Java medium questions

1. **Write a program to calculate the factorial of number using recursive function.**

Sample Input & Output:

Enter the value of n: 6

Sample Input & Output:

The factorial of 6 is: 720

Test cases:

1. N = 0

2. N = -5

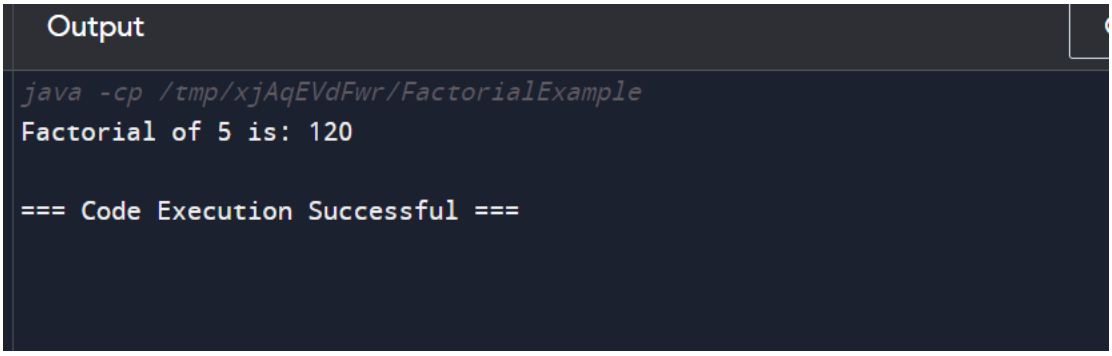
3. N = 1

4. N = M

5. N = %

Code:

```
class FactorialExample{
 public static void main(String args[]){
  int i,fact=1;
int number=5;//It is the number to calculate factorial
        for(i=1;i<=number;i++){
fact=fact*i;
        }
        System.out.println("Factorial of "+number+" is: "+fact);
       }
      }
```



2. **Write a Program to Find the Nth Largest Number in a array.**

Sample Input:

List : {14, 67, 48, 23, 5, 62}

N = 4

Sample Output:

4th Largest number: 23

Test cases:

1. N = 0

2. N = -5

3. N = 1

4. N = M

5. N = %

Code:

```
import java.util.Arrays;
import java.util.Scanner;

public class NthLargestNumber {

    public static void main(String[] args) {
        int[] arr = {14, 67, 48, 23, 5, 62};
        Scanner scanner = new Scanner(System.in);
```

```
        System.out.println("Enter the value of N: ");
        int N = scanner.nextInt();

        if (N <= 0 || N > arr.length) {
            System.out.println("Invalid input: N should be between 1 and " + arr.length);
        } else {
            Arrays.sort(arr);
            int nthLargest = arr[arr.length - N];
            System.out.println(N + "th largest number: " + nthLargest);
        }

        scanner.close();
    }
}
```

```
java -cp /tmp/HulIGBioin/NthLargestNumber
Enter the value of N:
2
2th largest number: 62

=== Code Execution Successful ===
```

3. **Write a program to convert the Binary to Decimal, Octal**

Sample Input:

Given Number: 1101

Sample Output:

Decimal Number: 13

Octal:15

Test cases:

1. 211

2. 11011

3. 22122

4. 111011.011

5. 1010.0101

Code:

```
import java.util.Scanner;

public class BinaryConverter {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.println("Enter a binary number: ");
        String binaryString = scanner.nextLine();

        try {
            int decimal = Integer.parseInt(binaryString, 2);
            String octal = Integer.toOctalString(decimal);
            System.out.println("Decimal Number: " + decimal);
            System.out.println("Octal: " + octal);
        } catch (NumberFormatException e) {
            System.out.println("Invalid binary number.");
        }

        scanner.close();
    }
}
```

```
java -cp /tmp/TvP5aKovwA/BinaryConverter
Enter a binary number:
0110
Decimal Number: 6
Octal: 6

=== Code Execution Successful ===
```

4. **Write a program to find the number of special characters in the given statement**

Sample Input:

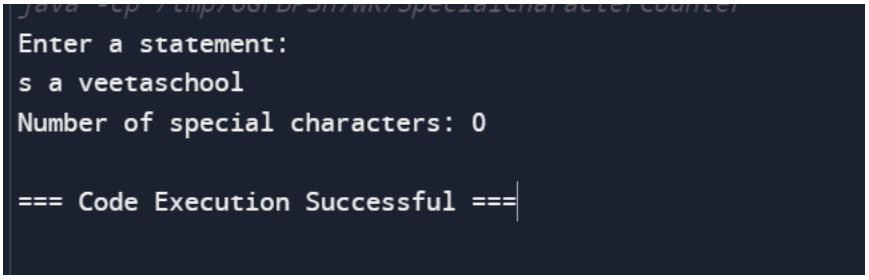
Given statement: Modi Birthday @ September 17, #&$% is the wishes code for him.

Sample Output:

Number of special Characters: 5

```
import java.util.Scanner;
public class SpecialCharacterCounter {
public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.println("Enter a statement: ");
      String statement = scanner.nextLine();
 int specialCharCount = 0;
      for (char c : statement.toCharArray()) {
         if (!Character.isLetterOrDigit(c) && !Character.isWhitespace(c)) {
            specialCharCount++;
         }
      }
System.out.println("Number of special characters: " + specialCharCount);
scanner.close();
   }

}
```



5. **Write a Program to Remove the Duplicate Items from a array.**

Sample Input:

Enter the number of elements in array:7

Enter element1:10

Enter element2:20

Enter element3:20

Enter element4:30

Enter element5:40

Enter element6:40

Enter element7:50

Sample Output:

Non-duplicate items:

[10, 20, 30, 40, 50]

Code:

```
import java.util.ArrayList;
import java.util.HashSet;
import java.util.Scanner;
import java.util.Set;
public class RemoveDuplicates {
  public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.println("Enter the number of elements in the array:");
      int n = scanner.nextInt();
```

```
ArrayList<Integer> array = new ArrayList<>();
      for (int i = 0; i < n; i++) {
         System.out.println("Enter element" + (i + 1) + ":");
         int element = scanner.nextInt();
         array.add(element);
      }
Set<Integer> uniqueElements = new HashSet<>(array);
System.out.println("Non-duplicate items: " + uniqueElement);
scanner.close();
  }
}
```

```
java -cp /tmp/mjzW1lNNOX/RemoveDuplicates
Enter the number of elements in the array:
6
Enter element1:
1
Enter element2:
2
Enter element3:
12
Enter element4:
12
Enter element5:
3
Enter element6:
1
Non-duplicate items: [1, 2, 3, 12]

=== Code Execution Successful ===
```