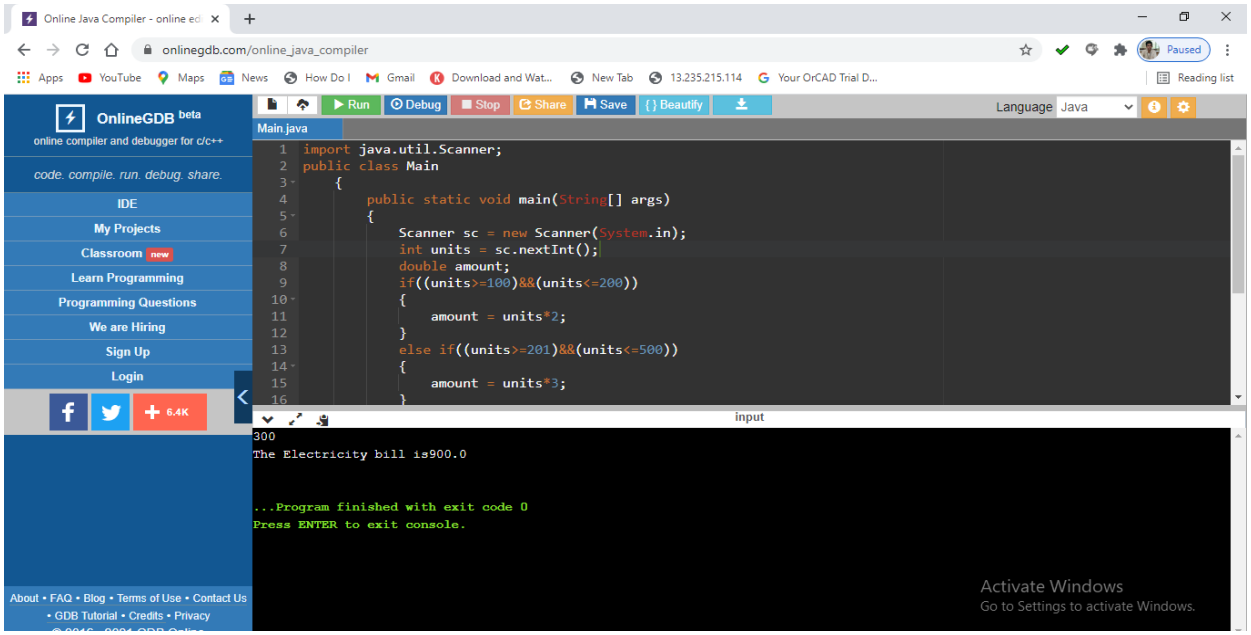
1. Write a java program to calculate electricity bill

CODE:

```
import java.util.Scanner;
public class Main
  {
     public static void main(String[] args)
     {
        Scanner sc = new Scanner(System.in);
        int units = sc.nextInt();
        double amount;
        if((units>=100)&&(units<=200))
        {
           amount = units*2;
        }
        else if((units>=201)&&(units<=500))
        {
           amount = units*3;
        }
        else if(units>=501)
        {
           amount = units*4.5;
        }
        else
        {
           amount = 0;
        }
        System.out.println("The Electricity bill is" +(amount));
```

```
    }
}
```

OUTPUT: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Main.java
import java.util.Scanner;
public class Main
{
public static void main(String[] args)
{
Scanner sc = new Scanner(System.in);
int units = sc.nextInt();
double amount;
if((units>=100)&&(units<=200))
{
amount = units*2;
}
else if((units>=201)&&(units<=500))
{
amount = units*3;
}
input
300
The Electricity bill is900.0
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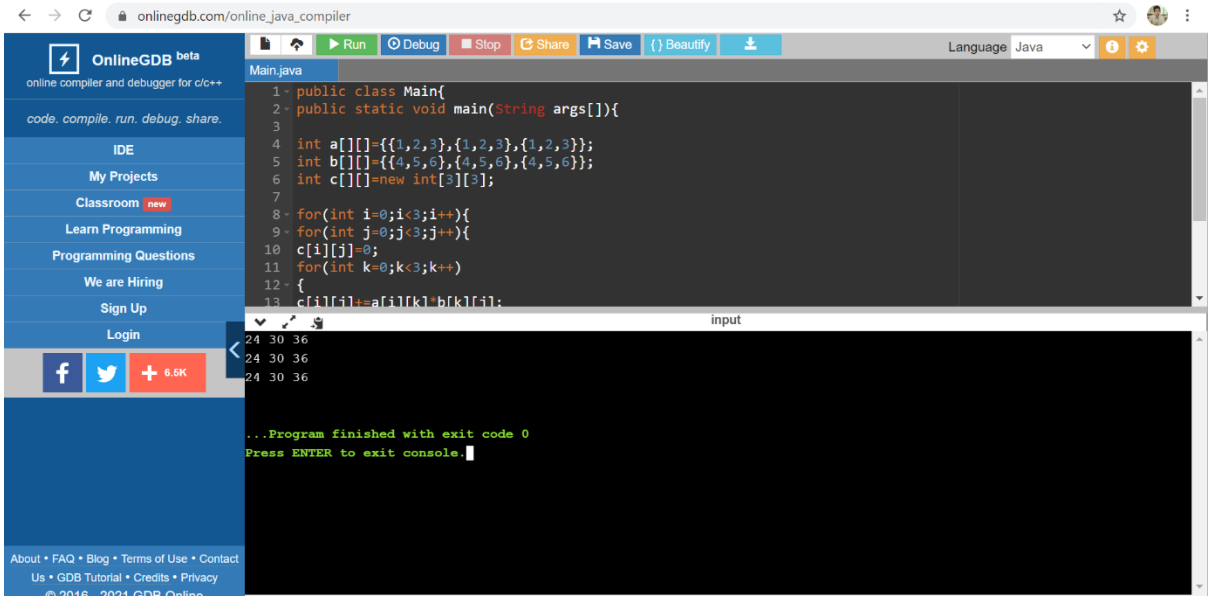
2. Write a java program to print 3X3 Matrix multiplication

CODE:

```
public class Main{

public static void main(String args[]){


int a[][]={{1,2,3},{1,2,3},{1,2,3}};

int b[][]={{4,5,6},{4,5,6},{4,5,6}};

int c[][]=new int[3][3];


for(int i=0;i<3;i++){

for(int j=0;j<3;j++){

c[i][j]=0;

for(int k=0;k<3;k++)

{

c[i][j]+=a[i][k]*b[k][j];

}

System.out.print(c[i][j]+" ");

}

System.out.println();

}

}}
```

OUTPUT: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Language Java
Main.java
1 public class Main{
2 public static void main(String args[]){
3
4 int a[][]={{1,2,3},{1,2,3},{1,2,3}};
5 int b[][]={{4,5,6},{4,5,6},{4,5,6}};
6 int c[][]=new int[3][3];
7
8 for(int i=0;i<3;i++){
9 for(int j=0;j<3;j++){
10 c[i][j]=0;
11 for(int k=0;k<3;k++)
12 {
13 c[i][j]+=a[i][k]*b[k][j];
input
24 30 36
24 30 36
24 30 36
...Program finished with exit code 0
Press ENTER to exit console.

3. Write a java program to calculate factorial of given numbers

CODE:

```
import java.util.Scanner;
class factorial{
   int fact(int n)
   {
      for (int i=n-1; i>0; i--)
      {
         n=n*i;
      }
      return n;
   }
}
public class Main{
   public static void main (String[]args){
      System.out.println("enter the number");
      Scanner sc=new Scanner(System.in);
      int n = sc.nextInt();
      factorial f1=new factorial();
      int res=f1.fact(n);
      System.out.println("The factorial of the given number is" + (res));
      }
   }
```

OUTPUT:


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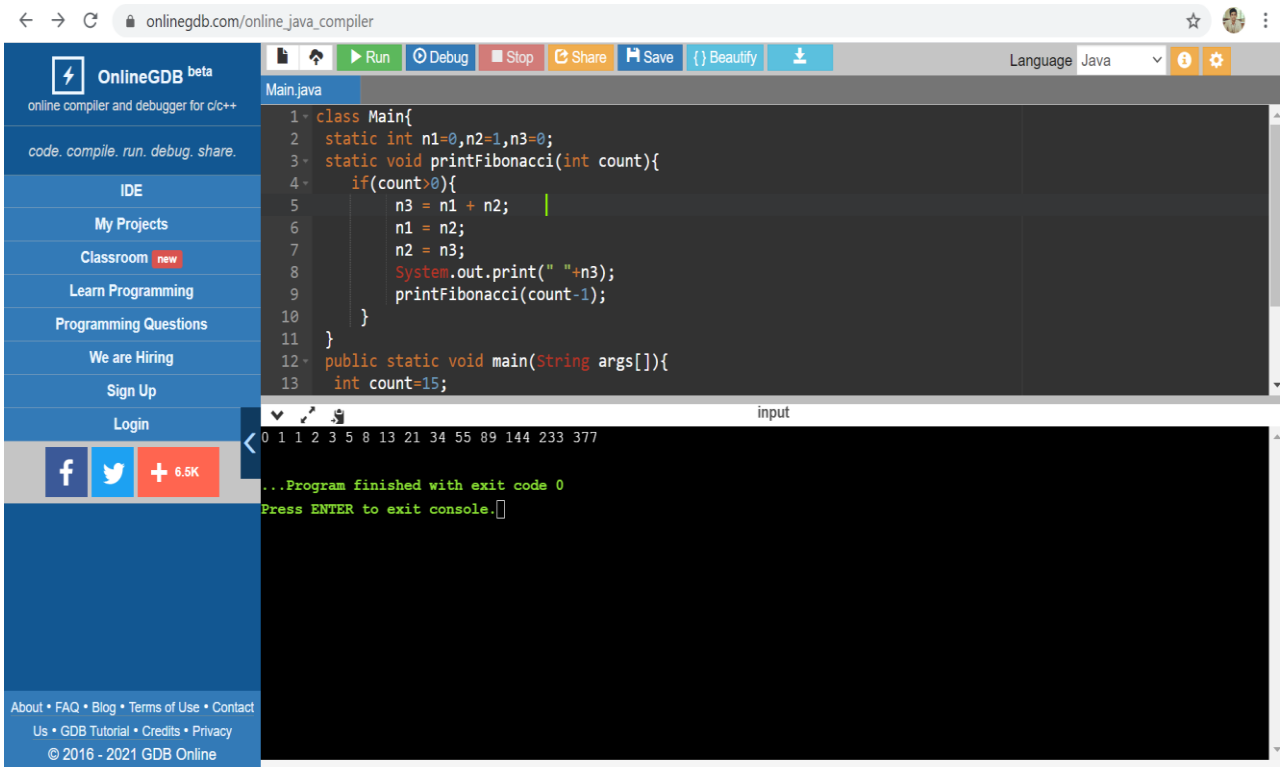
Language Java
Main.java
1 import java.util.Scanner;
2 class factorial{
3 int fact(int n)
4 {
5 for (int i=n-1; i>0; i--)
6 {
7 n=n*i;
8 }
9 return n;
10 }
11 }
12 public class Main{
input
enter the number
6
The factorial of the given number is720
...Program finished with exit code 0
Press ENTER to exit console.

4. Write a java program to print Fibonacci series

CODE:

```
class Main{
 static int n1=0,n2=1,n3=0;
 static void printFibonacci(int count){
    if(count>0){
         n3 = n1 + n2;
         n1 = n2;
         n2 = n3;
         System.out.print(" "+n3);
         printFibonacci(count-1);
     }
 }
 public static void main(String args[]){
  int count=20;
  System.out.print(n1+" "+n2);//printing 0 and 1
  printFibonacci(count-2);//n-2 because 2 numbers are already printed
 }
}
```

OUTPUT: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Language Java
Main.java
class Main{
static int n1=0,n2=1,n3=0;
static void printFibonacci(int count){
if(count>0){
n3 = n1 + n2;
n1 = n2;
n2 = n3;
System.out.print(" "+n3);
printFibonacci(count-1);
}
}
public static void main(String args[]){
int count=15;
input
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377
...Program finished with exit code 0
Press ENTER to exit console.

5. Write a java program finding the prime numbers between 1 to n.

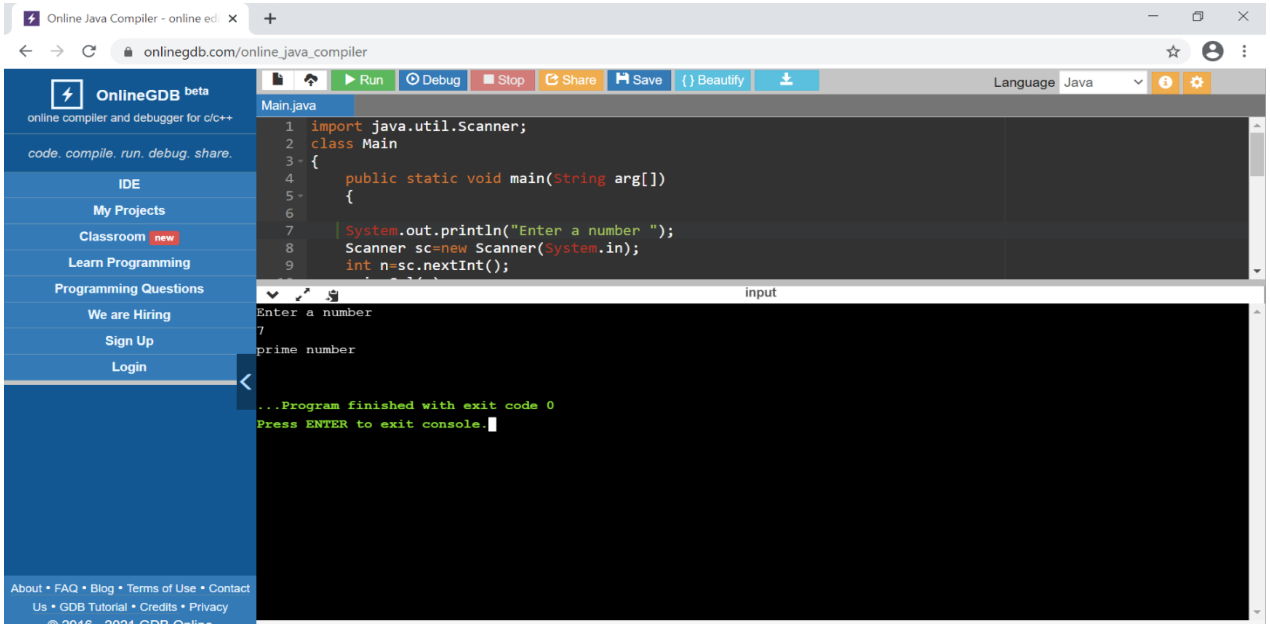
CODE:

```
import java.util.Scanner;
class Main
{
        public static void main(String arg[])
        {

          System.out.println("Enter a number ");
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        primeCal(n);
        }
  static void primeCal(int num)
  {
        int count=0;
        for(int i=1;i<=num;i++)
        {
          if(num%i==0)
          {
              count++;
          }
        }
        if(count==2)
            System.out.println("prime number ");
        else
```

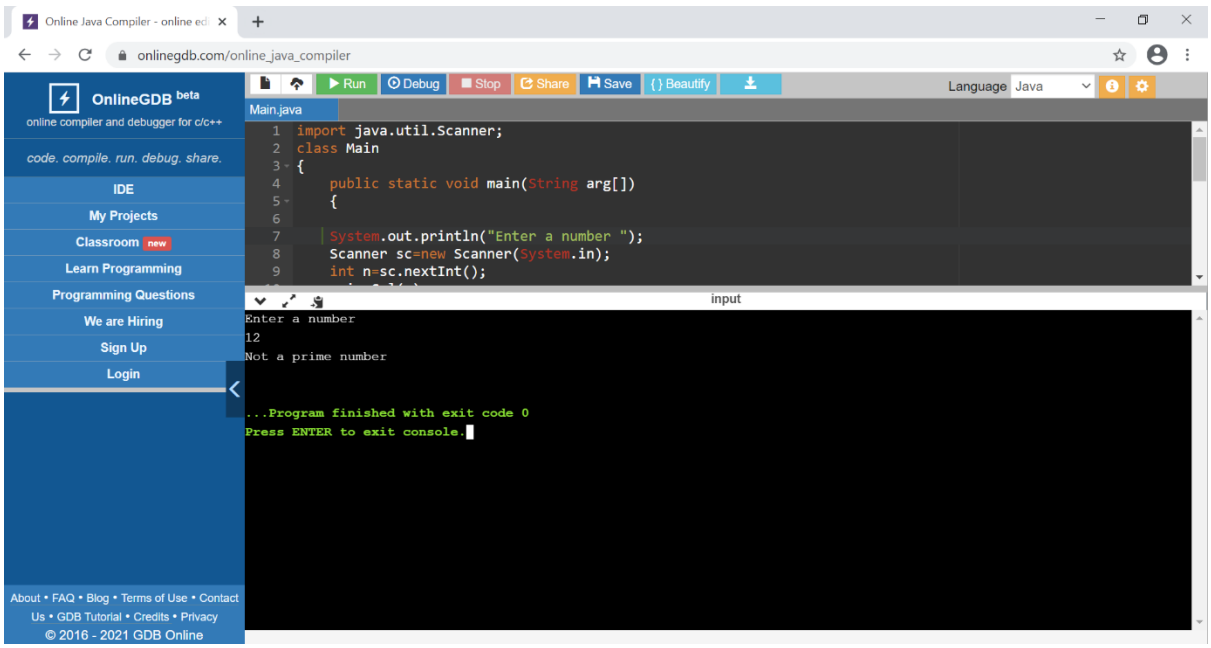
```
        System.out.println("Not a prime number ");
    }
}
```

OUTPUT:

CASE 1: [when given number is a prime number]



CASE 2: [when given number is not a prime number]



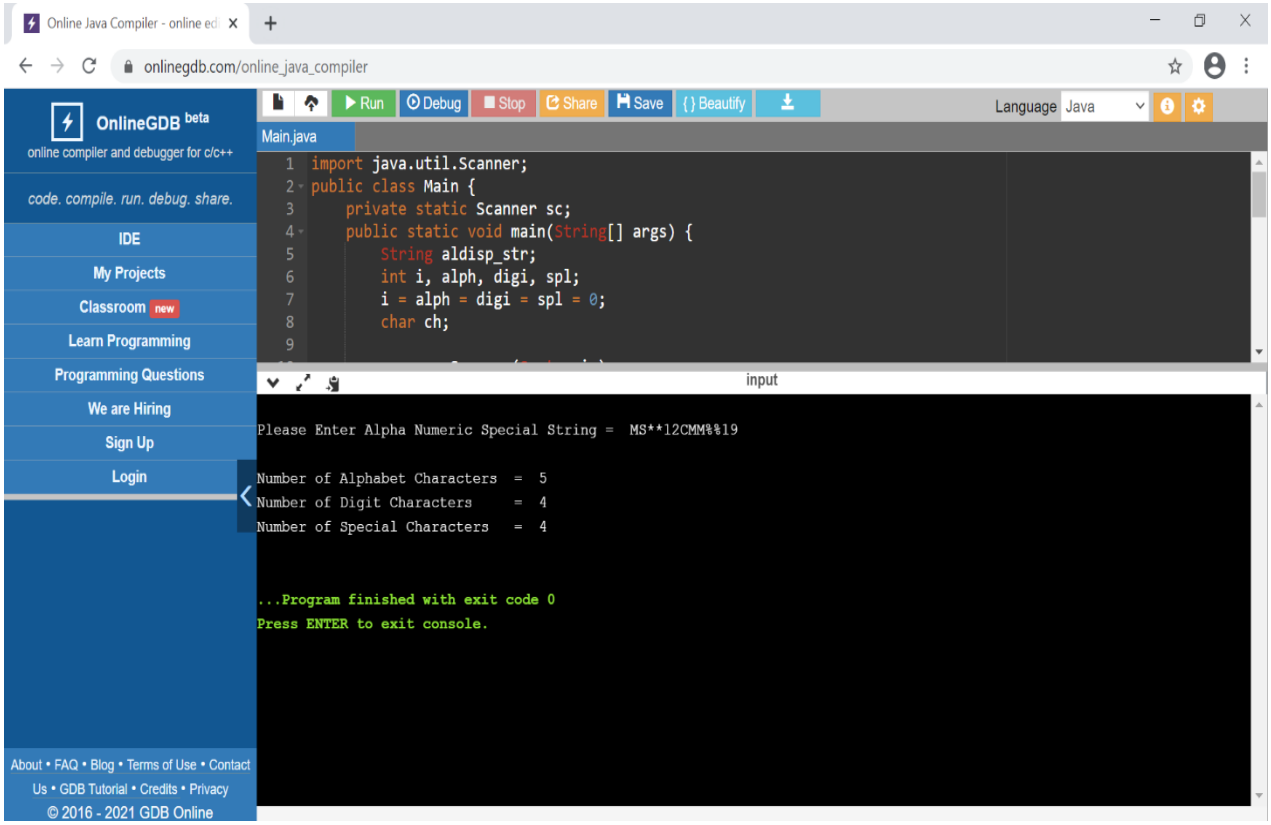
6. Write a java program to count number of digits, alphabets, special character in a given string

CODE:

```
import java.util.Scanner;

public class Main {

	private static Scanner sc;

	public static void main(String[] args) {

		String aldisp_str;

		int i, alph, digi, spl;

		i = alph = digi = spl = 0;

		char ch;


		sc= new Scanner(System.in);


		System.out.print("\nPlease Enter Alpha Numeric Special String =  ");

		aldisp_str = sc.nextLine();


		while(i < aldisp_str.length())

		{

			ch = aldisp_str.charAt(i);

			if(ch >= 'a' && ch <= 'z' || ch >= 'A' && ch <= 'Z' ) {

				alph++;

			}

			else if(ch >= '0' && ch <= '9') {

				digi++;

			}

			else {
```

```
                    spl++;
                }
                i++;
            }
            System.out.println("\nNumber of Alphabet Characters  =  " + alph);
            System.out.println("Number of Digit Characters     =  " + digi);
            System.out.println("Number of Special Characters   =  " + spl);
        }
}
```

OUTPUT:



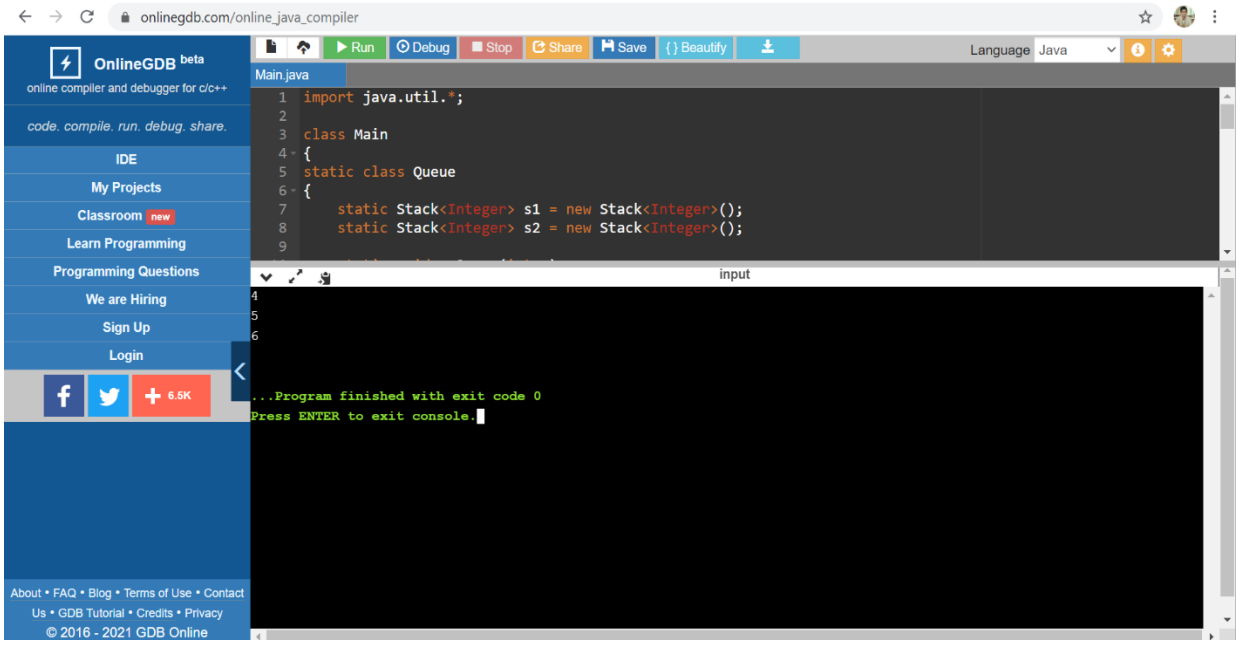
7. Develop a stack and queue operations using class and object.

CODE:

```
import java.util.*;


class Main
{
static class Queue
{
	static Stack<Integer> s1 = new Stack<Integer>();
	static Stack<Integer> s2 = new Stack<Integer>();


	static void enQueue(int x)
	{
		while (!s1.isEmpty())
		{
			s2.push(s1.pop());
			//s1.pop();
		}
		s1.push(x);
		while (!s2.isEmpty())
		{
			s1.push(s2.pop());
			//s2.pop();
		}
	}
```

```
        static int deQueue()
        {
                if (s1.isEmpty())
                {
                        System.out.println("Q is Empty");
                        System.exit(0);
                }

                int x = s1.peek();
                s1.pop();
                return x;
        }
};

public static void main(String[] args)
{
        Queue q = new Queue();
        q.enQueue(4);
        q.enQueue(5);
        q.enQueue(6);

        System.out.println(q.deQueue());
        System.out.println(q.deQueue());
        System.out.println(q.deQueue());
}
}
```

OUTPUT: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Language Java
Main.java
import java.util.*;
class Main
{
static class Queue
{
static Stack<Integer> s1 = new Stack<Integer>();
static Stack<Integer> s2 = new Stack<Integer>();
input
4
5
6
...Program finished with exit code 0
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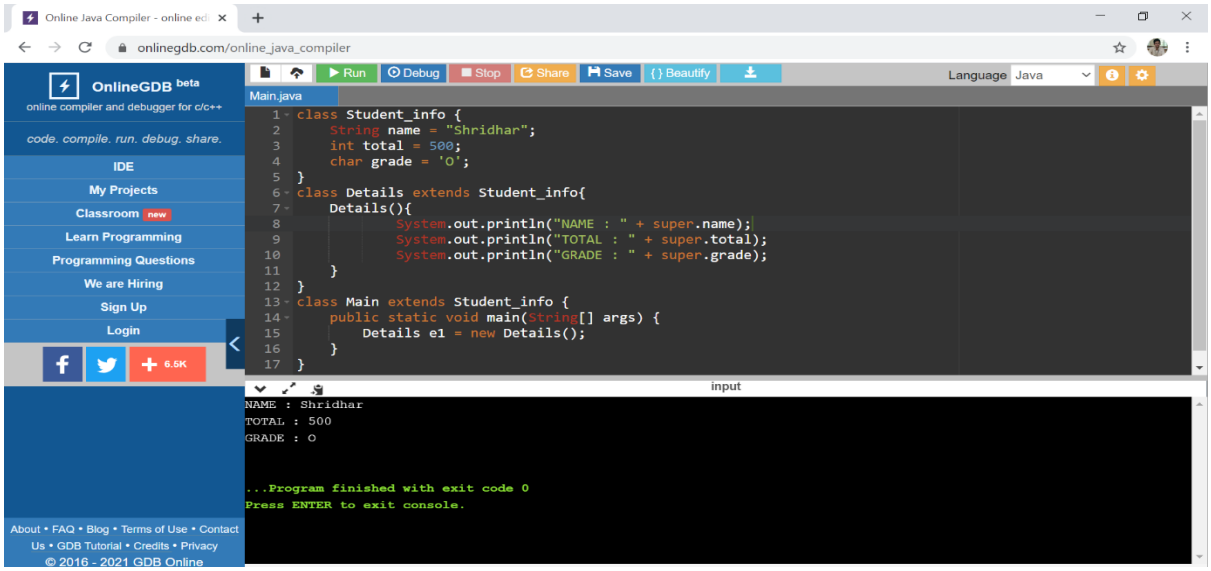
8. Write java program to calculate and display Student Grades, total and percentage of five subject using inheritance, super keyword and constructor.

CODE:

```
class Student_info {

	String name = "Shridhar";

	int total = 500;

	char grade = 'O';

}

class Details extends Student_info{

	Details(){

			System.out.println("NAME : " + super.name);

			System.out.println("TOTAL : " + super.total);

			System.out.println("GRADE : " + super.grade);

	}

}

class Main extends Student_info {

	public static void main(String[] args) {

      Details e1 = new Details();

	}

}
```

OUTPUT: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Language Java
Main.java
class Student_info {
String name = "Shridhar";
int total = 500;
char grade = 'O';
}
class Details extends Student_info{
Details(){
System.out.println("NAME : " + super.name);
System.out.println("TOTAL : " + super.total);
System.out.println("GRADE : " + super.grade);
}
}
class Main extends Student_info {
public static void main(String[] args) {
Details e1 = new Details();
}
}
input
NAME : Shridhar
TOTAL : 500
GRADE : O
...Program finished with exit code 0
Press ENTER to exit console.

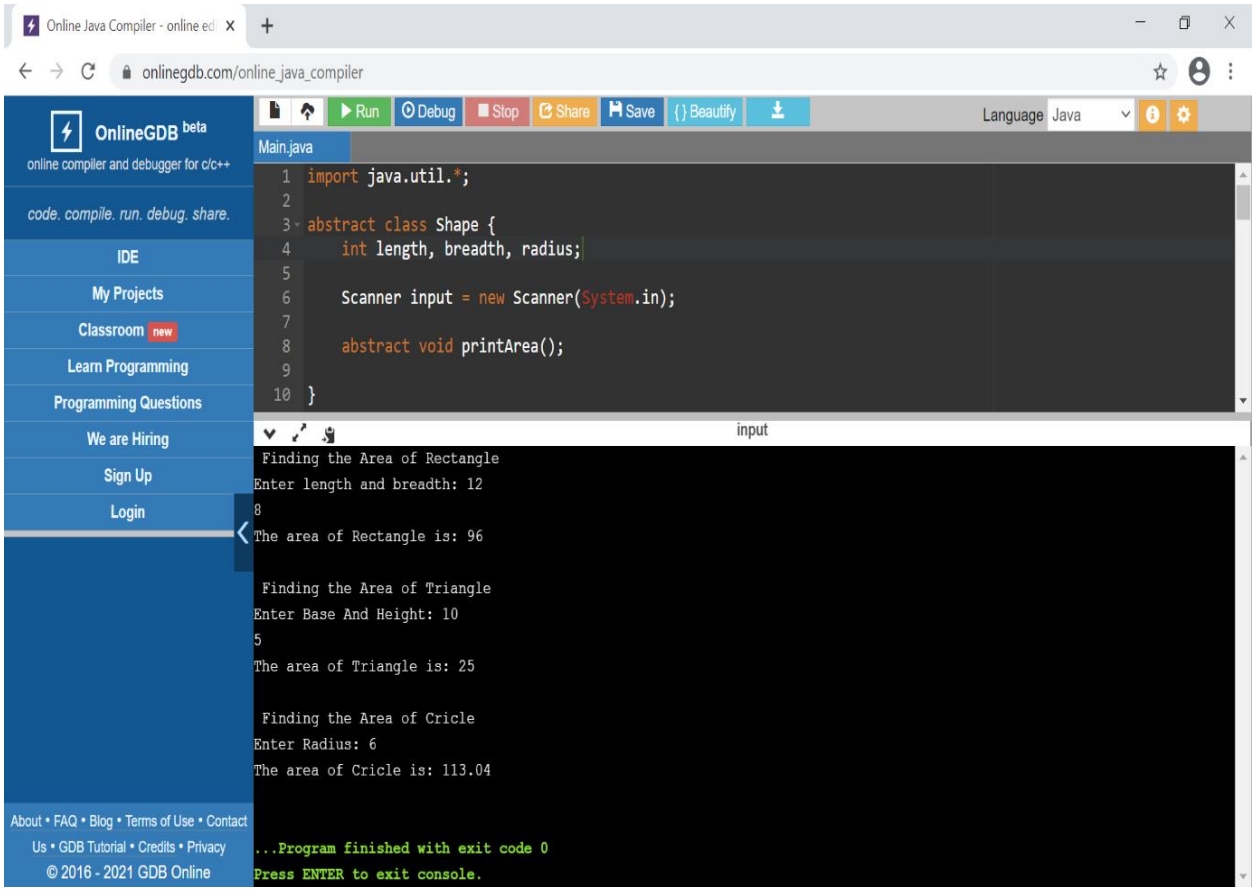
9. Write a java program to print area of rectangle, triangle and circle using polymorphism

CODE:

```
import java.util.*;
abstract class Shape {
        int length, breadth, radius;
        Scanner input = new Scanner(System.in);
        abstract void printArea();

}

class Rectangle extends Shape {
        void printArea() {
                System.out.println(" Finding the Area of Rectangle");
                System.out.print("Enter length and breadth: ");
                length = input.nextInt();
                breadth = input.nextInt();
                System.out.println("The area of Rectangle is: " + length * breadth);
        }
}

class Triangle extends Shape {
        void printArea() {
                System.out.println("\n Finding the Area of Triangle");
                System.out.print("Enter Base And Height: ");
                length = input.nextInt();
                breadth = input.nextInt();
                System.out.println("The area of Triangle is: " + (length * breadth) / 2);
```

```
        }
}

class Cricle extends Shape {
        void printArea() {
                System.out.println("\n Finding the Area of Cricle");
                System.out.print("Enter Radius: ");
                radius = input.nextInt();
                System.out.println("The area of Cricle is: " + 3.14f * radius * radius);
        }
}

public class Main{
        public static void main(String[] args) {
                Rectangle rec = new Rectangle();
                rec.printArea();
                Triangle tri = new Triangle();
                tri.printArea();
                Cricle cri = new Cricle();
                cri.printArea();
        }
}
```

OUTPUT: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Language Java
Main.java
1 import java.util.*;
2
3 abstract class Shape {
4 int length, breadth, radius;
5
6 Scanner input = new Scanner(System.in);
7
8 abstract void printArea();
9
10 }
input
Finding the Area of Rectangle
Enter length and breadth: 12
8
The area of Rectangle is: 96
Finding the Area of Triangle
Enter Base And Height: 10
5
The area of Triangle is: 25
Finding the Area of Cricle
Enter Radius: 6
The area of Cricle is: 113.04
...Program finished with exit code 0
Press ENTER to exit console.

.

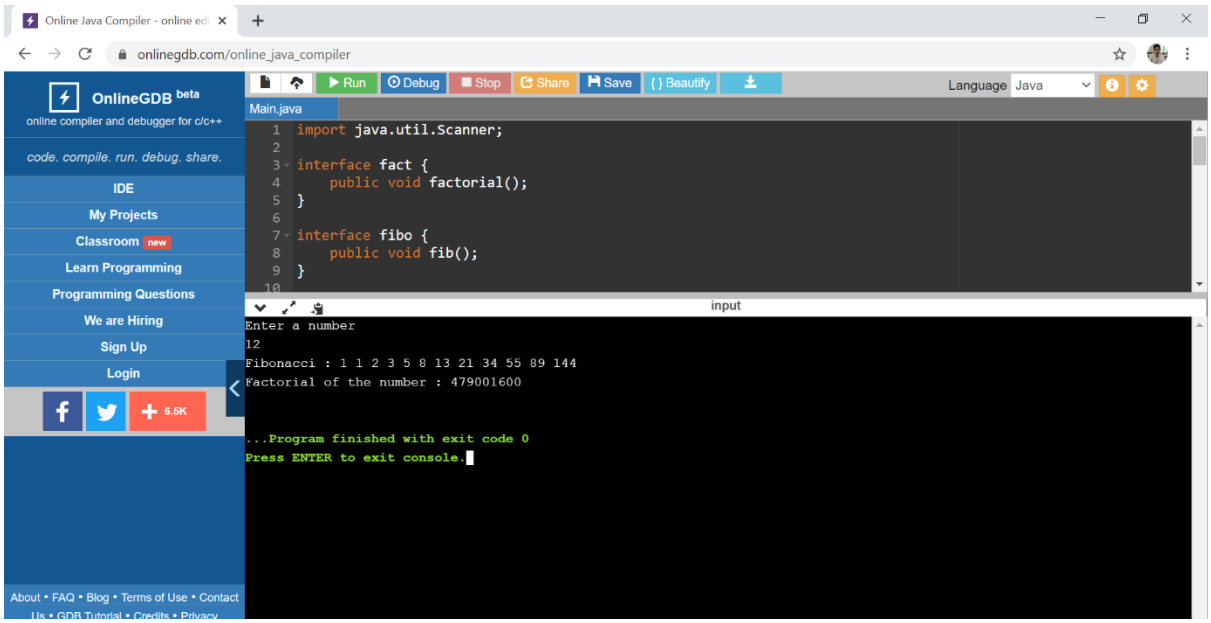
10. Write a java program to calculate factorial of given number and print Fibonacci series using interface

CODE:

```
import java.util.Scanner;


interface fact {
	public void factorial();
}


interface fibo {
	public void fib();
}


class Interface implements fact, fibo {
	int i, temp, a = 0, b = 1, fa, n;


	Interface() {
		System.out.println("Enter a number");
		Scanner s = new Scanner(System.in);
		n = s.nextInt();
		s.close();
	}


	public void factorial() {
		System.out.print("Fibonacci : ");
		System.out.print("1 ");
		for (i = 0; i < n - 1; i++) {
			temp = a + b;
			System.out.print(temp + " ");
```

```
                a = b;
                b = temp;
            }
        }

        public void fib() {
            int fa = 1;
            for (int i = n; i >= 1; i--)
                fa = fa * i;
            System.out.println("\nFactorial of the number : " + fa);
        }
}

public class Main {
    public static void main(String args[]) {
        Interface i = new Interface();
        i.factorial();
        i.fib();
    }
}
```

OUTPUT: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Language Java
Main.java
1 import java.util.Scanner;
2
3 interface fact {
4 public void factorial();
5 }
6
7 interface fibo {
8 public void fib();
9 }
10
input
Enter a number
12
Fibonacci : 1 1 2 3 5 8 13 21 34 55 89 144
Factorial of the number : 479001600
...Program finished with exit code 0
Press ENTER to exit console.