32

4 * 9 = 36

4 * 10 = 40

Multiplication table for 5:

5 * 1 = 5

5 * 2 = 10

5 * 3 = 15

5 * 4 = 20

5 * 5 = 25

5 * 6 = 30

5 * 7 = 35

5 * 8 = 40

5 * 9 = 45

5 * 10 = 50

Multiplication table for 6:

6 * 1 = 6

6 * 2 = 12

6 * 3 = 18

6 * 4 = 24

6 * 5 = 30

6 * 6 = 36

6 * 7 = 42

6 * 8 = 48

6 * 9 = 54

6 * 10 = 60

Multiplication table for 7:

7 * 1 = 7

7 * 2 = 14

7 * 3 = 21

7 * 4 = 28

7 * 5 = 35

7 * 6 = 42

7 * 7 = 49

7 * 8 = 56

7 * 9 = 63

7 * 10 = 70

Multiplication table for 8:

8 * 1 = 8

8 * 2 = 16

8 * 3 = 24

8 * 4 = 32

8 * 5 = 40

8 * 6 = 48

8 * 7 = 56

8 * 8 = 64

8 * 9 = 72

8 * 10 = 80

Multiplication table for 9:

9 * 1 = 9

9 * 2 = 18

9 * 3 = 27

9 * 4 = 36

9 * 5 = 45

9 * 6 = 54

9 * 7 = 63

9 * 8 = 72

9 * 9 = 81

9 * 10 = 90

Multiplication table for 10:

10 * 1 = 10

10 * 2 = 20

10 * 3 = 30

10 * 4 = 40

10 * 5 = 50

10 * 6 = 60

10 * 7 = 70

10 * 8 = 80

10 * 9 = 90

10 * 10 = 100

10.Write a program to take an input from user and check given number is prime or not.

Ans.

```
import java.util.Scanner;

public class PrimeChecker {
    public static void main(String[] args) {
        // Create a Scanner object to read input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter a number
        System.out.print("Enter a number: ");
        int number = scanner.nextInt();

        // Close the Scanner to avoid resource leak
        scanner.close();

        // Check if the entered number is prime
        boolean isPrime = checkPrime(number);

        // Display the result
        if (isPrime) {
            System.out.println(number + " is a prime number.");
        } else {
            System.out.println(number + " is not a prime number.");
        }
    }

    // Function to check if a number is prime
    private static boolean checkPrime(int n) {
        if (n <= 1) {
            return false;
        }
        for (int i = 2; i <= Math.sqrt(n); i++) {
            if (n % i == 0) {
                return false;
            }
        }
        return true;
    }
}
```

Output:

Enter a number: 2
2 is a prime number.

Enter a number: 4
4 is not a prime number.

Enter a number: 5
5 is a prime number.