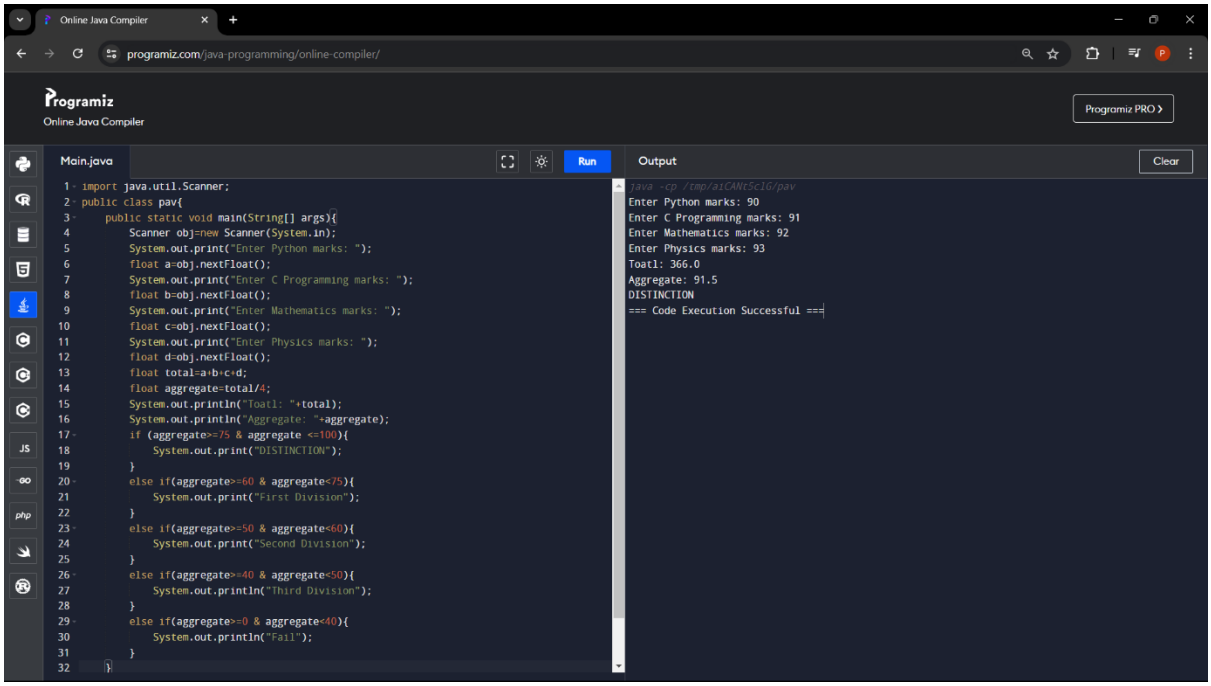
1. Write a program to enter the marks of a student in four subjects. Then calculate the total and aggregate, display the grade obtained by the student. If the student scores an aggregate greater than 75%, then the grade is Distinction. If aggregate is 60>= and <75, then the grade is First Division. If aggregate is 50 >= and <60, then the grade is Second Division. If aggregate is 40>= and <50, then the grade is Third Division. Else the grade is Fail.

PROGRAM CODE:

```
import java.util.Scanner;
public class pav{
   public static void main(String[] args){
      Scanner obj=new Scanner(System.in);
      System.out.print("Enter Python marks: ");
      float a=obj.nextFloat();
      System.out.print("Enter C Programming marks: ");
      float b=obj.nextFloat();
      System.out.print("Enter Mathematics marks: ");
      float c=obj.nextFloat();
      System.out.print("Enter Physics marks: ");
      float d=obj.nextFloat();
      float total=a+b+c+d;
      float aggregate=total/4;
      System.out.println("Toatl: "+total);
      System.out.println("Aggregate: "+aggregate);
      if (aggregate>=75 & aggregate <=100){
         System.out.print("DISTINCTION");
      }
      else if(aggregate>=60 & aggregate<75){
         System.out.print("First Division");
      }
      else if(aggregate>=50 & aggregate<60){
         System.out.print("Second Division");
      }
```

```
        else if(aggregate>=40 & aggregate<50){
            System.out.println("Third Division");
        }
        else if(aggregate>=0 & aggregate<40){
            System.out.println("Fail");
        }
    }
}
```



2. Write a program to calculate tax given the following conditions:

a. If income is less than or equal to 1,50,000 then no tax

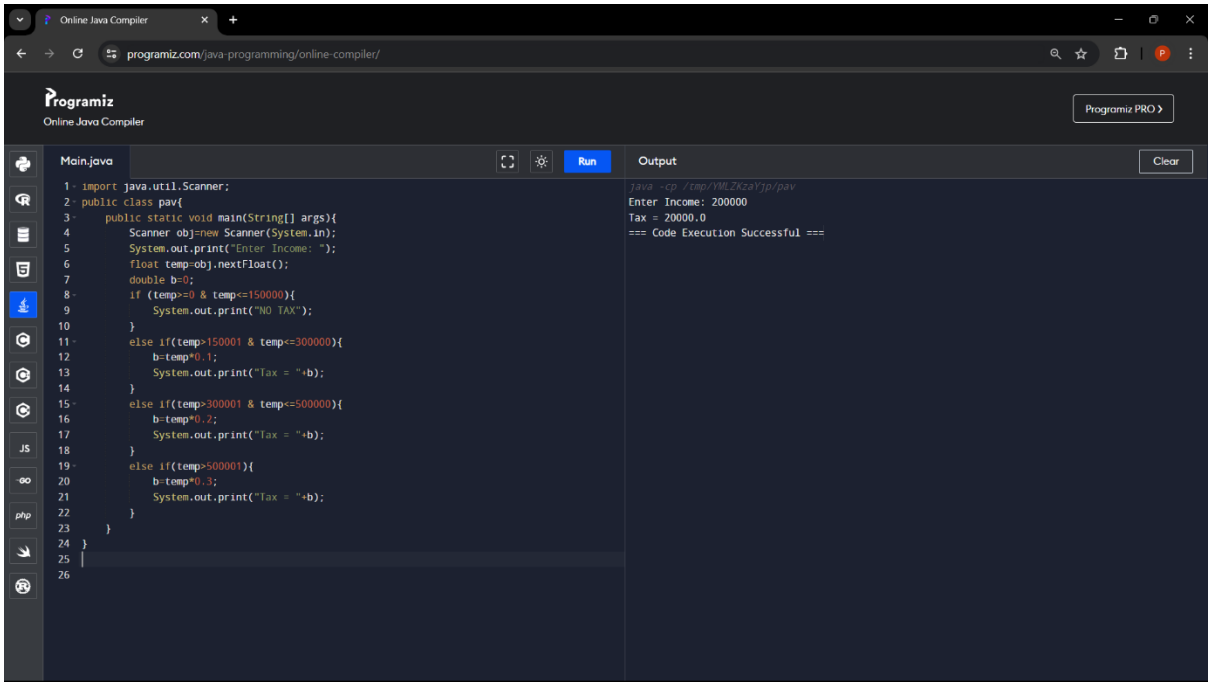
b. If taxable income is 1,50,001 – 3,00,000 the charge 10% tax

c. If taxable income is 3,00,001 – 5,00,000 the charge 20% tax

d. If taxable income is above 5,00,001 then charge 30% tax

PROGRAM CODE:

```
import java.util.Scanner;
public class pav{
   public static void main(String[] args){
      Scanner obj=new Scanner(System.in);
      System.out.print("Enter Income: ");
      float temp=obj.nextFloat();
      double b=0;
      if (temp>=0 & temp<=150000){
         System.out.print("NO TAX");
      }
      else if(temp>150001 & temp<=300000){
         b=temp*0.1;
         System.out.print("Tax = "+b);
      }
      else if(temp>300001 & temp<=500000){
         b=temp*0.2;
         System.out.print("Tax = "+b);
      }
      else if(temp>500001){
         b=temp*0.3;
         System.out.print("Tax = "+b);
      }
   }
}
```


Online Java Compiler
programiz.com/java-programming/online-compiler/
Programiz
Online Java Compiler
Programiz PRO
Main.java
Run
Output
Clear
1 import java.util.Scanner;
2 public class pav{
3 public static void main(String[] args){
4 Scanner obj=new Scanner(System.in);
5 System.out.print("Enter Income: ");
6 float temp=obj.nextFloat();
7 double b=0;
8 if (temp>=0 & temp<=150000){
9 System.out.print("NO TAX");
10 }
11 else if(temp>150001 & temp<=300000){
12 b=temp*0.1;
13 System.out.print("Tax = "+b);
14 }
15 else if(temp>300001 & temp<=500000){
16 b=temp*0.2;
17 System.out.print("Tax = "+b);
18 }
19 else if(temp>500001){
20 b=temp*0.3;
21 System.out.print("Tax = "+b);
22 }
23 }
24 }
25
26
java -cp /tmp/YWLZKzaYjp/pav
Enter Income: 200000
Tax = 20000.0
=== Code Execution Successful ===

3. Write a program to print the first n perfect numbers. (Hint Perfect number means a positive integer that is equal to the sum of its proper divisors)

Sample Input:

N = 3

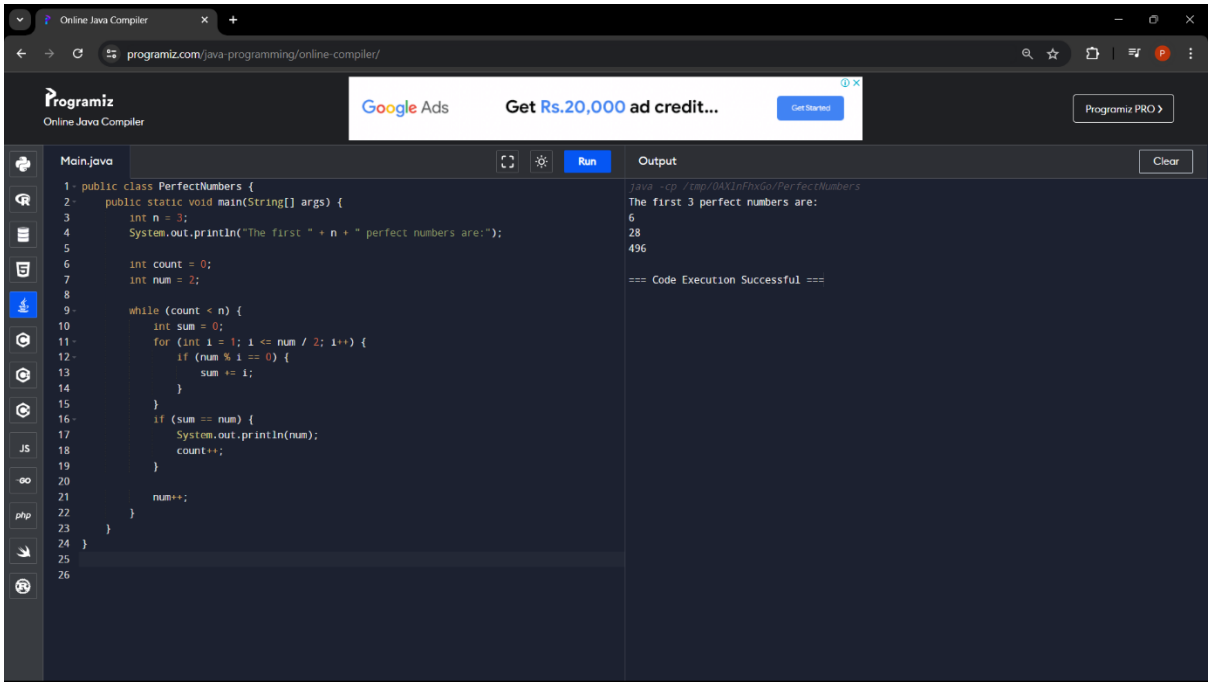
PROGRAM CODE:

```
public class PerfectNumbers {
   public static void main(String[] args) {
      int n = 3;
      System.out.println("The first " + n + " perfect numbers are:");

      int count = 0;
      int num = 2;

      while (count < n) {
         int sum = 0;
         for (int i = 1; i <= num / 2; i++) {
            if (num % i == 0) {
               sum += i;
            }
         }
         if (sum == num) {
            System.out.println(num);
            count++;
         }

         num++;
      }
   }
}
```


Online Java Compiler
programiz.com/java-programming/online-compiler/
Programiz
Online Java Compiler
Google Ads
Get Rs.20,000 ad credit...
Get Started
Programiz PRO
Main.java
Run
Output
Clear
public class PerfectNumbers {
public static void main(String[] args) {
int n = 3;
System.out.println("The first " + n + " perfect numbers are:");
int count = 0;
int num = 2;
while (count < n) {
int sum = 0;
for (int i = 1; i <= num / 2; i++) {
if (num % i == 0) {
sum += i;
}
}
if (sum == num) {
System.out.println(num);
count++;
}
num++;
}
}
}
java -cp /tmp/0AX1nFhxGo/PerfectNumbers
The first 3 perfect numbers are:
6
28
496
=== Code Execution Successful ===

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

Sample Input:

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

N = 4

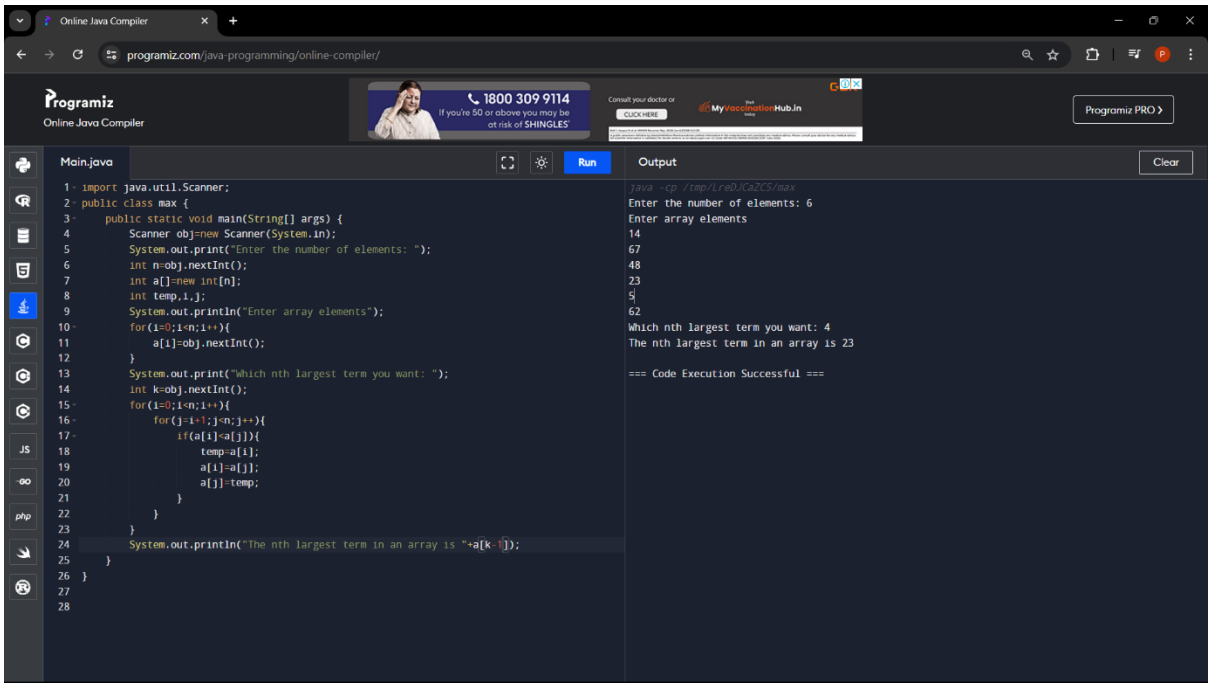
Sample Output:

4th Largest number: 23

PROGRAM CODE:

```
import java.util.Scanner;
public class max {
   public static void main(String[] args) {
      Scanner obj=new Scanner(System.in);
      System.out.print("Enter the number of elements: ");
      int n=obj.nextInt();
      int a[]=new int[n];
      int temp,i,j;
      System.out.println("Enter array elements");
      for(i=0;i<n;i++){
         a[i]=obj.nextInt();
      }
      System.out.print("Which nth largest term you want: ");
      int k=obj.nextInt();
      for(i=0;i<n;i++){
         for(j=i+1;j<n;j++){
            if(a[i]<a[j]){
               temp=a[i];
               a[i]=a[j];
               a[j]=temp;
            }
         }
```

```
        }
        System.out.println("The nth largest term in an array is "+a[k-1]);
    }
}
```



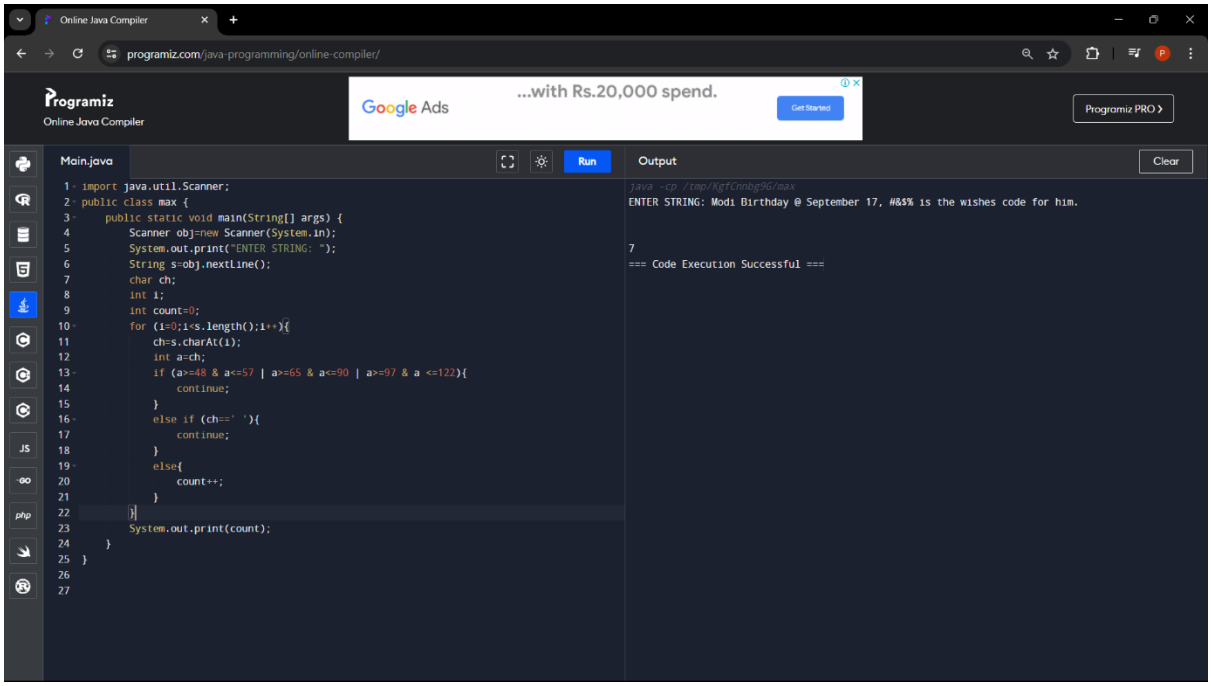
5. Write a program to find the number of special characters in the given statement

Sample Input:

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

PROGRAM CODE:

```
import java.util.Scanner;
public class max {
   public static void main(String[] args) {
      Scanner obj=new Scanner(System.in);
      System.out.print("ENTER STRING: ");
      String s=obj.nextLine();
      char ch;
      int i;
      int count=0;
      for (i=0;i<s.length();i++){
         ch=s.charAt(i);
         int a=ch;
         if (a>=48 & a<=57 | a>=65 & a<=90 | a>=97 & a <=122){
            continue;
         }
         else if (ch==' '){
            continue;
         }
         else{
            count++;
         }
      }
      System.out.print(count);
   }
}
```


Online Java Compiler
programiz.com/java-programming/online-compiler/
Programiz
Online Java Compiler
...with Rs.20,000 spend.
Google Ads
Get Started
Programiz PRO
Main.java
Run
Output
Clear
import java.util.Scanner;
public class max {
public static void main(String[] args) {
Scanner obj=new Scanner(System.in);
System.out.print("ENTER STRING: ");
String s=obj.nextLine();
char ch;
int i;
int count=0;
for (i=0;i<s.length();i++){
ch=s.charAt(i);
int a=ch;
if (a>=48 & a<=57 | a>=65 & a<=90 | a>=97 & a <=122){
continue;
}
else if (ch==' '){
continue;
}
else{
count++;
}
}
System.out.print(count);
}
}
java -cp /tmp/KgfCnnbg9G/max
ENTER STRING: Modi Birthday @ September 17, #&$% is the wishes code for him.
7
=== Code Execution Successful ===