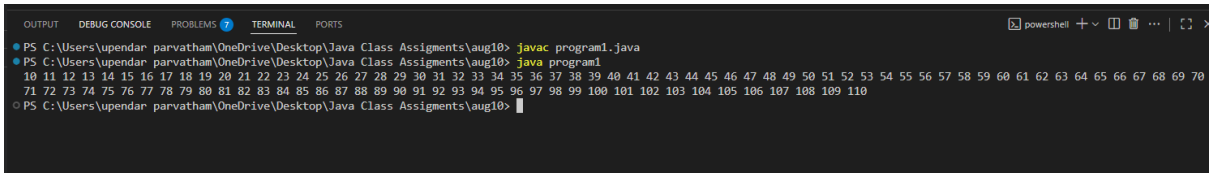
Parvatham Ram Charan

1.Write a program to print numbers from 10 to 110.

```
public class program1 {
   public static void main(String[] args) {
      for(int  i = 10; i <= 110;i++){
         System.out.print(i+" ");
      }
   }
}
```

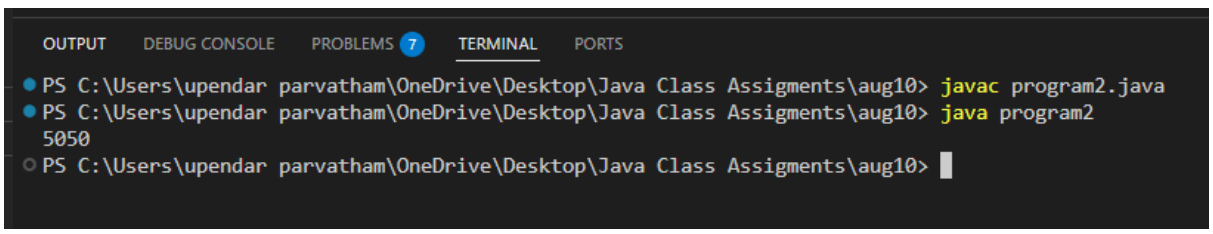
Output:



2. Write a program to calculate the sum of all numbers from 1 to 100.

```
public class program2 {
   public static void main(String[] args) {
      int sum =0;
      for(int i =1 ; i <= 100 ;i++){
         sum += i;
      }
      System.out.println(sum);
   }
}
```

Output:

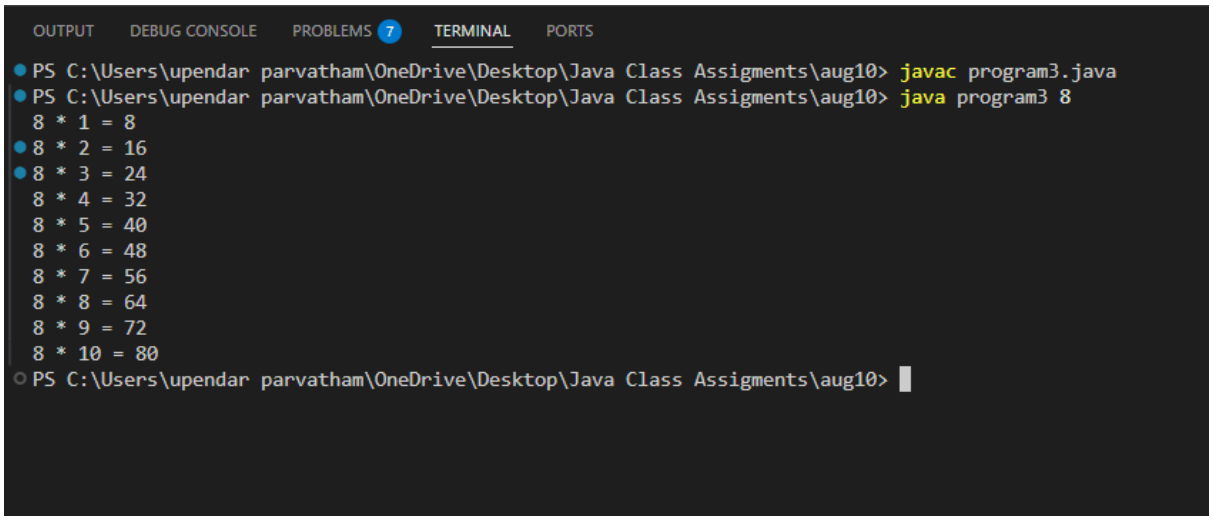


3. //Write a program to print the multiplication table of a given number.

```
public class program3 {
  public static void main(String[] args) {
    int num =  Integer.parseInt(args[0]);
    for(int i = 1; i <=10 ;i++){
       System.out.println(num+" * "+i+" = "+(num*i));
    }

  }
}
```

Output:



4.//Write a program to find the factorial of a given number.

```
public class program4 {
   public static void main(String[] args) {
      int num  = Integer.parseInt(args[0]);
      int fact=1;
      for(int i = num ;i >=1;i--){
         fact *= i;
      }
      System.out.println(fact);
```

```
    }
}
```

Output:

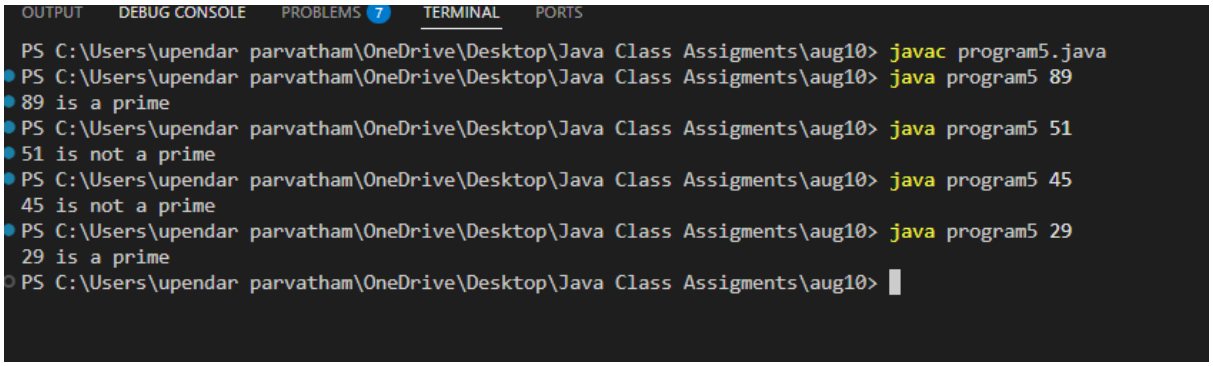
5. //Write a program to check if a given number is prime.

```
public class program5 {
    public static boolean  isPrime(int num){
        if(num <=1){
            return false;
        }
        if(num<=3){
            return true;
        }
        if(num%2==0 || num%3==0){
            return false;
        }
        for(int i = 5 ; i< Math.sqrt(num);i=i+6){
            if(num%i==0 || num%(i+2)==0){
                return false;
            }
        }
        return true;

    }
   public static void main(String[] args) {
```

```
        int num = Integer.parseInt(args[0]);
        if(isPrime(num)){
            System.err.println(num+" is a prime");
        }else{
            System.out.println(num +" is not a prime");
        }
    }
}
```

Output:



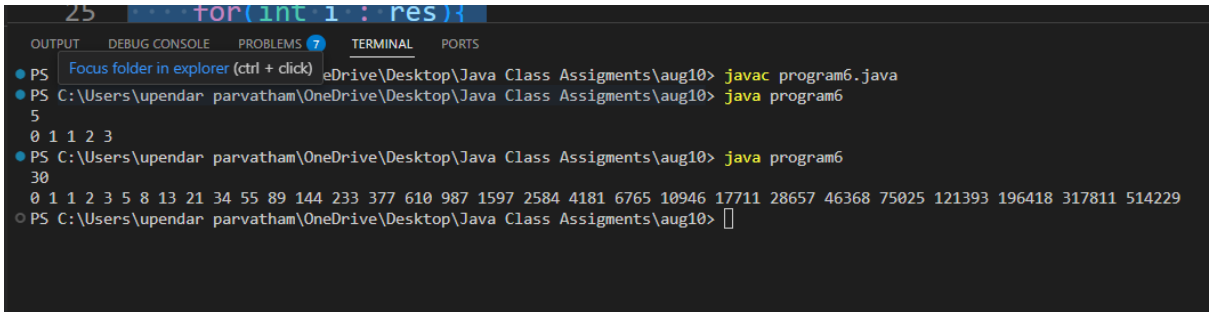
6. //Write a program to print the Fibonacci series up to a given number of terms.

```
import java.util.*;
public class program6 {
    public static ArrayList<Integer> result(int num){
        ArrayList<Integer> arr = new ArrayList<>();
        int num1 = 0;
        int num2=1;
        int num3;
        arr.add(num1);
        arr.add(num2);
        num = num-2;
        while(num-- > 0){
            num3=num1+num2;
            arr.add(num3);
```

```
            num1 = num2;
            num2 = num3;
        }
        return arr;
    }
    public static void main(String[] args) {
    //int num = Integer.parseInt(args[0]);
    Scanner sc = new Scanner(System.in);
    int num  = sc.nextInt();
    ArrayList<Integer> res = result(num);
    for(int i : res){
        System.out.print(i+" ");
    }
    sc.close();
    }

}
```

Output:



7. //Write a program to calculate the sum of digits of a given number

```
public class program7 {
    public static void main(String[] args) {
        int num = Integer.parseInt(args[0]);
        int digit, sum=0;
```

```
        while(num > 0){
            digit = num%10;
            sum += digit;
            num = num/10;
        }
        System.out.println("sum of digits is "+sum);

    }
}
```

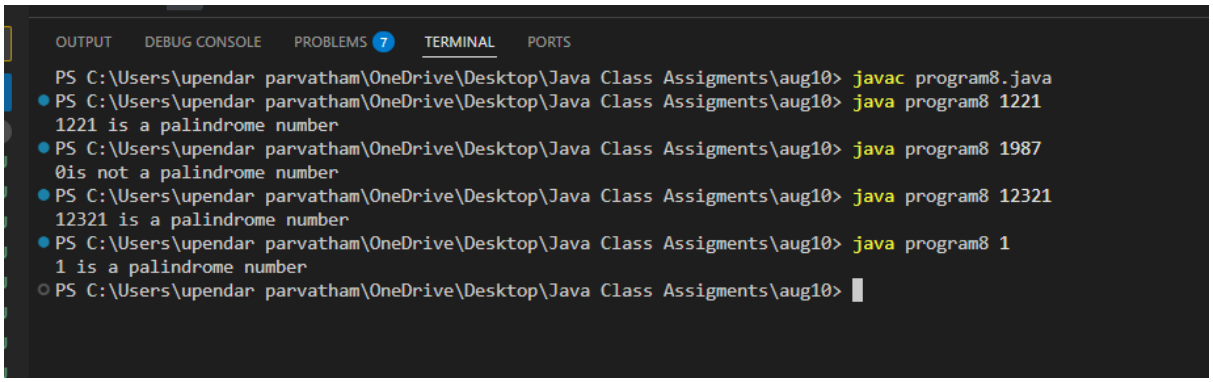
Output:

8.//Write a program to check if a given number is a palindrome.

```
public class program8 {
    public static void main(String[] args) {
        int num = Integer.parseInt(args[0]);
        int rev =0,digit,original=num;
        while(num > 0){
            digit = num%10;
            rev = rev*10 + digit;
            num = num/10;
        }
        if(rev== original){
            System.out.println(rev+" is a palindrome number");
        }else{
            System.out.println(num+"is not a palindrome number");
```

```
    }
  }
}
```

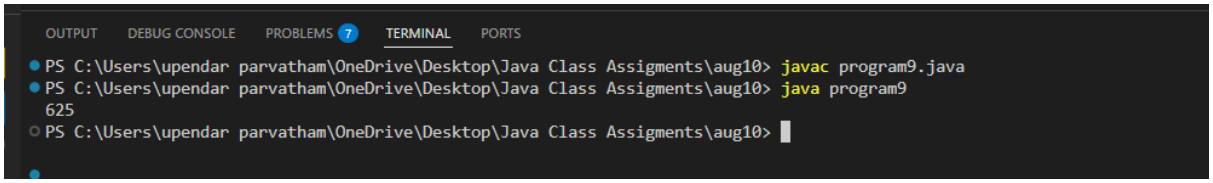
Output:



Program9:

```
//Write a program to find the sum of all odd numbers between 1 and 50
public class program9 {
   public static void main(String[] args) {
      int sum =0;
      for(int i =1 ; i<=50;i++){
         if(i%2==1){
            sum += i;
         }
      }
      System.out.println(sum);
   }
}
```

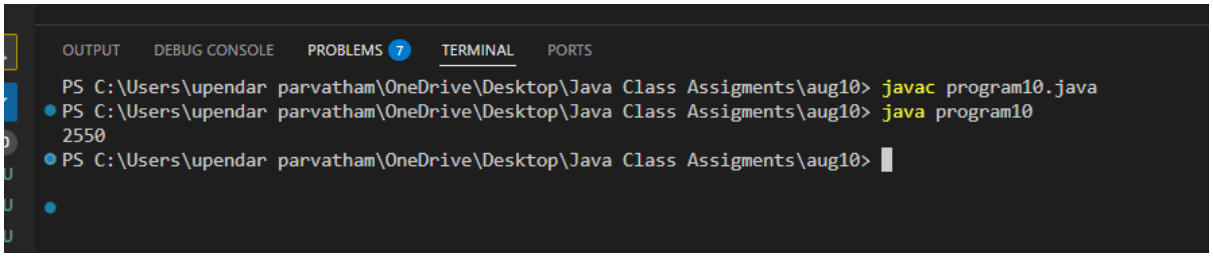
Output:



10.//Write a program to find the sum of all even numbers between 1 and 50

```
public class program10 {
   public static void main(String[] args) {
      int sum= 0;
      for(int i= 1 ; i <= 100;i++){
         if(i%2==0){
           sum += i;
         }
      }
      System.out.println(sum);
   }
}
```

Output:

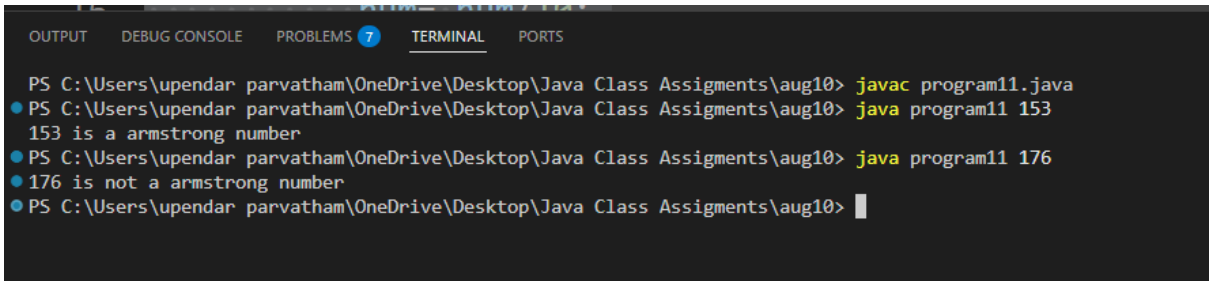


11. //Write a program to check if a given number is Armstrong.

```
// armstrong number is that equal to sum of its digits , each digit powerd to total numbers of digits
public class program11 {
   public static void main(String[] args) {
      int num = Integer.parseInt(args[0]);
      int digit,original=num,nod=0;
      while(num > 0){
         nod++;
```

```
        num =num/10;
      }
      int sum=0;
      num = original;
      while(num > 0){
        digit = num%10;
        sum = sum+ (int)Math.pow(digit,nod);
        num= num/10;
      }
      if(sum== original){
         System.out.println(original +" is a armstrong number");
      }
      else{
         System.out.println(original+" is not a armstrong number");
      }
   }
}
```

Output:

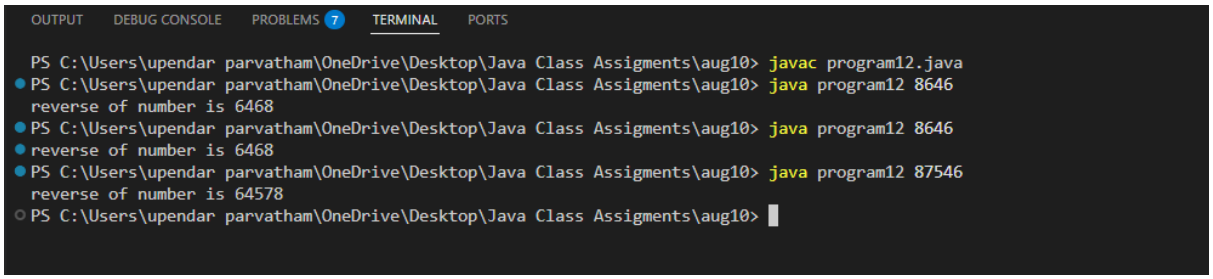


12.//Write a program to reverse a given number.

```
public class program12 {
   public static void main(String[] args) {
      int num = Integer.parseInt(args[0]);
      int digit,rev=0;
      while(num > 0){
```

```
        digit = num%10;
        rev = rev*10 + digit;
        num = num/10;
      }
      System.out.println("reverse of number is "+ rev);
   }
}
```

Output:

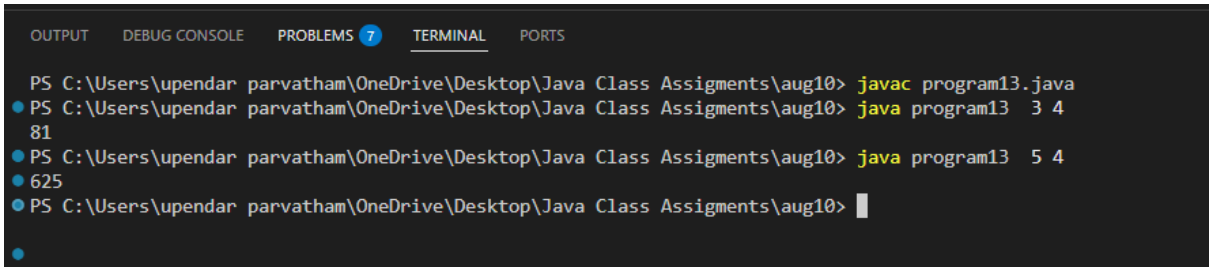


13.//Write a program to calculate the power of a number using a loop.

```
public class program13 {
   public static void main(String[] args) {
      int num = Integer.parseInt(args[0]);
      int exp = Integer.parseInt(args[1]);
      int  result=1 ; //anything power is one
      for(int i =1 ; i <=exp ;i++){
          result =  result*num;
      }
      System.out.println(result);

   }
}
```

Output:



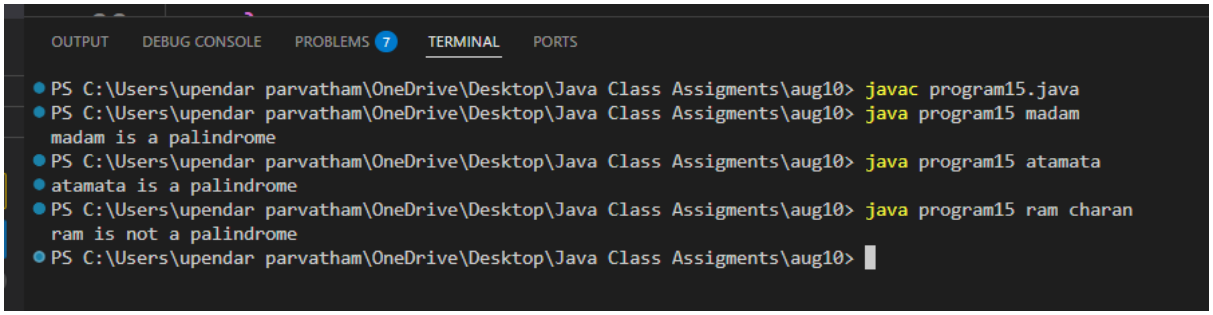
//14.Write a program to find the greatest common divisor (GCD) of two numbers.

```
public class program14 {
   public static void main(String[] args) {
      int num1 = Integer.parseInt(args[0]);   // 5 15
      int num2 = Integer.parseInt(args[1]);
      if(num1==0){
         System.out.println(num2);
      }else if(num2==0){
         System.out.println(num1);
      }
      else{
         while( num1!=num2){
            if(num1 > num2){
               num1 =  num1-num2;
            }
            else{
               num2= num2-num1;
            }
         }
         System.out.println(num1);  // num1 and num2 are equal
      }
   }
}
```

Output:

15. //Write a program to check if a given string is a palindrome.

```
public class program15 {
   public static boolean  palindrome(String s){
      int n = s.length();
      int t = n >> 1;
      for(int i =0; i < t;i++){
         if(s.charAt(i)!=s.charAt(n-i-1)){
            return false;
         }
      }
      return true;
   }
   public static void main(String[] args) {
      String s =  args[0];
      if(palindrome(s)){
         System.out.println(s+" is a palindrome");
      }else{
         System.out.println(s+" is not a palindrome");
      }
   }
}
```

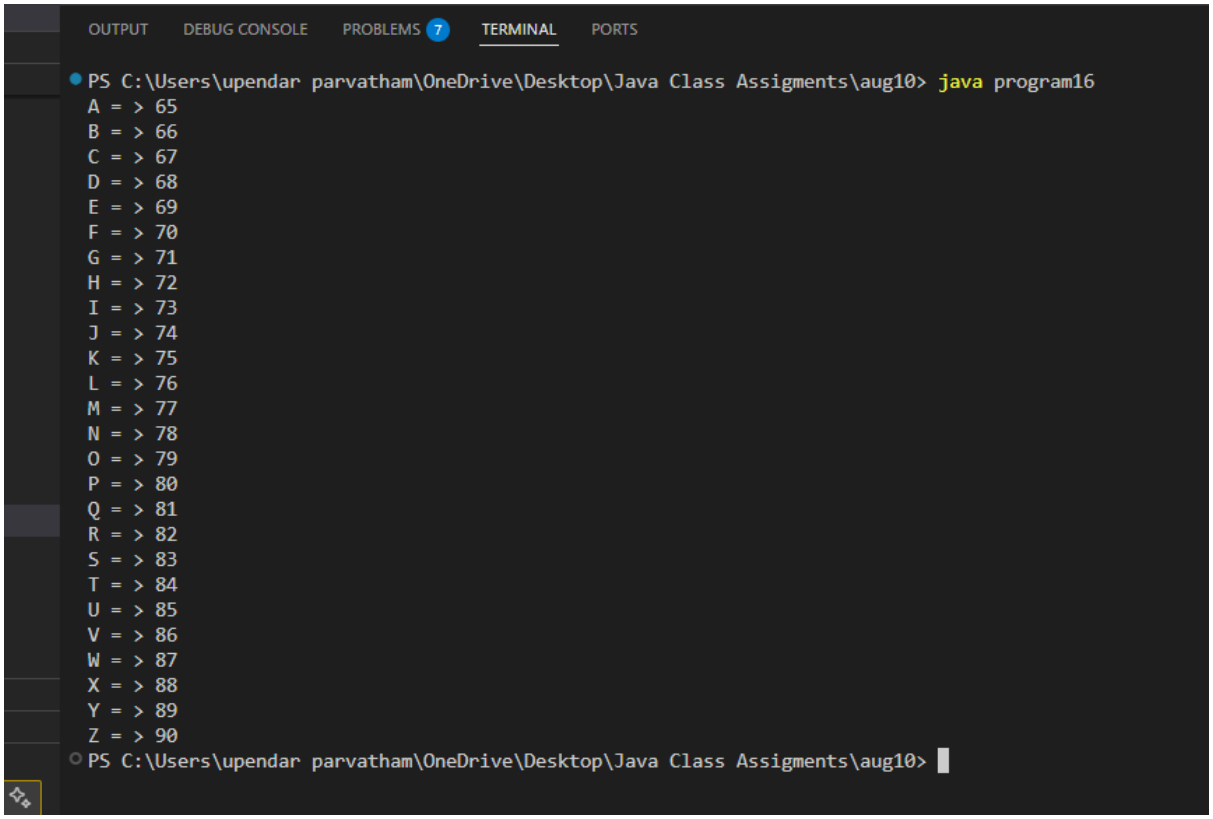


16. //Write a program to print the ASCII values of all lowercase alphabets.

```
public class program16 {
    public static void main(String[] args) {
        // char ch = 'a';
        // for(int i =0; i< 26;i++){
        //     System.out.println(ch+" => "+(int)ch);
        //     ch++;

        // }
        char ch ='A';
        for(int i =0 ; i < 26;i++){
            System.out.println(ch+" = > "+(int)ch);
            ch++;
        }
    }
}
```

Output:



17. //Write a program to calculate the average of a list of numbers.

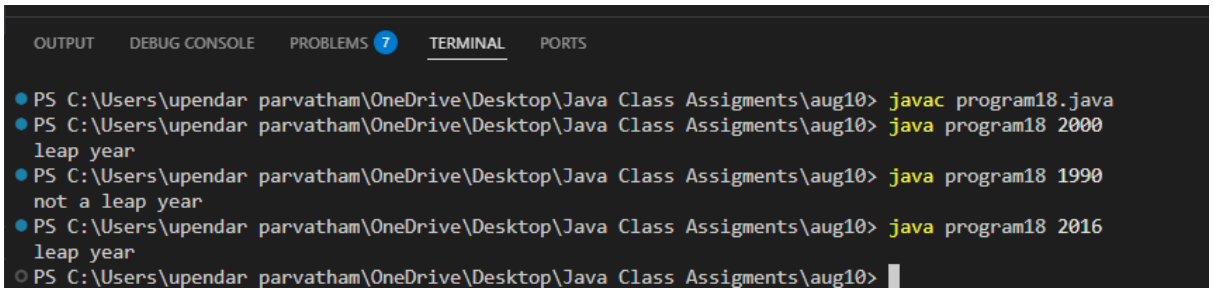
```
public class program17 {
public static void main(String[] args) {
    Double sum=0.0;
    for(int i = 0; i < args.length;i++){
        Double num = Double.parseDouble(args[i]);
        sum +=num;
    }
    System.out.println(sum/args.length);
}
}
```

18.

//Write a program to check if a given year is a leap year.

```
public class program18 {
    public static void main(String[] args) {
        int year = Integer.parseInt(args[0]);
        if ((year % 400 == 0) || (year % 4 == 0 && year % 100 != 0)) {
            System.out.println("leap year");
        } else {
            System.out.println("not a leap year");
        }
    }
}
```

Output:

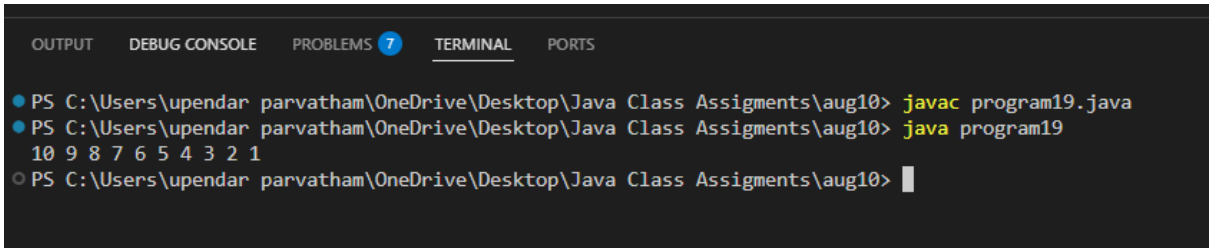


19. //Write a program to print the first 10 natural numbers in reverse order.

```
public class program19 {
    public static void main(String[] args) {
        for(int i =10 ; i>=1;i--){
            System.out.print(i+" ");
```

```
    }
  }
}
```

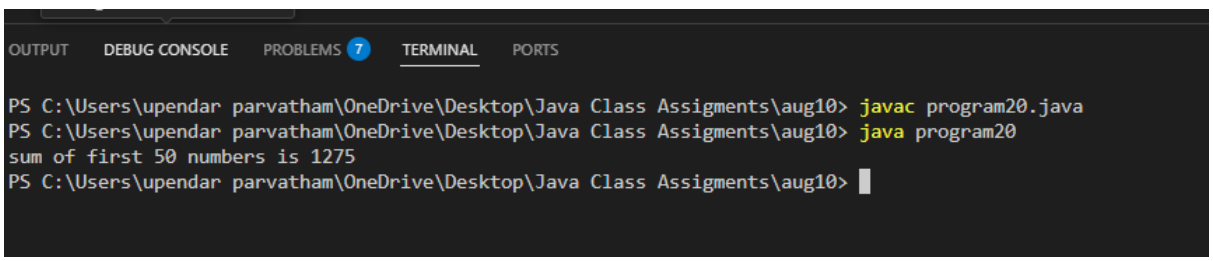
Output:



20. //Write a program to find the sum of the first 50 natural numbers.

```
public class program20 {
  public static void main(String[] args) {
    int sum =0;
    for(int i =1 ; i <=50;i++){
      sum += i;
    }
    System.out.println("sum of first 50 numbers is "+sum);
  }
}
```

Output:

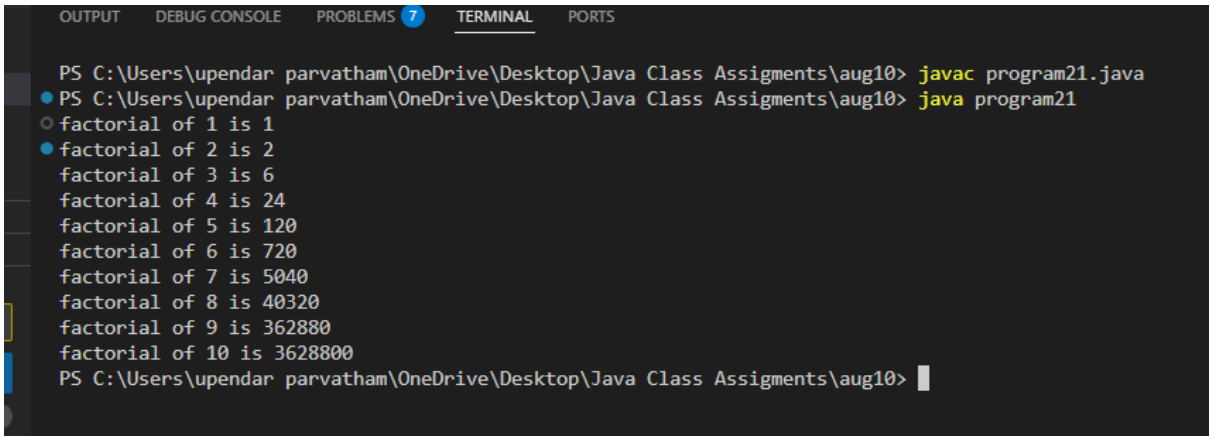


21.

//Write a program to print the factorial of numbers from 1 to 10.

```
public class program21 {
   public static int fact(int num){
      if(num==0) return 1;
      return num*fact(num-1);
   }
   public static void main(String[] args) {
    for(int i =1 ; i <= 10 ;i++){
        System.out.println("factorial of "+ i +" is "+fact(i));
    }
   }
}
```

Output:

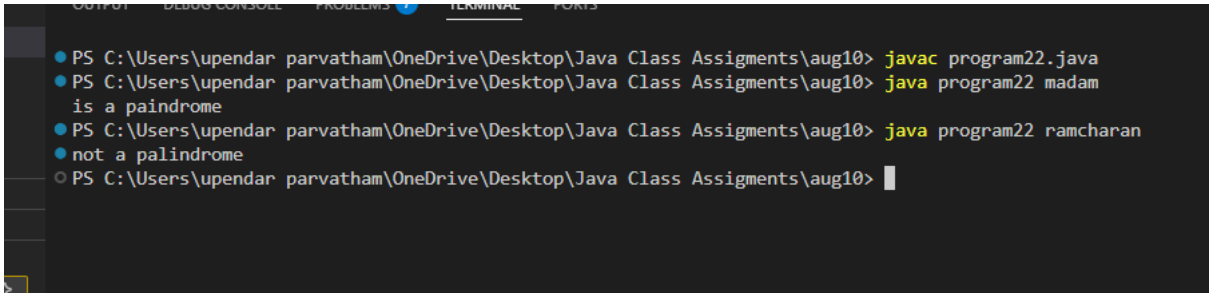


22. //Write a program to check if a given string is a palindrome using a loop.

```
public class program22 {
   public static void main(String[] args) {
      String s = args[0];
      int n = s.length();
```

```
        int t = n >>1;
        for(int i = 0 ; i < t;i++){
            if(s.charAt(i)!=s.charAt(n-i-1)){
                System.err.println("not a palindrome");
            }
        }
        System.err.println("is a paindrome");
    }
}
```

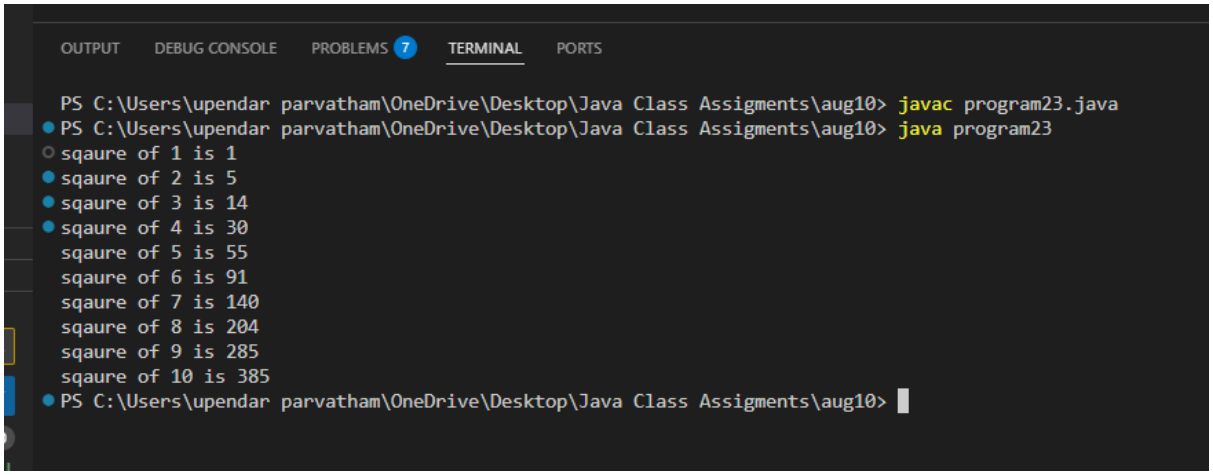
Output:



23. //Write a program to calculate the sum of the squares of numbers from 1 to 10.

```
public class program23 {
    public static void main(String[] args) {
        for(int i =1 ; i <=10;i++){
          int res = i*i;
          System.out.println("sqaure of "+i+" is "+res);
        }
    }
}
```

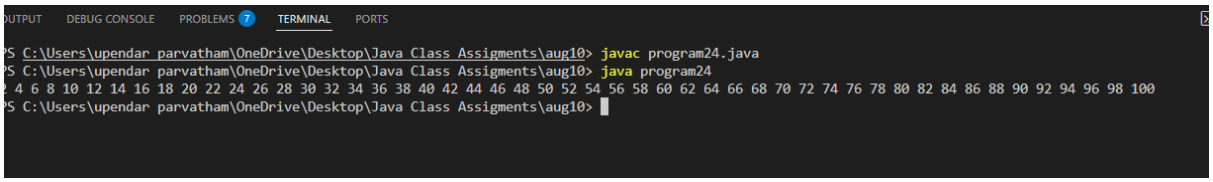
Output;



24. //Write a program to print the even numbers between 1 and 100.

```
public class program24 {
   public static void main(String[] args) {
      for(int i =1; i <=100;i++){
         if(i%2==0){
            System.out.println(i);
         }
      }
   }
}
```

Output:

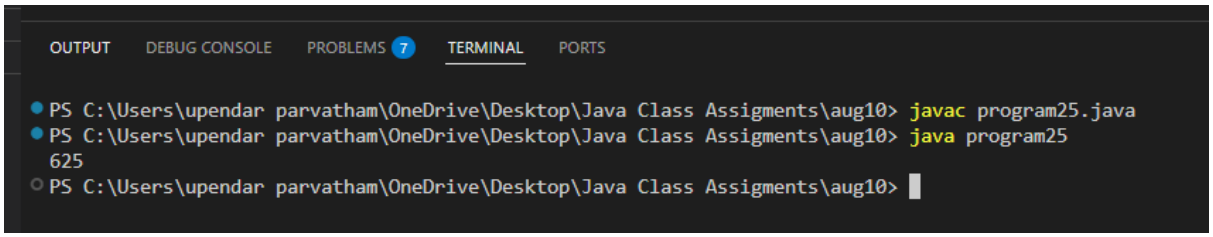


25. //Write a program to find the sum of all odd numbers between 1 and 50.

```
public class program25 {
   public static void main(String[] args) {
      int sum=0;
```

```
        for(int i =1; i <=50;i=i+2){
            sum= sum+i;
        }
        System.out.println(sum);
    }
}
```

Output:



26. //Write a program to check if a given number is a perfect number.

```
//a perfect number is a number equal to sum of its positive divisiors excludinf itself
public class program26 {
    public static void main(String[] args) {
        int num = Integer.parseInt(args[0]);
        int sum=0;
        for(int i = 1; i < num;i++){
            if(num%i==0){
                sum += i;
            }
        }
        if(num==sum){
            System.out.println(num+" is a perfect number");
        }
        else{
            System.out.println(num+" is not a perfect number");
        }
```

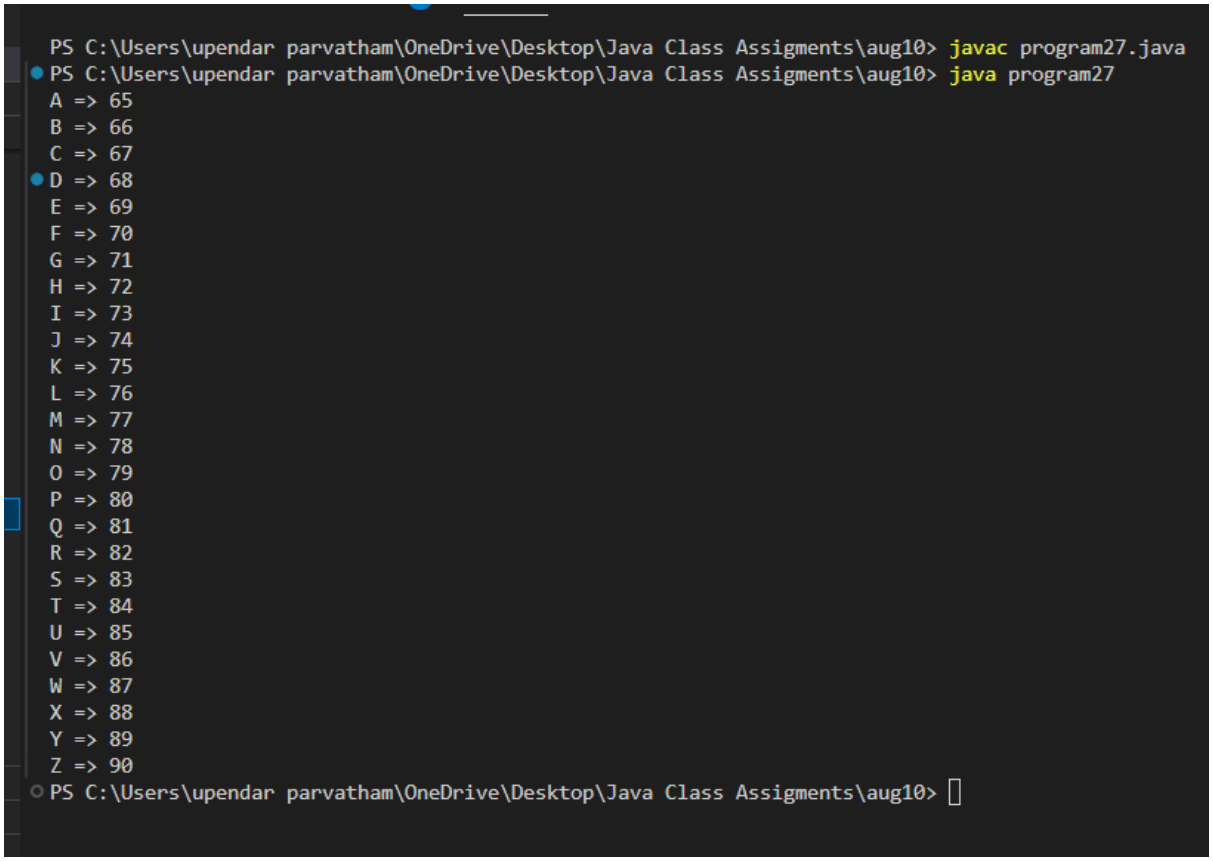
```
    }
}
```

Output:

27. //Write a program to print the ASCII values of all uppercase alphabets.

```
public class program27 {
    public static void main(String[] args) {
        char ch = 'A';
        for(int i =0 ; i < 26 ;i++){
            System.out.println(ch+" => "+(int)ch);
            ch++;
        }
    }
}
```

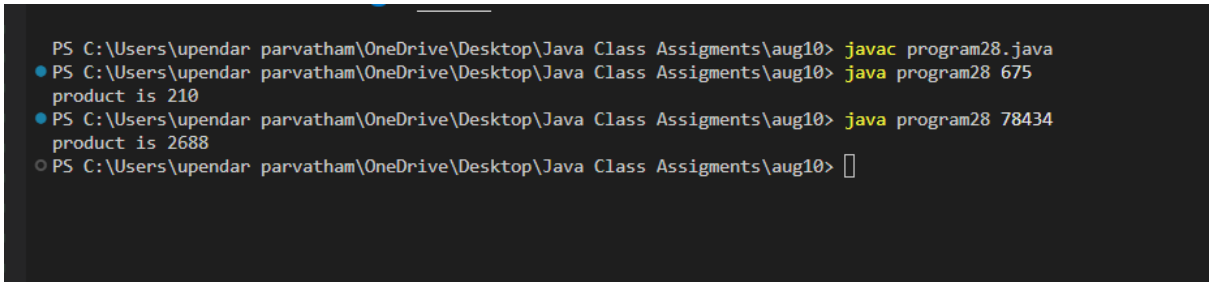
Output:



28.//Write a program to calculate the product of the digits of a given number.

```
public class program28 {
    public static void main(String[] args) {
        int num = Integer.parseInt(args[0]);
        int product =1,digit;
        while(num > 0){
            digit= num%10;
            product = product * digit;
            num =num/10;
        }
        System.out.println("product is "+ product);
    }
}
```

Output:



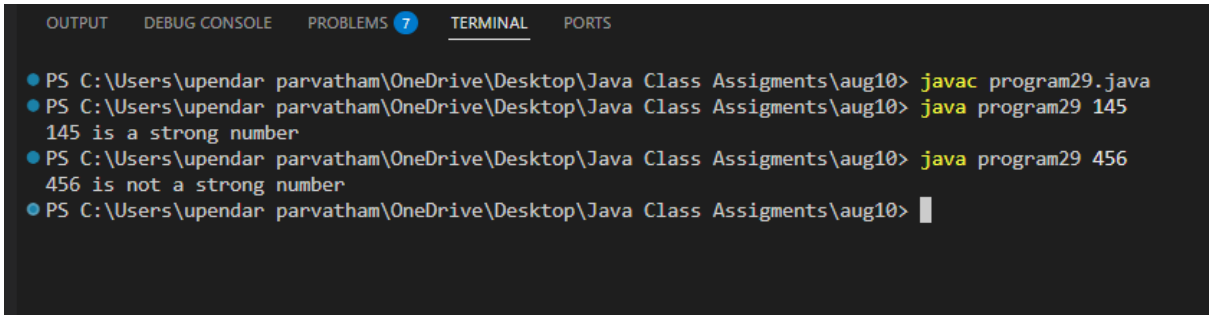
29. //Write a program to check if a given number is a strong number.

//A Strong number is anumber which is equal to sum of its each digit factorial

```
public class program29 {
    public static int fact(int num){
       if(num == 0) return 1;
       return  num*fact(num-1);
    }
    public static void main(String[] args) {
    int num = Integer.parseInt(args[0]);
    int original = num,sum=0,digit;

    while(num > 0){
       digit = num%10;
       sum = sum + fact(digit);
       num= num/10;
    }
    if(sum== original){
       System.out.println(original+" is a strong number");
    }else{
       System.out.println(original+" is not a strong number");
    }
  }
}
```

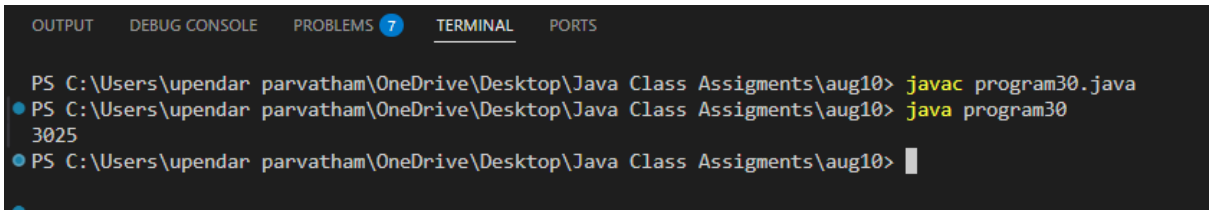
Output:



30. //Write a program to calculate the sum of the cubes of numbers from 1 to 10.

```
public class program30 {
   public static void main(String[] args) {
      int sum =0,cubes=0;
      for(int i = 1; i <= 10; i++){
         cubes=i*i*i;
         sum= sum+cubes;
      }
      System.out.println(sum);
   }
}
```

Output:



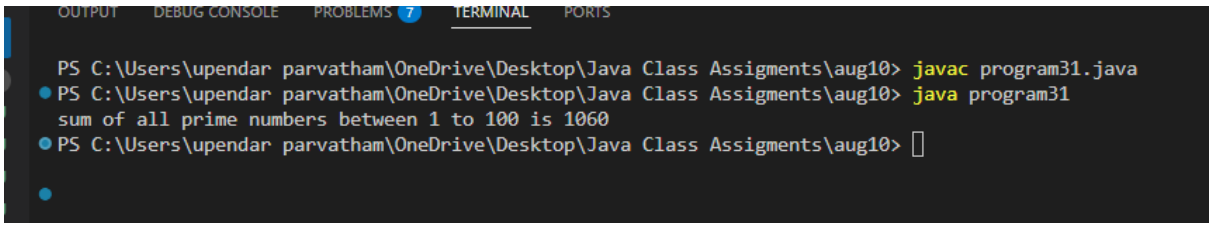
31. //Write a program to find the sum of all prime numbers between 1 and 100.

```
public class program31 {
   public static boolean  isPrime(int num){
      if(num <= 1) return false;
      if(num <= 3) return true;
      if( num%2== 0 || num%3==0){
         return false;
```

```
        }
        for(int i = 5 ; i <= Math.sqrt(num);i=i+6){
            if(num%i==0 || num%(i+2)==0){
                return false;
            }
        }
        return true;
    }
    public static void main(String[] args) {

        int sum=0;
        for(int i = 1; i <= 100;i++){
            if(isPrime(i)){
                sum = sum+i;
            }
        }
        System.out.print("sum of all prime numbers between 1 to 100 is "+sum);
    }
}
```

Output:



32. //32. Write a program to check if a given string is a pangram.

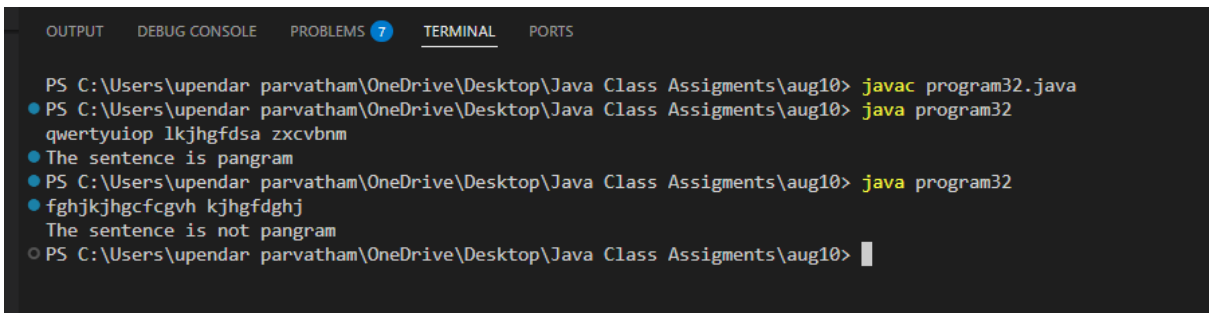
//a pangram is string that contains all alphabets atleast once

```
import java.util.*;

public class program32 {
```

```
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        String sentence = scanner.nextLine().toLowerCase();
        int count = 0;
        boolean[] letters = new boolean[26];
        for (char ch : sentence.toCharArray()) {
            if (ch >= 'a' && ch <= 'z') {
                int index = ch - 'a';
                if (!letters[index]) {
                    letters[index] = true;
                    count++;
                }
            }
        }
        if (count == 26) {
            System.out.println("The sentence is pangram");
        } else {
            System.out.println("The sentence is not pangram");
        }
    }
}
```

Output:

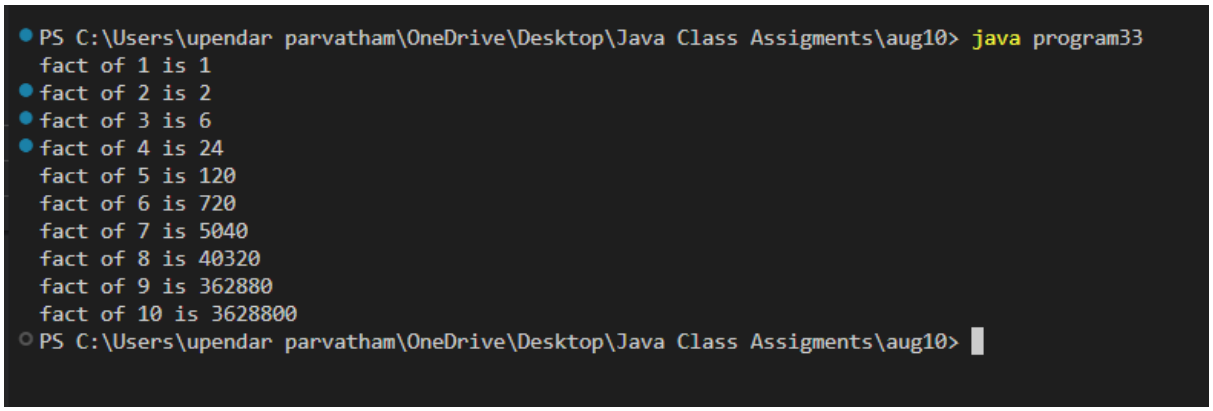


33. //Write a program to find the factorial of numbers from 1 to 10.

```
public class program33 {
   public static int fact(int num){
      if(num==0) return  1;
      return num*fact(num-1);
   }
   public static void main(String[] args) {
      for(int i =1; i <=10;i++){
         int fact  = fact(i);
         System.out.println("fact of "+i+" is "+fact);
      }
   }
}
```

Output:

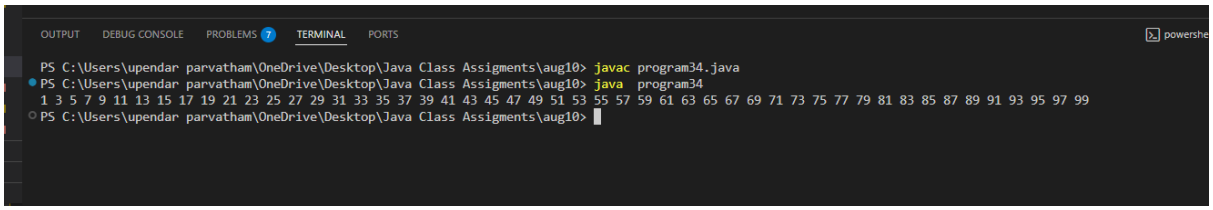
=



34. //Write a program to print the odd numbers between 1 and 100.

```
public class program34 {
   public static void main(String[] args) {
      for (int i = 1; i <= 100; i = i + 2) {
         System.out.println(i);
      }
   }
```

}

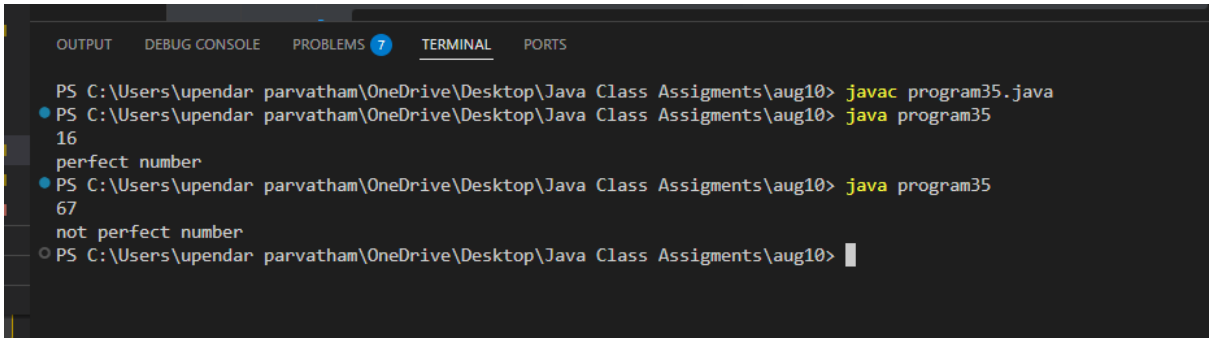


35. //perfect sqaure //4 9 16 25 64...

```
import java.util.*;


public class program35 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int num = scanner.nextInt();
        if (num < 0) {
            System.out.println("Negative numbers cannot ");
        }
        int sqrt = (int) Math.sqrt(num);
        if (sqrt * sqrt == num) {
            System.out.println("perfect number");
        } else {
            System.out.println("not perfect number");
        }
    }
}
```

Output:



//36. write a program to find the sum of digits of a given number until the sum its single digit

```
import java.util.*;

public class program36 {
    public static int sigleDigit(int num) {
        if (num % 9 == 0)
            return 9;
        return (num % 9);
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int num = scanner.nextInt();
        System.out.print(sigleDigit(num));
    }
}
```

Output:

Patterns

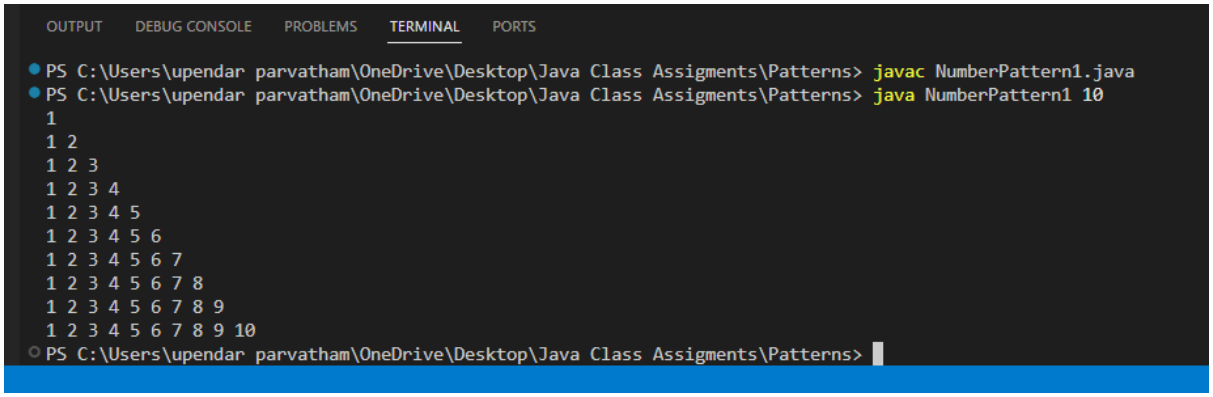
NumberPatterns:

Problem 1;

```
// n = 5
// 1
// 1 2
// 1 2 3
// 1 2 3 4
// 1 2 3 4 5
public class NumberPattern1 {
   public static void main(String[] args) {
      int n = Integer.parseInt(args[0]);
      int count=1;
      for(int i =1 ;i <= n ;i++){
         for(int j =1 ; j <= i ;j++){
            System.out.print(count+" ");
            count++;
         }
         count=1;
         System.out.println();
      }
```

```
    }
}
```

Output:

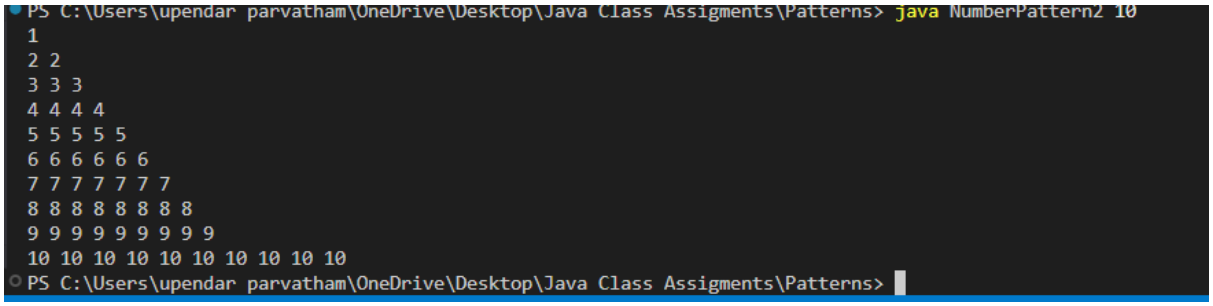


Problem2:

```
// n = 5
// 1
// 2 2
// 3 3 3
// 4 4 4 4
// 5 5 5 5 5
public class NumberPattern2 {
    public static void main(String[] args) {
        int n = Integer.parseInt(args[0]);
        int count;
        for(int i = 1 ; i <= n ;i++){
            count = i;
            for(int j =1 ; j <= i; j++){
                System.out.print(count+" ");
            }
            System.out.println();
        }
    }
```

}

Output:

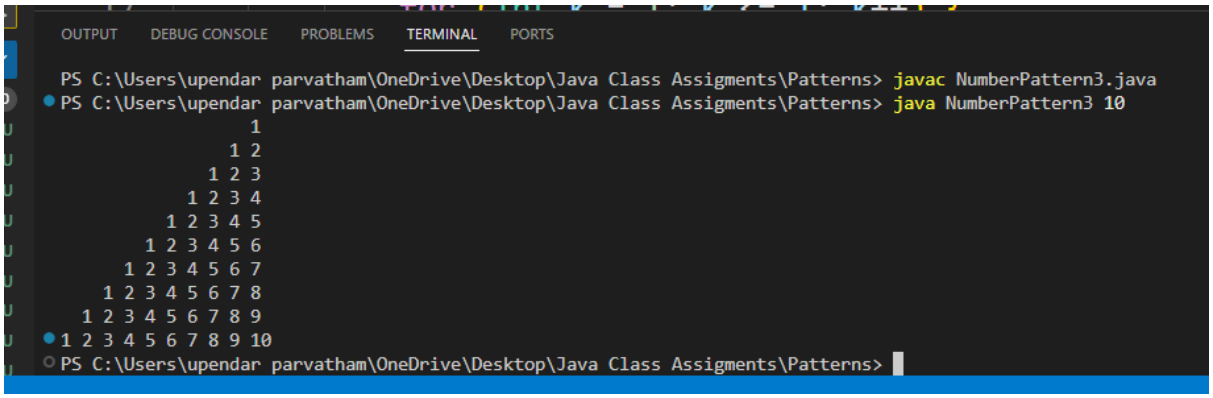


Problem 3:

```
// n = 5
//       1
//      1 2
//    1 2 3
//   1 2 3 4
// 1 2 3 4 5
public class NumberPattern3 {
   public static void main(String[] args) {
      int n = Integer.parseInt(args[0]);
      int count;
      for(int i = 1; i <= n ;i++){
         for(int j = 1; j <= n-i;j++){
            System.out.print("  ");
         }
         count=1;
         for(int k = 1 ; k <=i ;k++){
            System.out.print(count+" ");
            count++;
         }
         System.out.println();
      }
   }
```

}

Output:



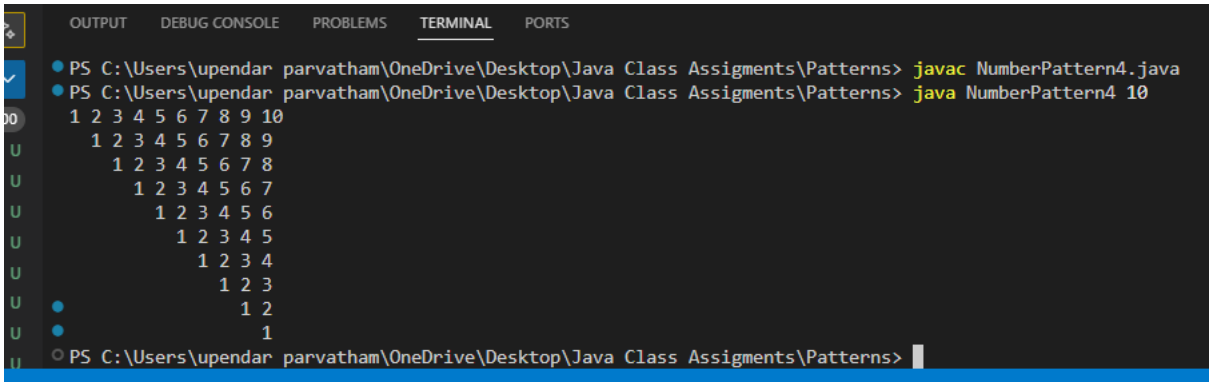
Problem 4:

```
// n = 5
// 1 2 3 4 5
//  1 2 3 4
//   1 2 3
//    1 2
//     1
public class NumberPattern4 {
   public static void main(String[] args) {
      int n = Integer.parseInt(args[0]);
      int count=1;
      for(int i = n; i >= 1 ;i--){
         for(int j = 1; j <= n-i;j++){
            System.out.print("  ");
         }

         for(int k = 1; k <= i;k++){
               System.out.print(count+" ");
               count++;
         }
         count=1;
```

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

Output:

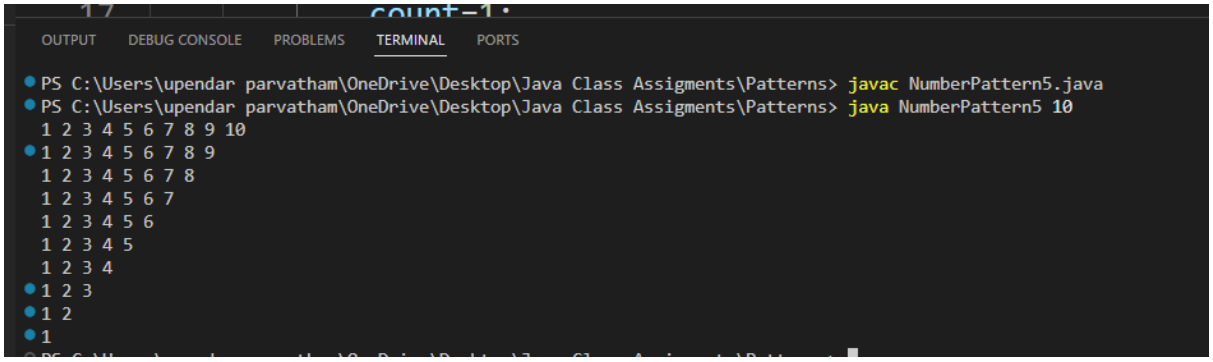


Problem 5

```
//pattern 5
// n = 5
// 1 2 3 4 5
// 1 2 3 4
// 1 2 3
// 1 2
// 1
public class NumberPattern5 {
    public static void main(String[] args) {
        int n = Integer.parseInt(args[0]);
        int count=1;
        for(int i =n ; i >=1;i--){
            for(int j = 1 ;j <= i ;j++){
                System.out.print(count+" ");
                count++;
            }
```

```
        count=1;
        System.out.println();
      }
    }
}
```

Output:

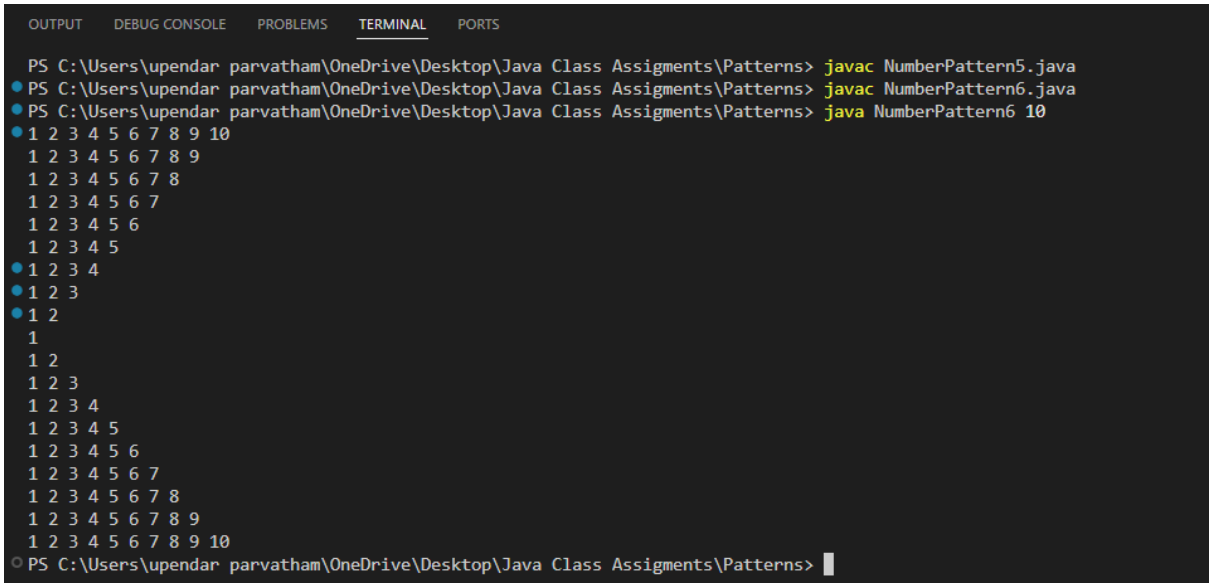



```
//pattern 6
 // n= 7
// 1 2 3 4 5 6 7
// 1 2 3 4 5 6
// 1 2 3 4 5
// 1 2 3 4
// 1 2 3
// 1 2
// 1
// 1 2
// 1 2 3
// 1 2 3 4
// 1 2 3 4 5
// 1 2 3 4 5 6
// 1 2 3 4 5 6 7
public class NumberPattern6 {
```

```
    public static void main(String[] args) {
        int n = Integer.parseInt(args[0]);
        int count=1;
        for(int i = n ; i >= 1; i--){
            for(int j = 1; j <= i ;j++){
                System.out.print(count+" ");
                count++;
            }
            count=1;
            System.out.println();
        }
        count=1;
        for(int i =2 ; i<=n;i++){
            for(int j = 1 ; j <= i;j++){
                System.out.print(count+" ");
                count++;
            }
            count=1;
            System.out.println();

        }
    }
}
```

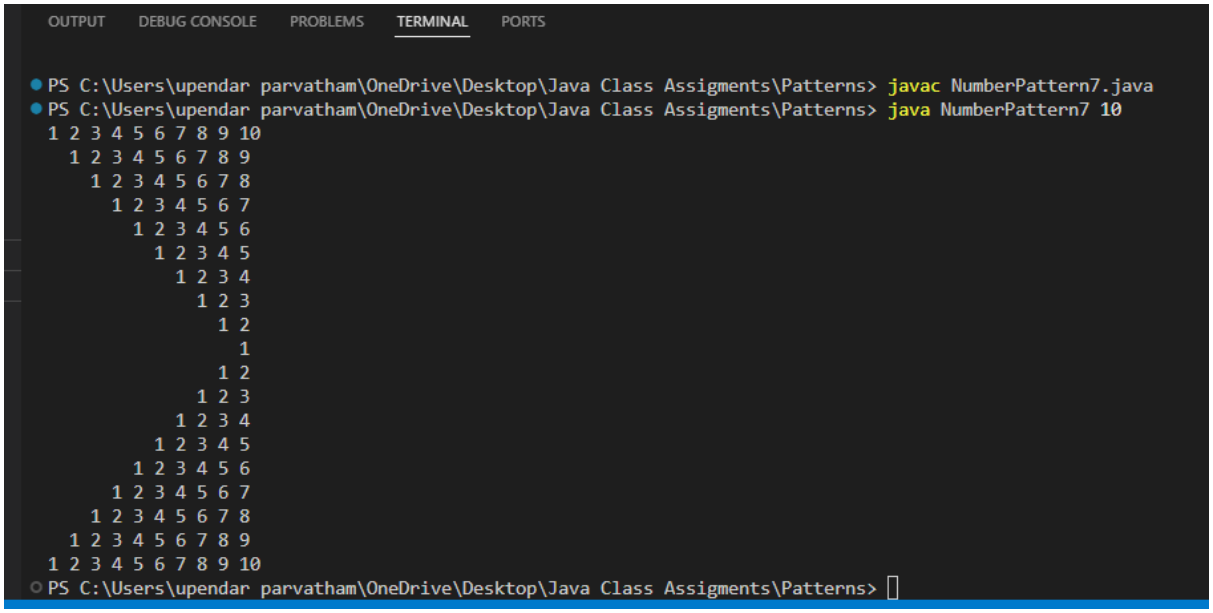
Output:




```
//pattern 7
// n =  7
// 1 2 3 4 5 6 7
//   1 2 3 4 5 6
//    1 2 3 4 5
//     1 2 3 4
//      1 2 3
//       1 2
//        1
//       1 2
//      1 2 3
//     1 2 3 4
//    1 2 3 4 5
//   1 2 3 4 5 6
// 1 2 3 4 5 6 7
public class NumberPattern7 {
    public static void main(String[] args) {
        int n = Integer.parseInt(args[0]);
        int spaces = 0, count = 1;
        for (int i = n; i >= 1; i--) {
```

```
            for (int j = 1; j <= spaces; j++) {
                System.out.print("  ");
            }
            spaces++;
            count = 1;
            for (int k = 1; k <= i; k++) {
                System.out.print(count + " ");
                count++;
            }
            System.out.println();
        }
        spaces = n - 2;
        for (int i = 2; i <= n; i++) {
            for (int j = 1; j <= spaces; j++) {
                System.out.print("  ");
            }
            spaces--;
            count = 1;
            for (int k = 1; k <= i; k++) {
                System.out.print(count + " ");
                count++;
            }
            System.out.println();
        }
    }
}
```

Output:



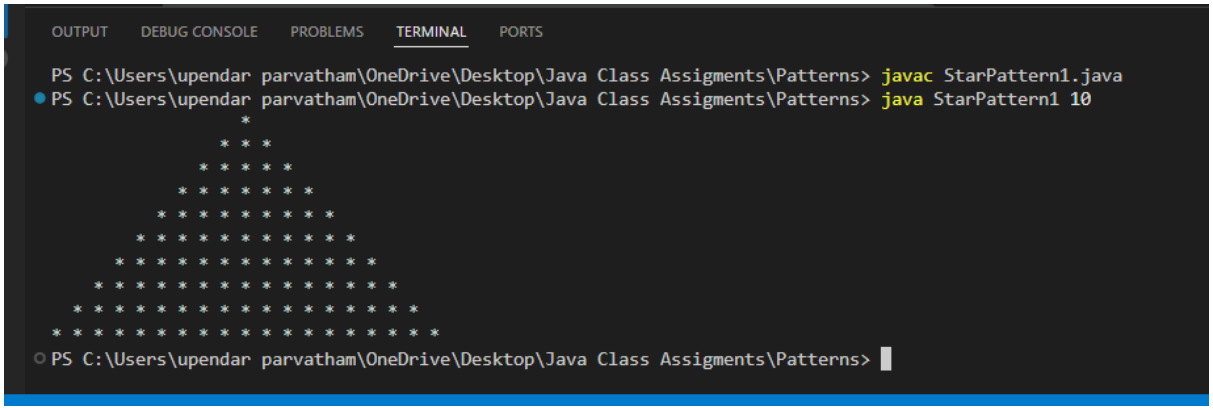
Star Patterns

```
//1.pattern
//       *       n==5
//     * * *
//    * * * * *
//   * * * * * * *
// * * * * * * * * *
public class StarPattern1{
   public static void main(String[] args){
      int n = Integer.parseInt(args[0]);
      for(int i =1; i <= n;i++){
        for(int j = 1; j <= n-i;j++){
            System.out.print("  ");
        }
        for(int k = 1  ; k <=i ;k++){
         System.out.print("* ");
        }
```

```
        for(int m = 1 ; m < i-0;m++){
         System.out.print("* ");
        }
        System.out.println();
      }

   }
}
```

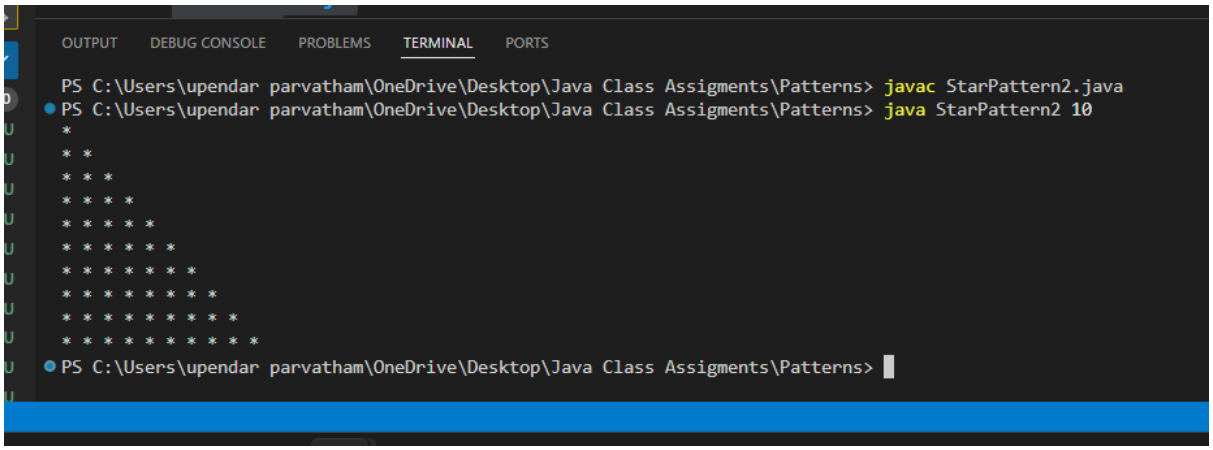
Output:




```
//pattern 2
//   n = 5
// *
// * *
// * * *
// * * * *
// * * * * *
public class StarPattern2 {
   public static void main(String[] args) {
      int n = Integer.parseInt(args[0]);
      for(int i = 1; i <= n ;i++){
         for(int j = 1 ;  j<= i ;j++){
```

```
            System.out.print("* ");
        }
        System.out.println();
    }
  }
}
```

Output:

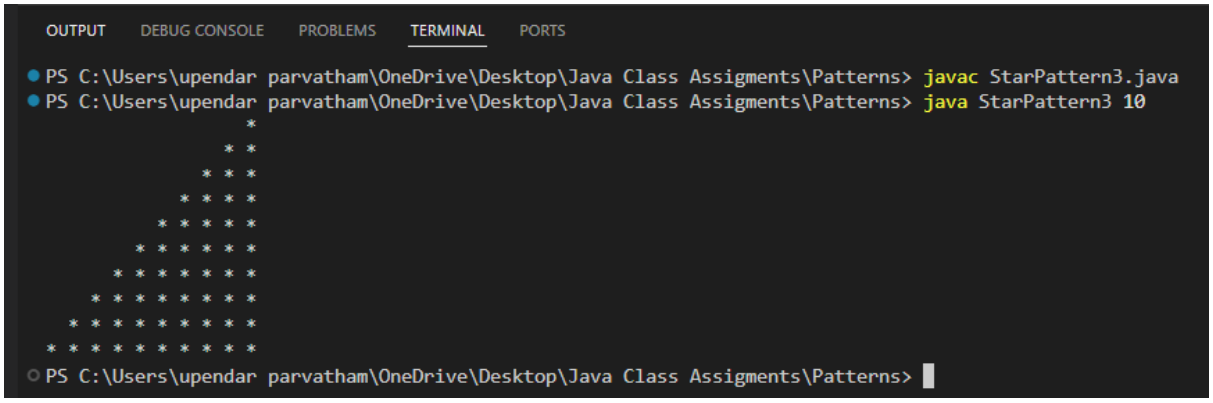


3. //pattern 3

```
// n = 5;
//       *
//     * *
//   * * *
// * * * *
// * * * * *
public class StarPattern3 {
   public static void main(String[] args) {
      int n = Integer.parseInt(args[0]);
      for(int i =1 ; i <= n ; i++){
         for(int j = 1 ; j <= n-i ;j++){
            System.out.print("  ");
```

```
        }
        for(int k = 1 ; k <= i; k++){
           System.out.print("* ");
        }
        System.out.println();
     }
  }
}
```

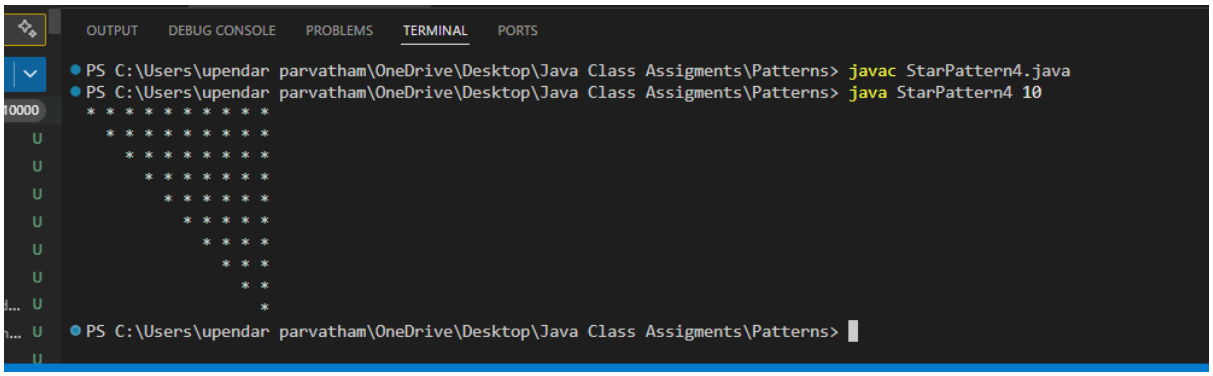
Output:




```
//pattern 4
// n == 5
// * * * * *
//  * * * *
//   * * *
//    * *
//     *
public class StarPattern4 {
   public static void main(String[] args) {
      int n = Integer.parseInt(args[0]);
      for (int i = n; i >= 1; i--) {
```

```
        for (int j = 1; j <= n - i; j++) {
            System.out.print("  ");
        }
        for (int k = i; k >= 1; k--) {
            System.out.print("* ");
        }
        System.out.println();
    }
  }
}
```

Output:

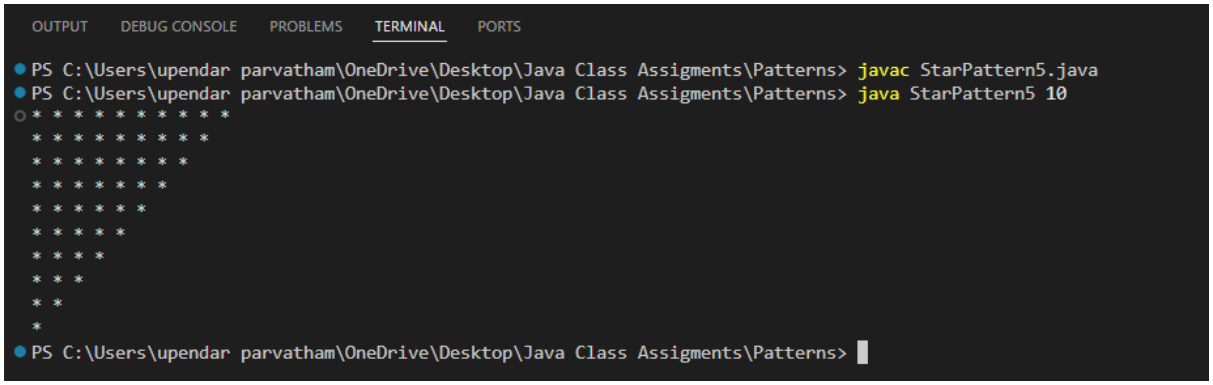



```
//pattern 5
// n = 5
// * * * * *
// * * * *
// * * *
// * *
// *

public class StarPattern5 {
    public static void main(String[] args) {
```

```
        int n = Integer.parseInt(args[0]);
        for (int i = n; i >= 1; i--) {
            for (int j = 1; j <= i; j++) {
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

Output:

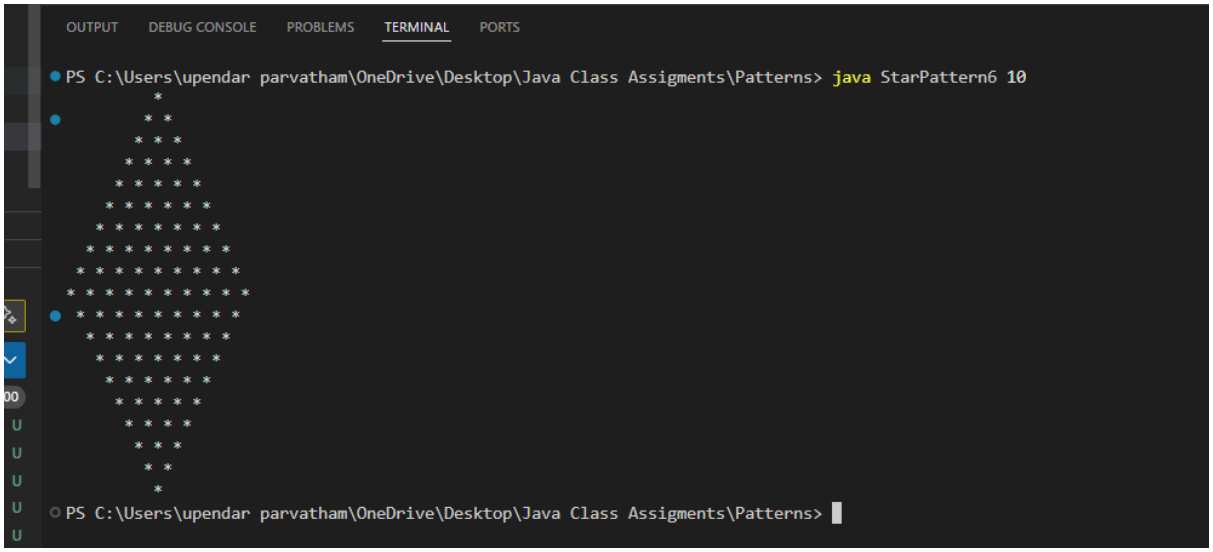



```
//pattern 6
// diamond
// n = 5
//      *
//     * *
//    * * *
//   * * * *
// * * * * *
//   * * * *
//    * * *
//     * *
//      *
```

```
public class StarPattern6 {
   public static void main(String[] args) {
      int n = Integer.parseInt(args[0]);
      int spaces = n - 1;
      for (int i = 1; i <= n; i++) {
         for (int j = 1; j <= spaces; j++) {
            System.out.print(" ");
         }
         spaces--;
         for (int k = 1; k <= i; k++) {
            System.out.print("* ");
         }
         System.out.println();
      }
      spaces = 1;
      for (int i = n - 1; i >= 1; i--) {
         for (int j = 1; j <= spaces; j++) {
            System.out.print(" ");
         }
         spaces++;
         for (int k = 1; k <= i; k++) {
            System.out.print("* ");
         }
         System.out.println();
      }

   }
}
```

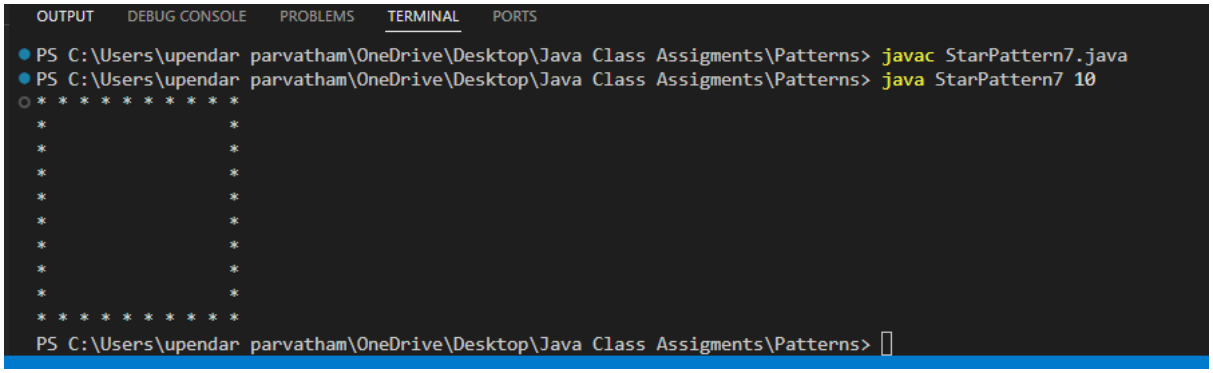
Output:




```
//pattern 7
//borders
//n= 5
// * * * * *
// *     *
// *     *
// *     *
// * * * * *
public class StarPattern7 {
   public static void main(String[] args) {
      int n = Integer.parseInt(args[0]);
      for (int i = 1; i <= n; i++) {
         for (int j = 1; j <= n; j++) {
            if (i == n || i == 1 || j == n || j == 1) {
               System.out.print("* ");
            } else {
               System.out.print("  ");
            }
         }
```

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

Output:




```
//pattern 8
//hallow diamond
// n= 5;
//       *
//     *   *
//   *       *
//  *          *
// *             *
//  *          *
//   *       *
//     *   *
//       *
public class StarPattern8 {
    public static void main(String[] args) {
        int n = Integer.parseInt(args[0]);
        int spaces = n - 1;
```

```
int spaces2 = 0;
for (int i = 1; i <= n; i++) {
   for (int j = 1; j <= spaces; j++) {
      System.out.print("  ");
   }
   spaces--;
   System.out.print("*");
   for (int k = 1; k <= spaces2; k++) {
      System.out.print("  ");
   }
   spaces2 += 2;
   if (i != 1) {
      System.out.print("* ");
   }
   System.out.println();
}
spaces = 1;
spaces2 = (n - 2) * 2;
for (int i = 1; i <= n - 1; i++) {
   for (int j = 1; j <= spaces; j++) {
      System.out.print("  ");
   }
   spaces++;
   System.out.print("*");
   for (int k = 1; k <= spaces2; k++) {
      System.out.print("  ");
   }
   spaces2 -= 2;
   if (i != n - 1) {
      System.out.print("*");
   }
```

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

Output: