WEEK-1

MCQ

1)
```
class TestClass {
    public static void main(String[] args)
    {
        int a = 10;
        int b = 3;
        System.out.println(a/b);
    }
}
```

Ans: 3

2)
```
import java.util.*;
class ComplexExpressionExample {
    public static void main(String[] args)
    {
        int a=5, b=2, c=3, d=4;
        int result = a+b*c/d-b;
        System.out.println(result);
    }
}
```

Ans:

3)
```
import java.util.*;
class TernaryOperatorExample
{
    public static void main(String[] args)
    {
        int a=5, b=10;
        int result = (a>b) ? a : b;
        System.out.println(result);
    }
}
```

Ans: 10

4)

```
Class TestClass{
    public static void main (String [] args)
    {
        int x = 5;
        int X = 10;

        int sum = x + X;
        int bitwiseResult = x | X;
        System.out.println (sum);
        System.out.println (bitwiseResult);
    }
}
```

Ans: 15
15

5) which of the following data types is used to store floating-point numbers with greater precision.

Ans: Double.

6)

```
Class DivisionExample
{
    public static void main (String [] args)
    {
        double num1 = 10.5;
        double num2 = 3;
        int result = (int) (num1/num2);
        System.out.println (result);
    }
}
```

Ans: 3

7)

```
Class TestClass{
    public static void main(String[] args)
    {
        int a = 5;
        int b = 10;
        int sum = a+b;
        int bitwiseAnd = a & b;
        int bitwiseOr = a | b;
        System.out.println(sum);
        System.out.println(bitwiseAnd);
        System.out.println(bitwiseOr);
    }
}
```

Ans:- 15
0
15

8)

```
import java.util.*;

class OperatorPrecedenceExample {
    public static void main(String[] args)
    {
        int a=5, b=3, c=2;
        int result = a+b*c;
        System.out.println(result);
    }
}
```

Ans:- 11

9) Which of the following data types is used to store single characters?

Ans: char

10)
```
Class DataTypesMCQ {
    Public static void main(String[] args)
    {
        int a = 10;
        double b = 5;
        System.out.println(a/b);
    }
}
```

Ans: 2.0

11) Which of the following is not a primitive data types?

Ans:- String

12)
```
Class Demo{
    public static void main(String[] args)
    {
        String text = "Hello, World!";
        System.out.println(text);
    }
}
```

Ans:- Hello, World!

13)
```
class Arithmetic {
    public static void main(String[] args)
    {
        char ch = 'A';
        System.out.println(ch);
    }
}
```
Ans: A

14)
```
import java.util.*;
class RelationalOperatorExample {
    public static void main (String[] args)
    {
        int x = 8, y = 4;
        boolean result = (x != y)
        System.out.println(result);
    }
}
```
Ans: True.

15)
```
Class Testclass
{
    public static void main (String[] args)
    {
        int count = 8;
        count = count ^ 1;
        System.out.println (count);
    }
}
```
Ans: 9

W-1 Skill Builder-

① display the temperatures which closer to 100 & diff to

```
import java.util.Scanner;
class Main {
    Public static void main (String[] args)
    {
        int m, n, d1, d2;
        Scanner scan = new Scanner (System.in);
        m = scan.nextInt();
        n = scan.nextInt();
        if (m >100){
            d1 = m-100;
        }else{
            d1 = 100-m;
        }
        if (n>100){
            d2 = n-100;
        }else{
            d2 = 100-n;
        }
        if (d1 >d2) {
            System.out.println("The integer
            closer to 100 is" + n + "with a
            diff of " + d2)
        }
        else {
            System.out.println("The integer
            closer to 100 is " + m + "with a
            diff of " + d1);
        }
    }
}
```

Input 90
80

O/P The integer closer to 100 is 90 with a diff of 10

② Dare got 2 students who wants to help with their doubts. Each handouts an integer & wants to find if one integer positive while the other is not divisible by 3.

```
import java.util.Scanner;
class Main{
Public static void main (String[] args)
{
    Scanner scan = new Scanner(System.in);
    int n1, n2;
    n1 = scan.nextInt();
    n2 = scan.nextInt();
    if ((n1 > 0 && n2 % 3 != 0) || (n2 > 0 && n1 % 3 != 0))
    {
        System.out.println("One of the integer is positive & other is not divisible by 3");
    }
    else {
        System.out.println("Neither of the integer meet the condition");
    }
}
}
```

I/P
4
3

O/P
One of the integer is positive & other is not divisible by 3.

(3) Get integer as input & convert it into double value.

```
import java.util.Scanner;
class Main {
        Scanner scan = new Scanner(System.in);
        int n = scan.nextInt();
        System.out.println("Original Integer: " + n);
        System.out.println("Converted double: " + (double)n);
    }
}
```

Input	Output
20	Original Integer: 20 Converted double: 20.0

(4) 2 integers. Sum of 2 numbers is a multiple of their product

```
import java.util.Scanner;
class Main {
    public static void main (String[] args)
    {
        int m, n;
        Scanner scan = new Scanner(System.in);
        m = scan.nextInt();
        n = scan.nextInt();
        if (m+n == m*n)
        {
            System.out.println("Sum is multiple of product");
        }
        else {
            System.out.println("Sum is not multiple of product");
        }
    }
}
```

I/P	O/P
1 2	Sum is not multiple of product.

W-1 PAH.

① Write a program that takes 2 integers as input & checks if both the integers are either odd or even

```
import java.util.Scanner;
class Main{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        int m,n;
        m = scan.nextInt();
        n = scan.nextInt();
        if((m%2==0 && n%2==0)||
           (m%2!=0 && n%2!=0))
        {
            System.out.println("Either even or
                                odd");
        }
        else{
            System.out.println("have different
                                parities");
        }
    }
}
```

I/P

2

-4

O/P

Both integers are either even or odd.

(2) Write a program to help finding ... the result of the between AND gate ... of the given three numbers and ... print the result

```
import java.util.Scanner;
class Main{
    public static void main (String[] args)
    {
        int a,b,c;
        Scanner sc = new Scanner (System.in);
        a = sc.nextInt();
        System.out.println(a+b+c);
    }
}
```

I/P
25

O/P
9

I/P
9

O/P
9

① right shift by 4

```
import java.util.Scanner;
class test1
{
public static void main(String[] args)
{
Scanner sc = new Scanner(System.in);
int n = sc.nextInt();
n = n>>4;
System.out.println(n);
}
}
```

o/p

16

o/p

4

o/p

4

o/p

1

(2) Perform bitwise XOR operation to flip all the bits

```
import java.util.Scanner;
class Main{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in)
        int a = scan.nextInt();
        System.out.printf("Result: %d",a^255);
    }
}
```

S.I

16

S.O

4

(3) Right shift the integer by 2

```
import java.util.Scanner;
class Main{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        int a = scan.nextInt();
        System.out.println(a>>2);
    }
}
```

S.I

4

S.O

1

Week-2 MCQ

1) What will be Output?

```
class Loop{
    public static void main(String[] args)
    {
        for(int i=1 ; i<=3; i++)
        {
            for(int j=1; j<=2; j++)
            {
                System.out.print(i + "" + j + " ");
            }
        }
    }
}
```

11 12 21 22 31 32

2) what will the output?

```
class ConditionTest {
    public static void main (String[] args)
    {
        int x=10;
        if (x > 5)
        {
            System.out.println ("High");
        }
    }
}
```

High.

3)

```
class Test{
    public static void main (String[] args){
        int a=4, b=5;
        if ((a+b)% 2 ==0)
            System.out.println("Even");
        else
            System.out.println("odd");
    }
}
```

odd

④

```
class Looptest{
    public static void main(String[] args){
        int i=1;
        do{
            System.out.print(i + " ");
            i *= 2;
        }while (i <=8);
    }
}
```

1 2 4 8

⑤

```
public class Main{
    public static void main(String[] args){
        for(int i=1 ; i<=20 ; i = i * 2){
            System.out.print(i+" ");
        }
    }
}
```

1 2 4 8 16

⑥

```
class Main{
    Public static void main(String[] args){
        for (int i=5 ; i>0 ; i--){
            System.out.print(i+" ");
        }
    }
}
```

5 4 3 2 1

(7)

```
public class Main{
    public static void main (String [] args){
        int score = 75;
        if (score >= 90)
            System.out.println ("Grade A");
        else if (score >= 80)
            System.out.println ("Grade B");
        else System.out.println ("Grade C");
    }
}
```

Grade C

(8)

```
class ConditionTest{
    Public static void main (String [] args)
    {
        int a = 7;
        if (a == 7)
            System.out.print ("Match");
        else
            System.out.print ("No Match");
    }
}
```

Match.

Week - 2 skill builder.

①
```
import java.util.Scanner;
class Main {
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        int a = scan.nextInt();
        int b = scan.nextInt();
        int c = scan.nextInt();
        int d = scan.nextInt();
        int e = scan.nextInt();
        int avg = (a+b+c+d+e)/5;
        System.out.println("Average score : "+avg);
        if (avg >= 50)
            System.out.println("The student has passed");
        else
            System.out.println("The student has failed");
    }
}
```

S.I

50 60 70 80 90

S.O

Average score : 70
The student has passed

②
```
import java.util.Scanner;
class Main {
    public static void main (String[] args) {
        Scanner scan = new Scanner(System.in);
        int a = scan.nextInt();
        if (a % 5 == 0)
            System.out.println(a+" is a multiple of 5");
        else if (a % 7 == 0)
            System.out.println(a+" is a multiple of 7");
        else
            System.out.println(a+" is neither multiple of 5 nor 7");
    }
}
```

S.I

37

S.O

37 is neither multiple of 5 nor 7

(3)

```
import java.util.Scanner;
Class Main {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        int i = scan.nextInt();
        int y = scan.nextInt();
        double cv = i * Math.pow(0.85, y);
        System.out.printf("Current Value : %.2f", cv);
        System.out.println();
        if (cv > 10000)
        {
            System.out.println("Category : High");
        }
        else if (cv >= 5000 && cv <= 10000)
        {
            System.out.println("Category : Medium");
        }
        else {
            System.out.println("Category : Low");
        }
    }
}
```

S.I

12575

1

S.O

Current Value : 10688.75

Category : High

(8)

```
import java.util.Scanner;
class Main{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        int n = scan.nextInt();
        for(int i=1; i<=n; i++)
        {
            for(int j=0; j<i; j++)
            {
                System.out.print("* ");
            }
            System.out.println();
        }
        for (int i=0; i<n-1; i++)
        {
            for (int j=i; j<n-1; j++)
            {
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

S.I

5

S.O

```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

Week-2 PAH

① Print the grade of the student based on marks.

```
import java.util.Scanner;
class Main{
    public static void main (String[] args)
    {
        Scanner scan = new Scanner(System.in);
        int g = scan.nextInt();
        if (g>=90)
            System.out.println("Letter Grade : A");
        else if (g>=80 && g<=89)
            System.out.println("Letter Grade : B");
        else if (g>=70 && g<=79)
            System.out.println("Letter Grade : C");
        else if (g>=60 && g<=69)
            System.out.println("Letter Grade : D");
        else
            System.out.println("Letter Grade : F");
    }
}
```

S.I

85

S.O

Letter Grade: B

S.I

79

S.O

Letter Grade : C

(2) Write a program to calculate the total bill using the following criteria:

i) The cost per unit for electricity is 0.12, for water is 0.05 and for gas is 0.08.

ii) A discount is applied to the total cost based on the following criteria:

a) If the total cost is 100 or more, a 10% discount is applied.

b) No discount is applied if the total cost is less than 50.

```
import java.util.Scanner;

class Main {
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        Double e = scan.nextDouble();
        Double w = scan.nextDouble();
        Double g = scan.nextDouble();
        Double tcost = (e*0.12) + (w*0.05) + (g*0.08);
        if (tcost >= 100)
            System.out.printf("%.2f", tcost - (tcost*10)/100);
        else if (tcost >= 50 && tcost <= 99.99)
            System.out.printf("%.2f", tcost - (tcost*5)/100);
        else if (tcost < 50)
            System.out.printf("%.2f", tcost);
    }
}
```

S.I

120.0
70.0
45.0

S.O

21.50

CY

① Calculate the roots using the quadratic Eqn

$ax^2 + bx + c = 0$

discriminant $= b^2 - 4ac$

```
import java.util.Scanner;
class Main {
    public static void main (String[] args) {
        Scanner scan = new Scanner (System.in);
        Double a = scan.nextDouble();
        Double b = scan.nextDouble();
        Double c = scan.nextDouble();
        Double r = (b*b) - (4*(a*c));
        Double root1 = (-b + Math.sqrt(r))/(2*a);
        Double root2 = (-b - Math.sqrt(r))/(2*a);
        if (r < 0)
            System.out.println("There are no solutions");
        else if (r == 0)
            System.out.println("One real solution:");
            System.out.println("Root = %.2f", root1);
        else if (r > 0)
            System.out.println("Two real solutions:");
            System.out.println("Root1 = %.2f\n", root1);
            System.out.println("Root2 = %.2f\n", root2);
    }
}
```

S.I

1 5 6 :

S.O

Two real solutions:
Root1 = -2.00
Root2 = -3.00

(2)

```
import java.util.Scanner;
Class Main{
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        int n = scan.nextInt();
        int c = n;
        int sum = 0;
        while (c != 0)
        {
            sum = sum + (c % 10);
            c /= 10;
        }
        if (n % sum == 0)
        {
            System.out.printf("%d is divisible
                by the sum of its digits.", n);
        }
        else {
            int e = n;
            int r = 0;
            while (e != 0)
            {
                if (e % sum == 0)
                {
                    r = e;
                    break;
                }
                e--;
            }
            System.out.printf("%d is not divisible by
            the sum of its digits.", n);
            System.out.printf("The closest smaller
            number that is divisible : %d", e);
        }
    }
}
```

S.I

120

S.O

120 is divisible by the sum of its digits.

Week-3 MCQ

1.)
```
public class Main {
    public static void main (String[] args) {
        int arr[] = {1, 2, 3, 4, 5};
        int n = arr.length();
        int temp = arr[0];
        for (int i = 0 ; i < n-1; i++) {
            arr[i] = arr[i+1];
        }
        arr[n-1] = temp;
        for(int n : arr){
            System.out.println(num + " ");
        }
    }
}
```

2 3 4 5 1

2.)
```
class Q{
    Public static void main (String[] args){
        int[][] arr = { {5, 6, 7}, {8, 9, 10}};
        System.out.println (arr[0][2]);
    }
}
```

3.)
```
public class Test {
    public static void main (String[] args){
        int[] x = {4, 8, 12};
        int result = x[0] * x[2];
        System.out.println(result);
    }
}
```

48

4.)
```
Class M{
    Public static void main (String[] args){
        int [][] arr = { {1, 2}, {3, 4}, {5, 6}};
        for (int i=0 ; i < arr.length; i++){
            System.out.print (arr[i][0] + " ");
        }
    }
}
```

1 3 5

5)
```
Class a{
    Public Static void main (String[] args){
        int nums[] = {3, 6, 7, 2, 8};
        int sum = 0;
        for(int i = 0; i < nums.length ; i ++){
            if (nums[i] % 2 == 0)
                sum += nums [i];
        }
        System . out. println (sum);
    }
}
```

16

6)
```
Class a{
    public static void main (String[] args){
        int a[] = {1, 2, 3, 4};
        for(int i = 0; i < a.length /2 ; i++)
        {
            int temp = a[i];
            a[i] = a[a.length -1 - i];
            a [a.length -1- i] = temp;
        }
        System.out.println (a[0]);
    }
}
```

4

7.)
```
class Sample{
    public static void main(String[] args){
        int[] a = {1,2,3};
        int product = 1;
        for(int i=0; i<a.length; i++){
            product *= a[i];
        }
        System.out.println(product);
    }
}
```

6

8.)
```
class Q{
    Public static void main(String[] args)
    {
        int[] a = {1,2,1,3,1,4};
        int count = 0;
        for(int i=0; i<a.length; i++){
            if(a[i]==1) count++;
        }
        System.out.println(count);
    }
}
```

Week-3 Skill Builder

① Print the largest number in array:

```
import java.util.Scanner;

class Main{
    public static void main (String[] args){
        Scanner scan = new Scanner (System.in);
        int n = scan.nextInt();
        int[] a = new int[n];
        for(int i=0; i<n; i++)
        {
            a[i] = scan.nextInt();
        }
        for( int i=0; i<n-1; i++)
        {
          for(int j=0; j<n-1-i; j++)
          {
            if (a[j] > a[j+1])
            {
                int t = a[j];
                a[j] = a[j+1];
                a[j+1] = t;
            }
          }
        }
        int sum = a[n-3] + a[1];
        System.out.println(sum);
    }
}
```

S.I

5

98 1 54 36 8 2

S.O

90

④

```
import java.util.Scanner;
class Main{
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        int n = scan.nextInt();
        int[][] a = new int[n][n];
        for(int i=0; i<n; i++)
        {
            for(int j=0; j<n; j++)
            {
                a[i][j] = scan.nextInt();
            }
        }
        int sum1=0, sum2=0;
        for(int i=0; i<n; i++)
        {
            for(int j=0; j<n; j++)
            {
                if(i==j)
                    sum1 += a[i][j];
                if(i+j == n-1)
                    sum2 += a[i][j];
            }
        }
        System.out.println(sum1, sum2);
    }
}
```

S.I

```
3
1 2 3
4 5 6
7 8 9
```

S.O

```
15
15
```

(3)

```
import java.util.Scanner;

Class Main{
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        int n = scan.nextInt();
        int[] a = new int[n];
        for(int i=0; i<n; i++)
        {
            a[i] = scan.nextInt();
        }
        System.out.println("Sum of the first & last elements :" + (a[0] + a[n-1]));
    }
}
```

S.I

5.
10 20 30 40 50

S.O

Sum of the first & last elements : 60

Week-3 PAH

① print unique elements and total count

```
import java.util.Arrays;
import java.util.Scanners;

class Main{
        public static void main(String[] args){
          Scanner scan = new Scanner(System.in);
          int n = scan.nextInt();
          int[] a = new int[n];
          for(int i=0;i<n;i++)
          {
                a[i]= scan.nextInt();
          }
          int[] b = new int[n];
          Arrays.fill(b,0);
          for(int i=0;i<n;i++)
          {  int h = a[i];
             boolean flag=true;
             for(int j=0;j<n;j++)
             {
                if(h==b[j])
                {
                   flag=false;
                   break;
                }
             }
             if(flag==true)
             {
                b[i]=h;
             }
          }
          int count=0;
          for(int i=0;i<b.length;i++)
          {  if(b[i]!=0)
             {
                System.out.print(b[i]+" ");
                count++;
             }
          }
          System.out.println(count);
        }
}
```

S.I

```
3
100 100 200
```

S.O

```
100 200
2
```

② Find the sum of all the numbers:

```
import java.util.Scanner;
class Main
{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner (System.in);
        int a = scan.nextInt();
        int b = scan.nextInt();
        int[][] arr = new int[a][b];
        int sum = 0;
        for(int i=0; i<a; i++)
        {
            for(int j=0; j<b; j++)
            {
                arr[i][j] = scan.nextInt();
                sum += arr[i][j];
            }
        }
        System.out.println(sum);
    }
}
```

S.I

```
3
3
1 2 3
4 5 6
7 8 9
```

S.O

```
45
```

Week-3 CW

1) The rule is simple: Remove the item with the highest point value in each step until no items are left, summing the values of the removed items to calculate the maximum score

```
import java.util.Scanner;

class Main
{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        int n = scan.nextInt();
        int[] a = new int[n];
        int sum = 0;
        for(int i=0; i<n; i++)
        {
            a[i] = scan.nextInt();
            sum += a[i];
        }
        System.out.println("Maximum Sum : "+sum);
    }
}
```

S-I

```
6
5 4 3 2 1 0
```

S-O

```
Maximum Sum : 15
```

② Rotate the given 2D array

```
import java.util.Scanner;
class Main{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        int n = scan.nextInt();
        int[][] a = new int[n][n];
        for(int i=0; i<n; i++)
        {
            for(int j=0; j<n; j++)
            {
                a[i][j] = scan.nextInt();
            }
        }
        System.out.println("Rotated 2D Array:");
        for(int i=0; i<n; i++)
        {
            for(int j=n-1; j>=0; j--)
            {
                System.out.print(a[j][i] + " ");
            }
            System.out.println();
        }
    }
```

S.I

```
3
1 2 3
4 5 6
7 8 9
```

S.O

```
Rotated 2D Array:
7 4 1
8 5 2
9 6 3
```

Week-4 MCQ

1)
```
class Main{
    Public static void main (String[] args).
    {
        StringBuffer sb = new StringBuffer ("Hello")
        System.out.println ("charAt(1) before = " + sb.charAt(1));
    }
}
```

charAt(1) before = e

2)
```
public class Main{
    public static void main(String[] args)
    {
        float a = 10.0f;
        String temp = Float.toString(a);
        System.out.println(temp);
    }
}
```

10.0

3)
```
class Main {
    public static void main (String[] args){
        StringBuffer sb = new StringBuffer("I Java!");
        sb.insert (5, "like");
        System.out.println (sb);
    }
}
```

I Javlike a!

4)
```
class Main{
    public static void main(String[] fruits){
        String fruit = new String("apple")
        System.out.println(fruit);
    }
}
```

apple.

5.)
```
class Main{
    Public static void main (String[] args)
    {
        String s1 = "Hello i love jara";
        String s2 = new String(s1);
        System.out.println ((s1==s2) + " " + s1.equals(s2));
    }
}
```

false true

6.)
```
class Main{
    Public static void main(String[] args){
        String s = new String("5");
        System.out.println(1+111L+s+1+010);
    }
}
```

111 2511 010

7.)
```
class Main{
    public static void main (String[] args)}
    String languages[] = {"C", "C++", "Java", "Python", "Ruby"};
    for (String s : languages){
        System.out.println(s);
    }
}}
```

O/P C C++ Java Python Ruby

8.)
```
class Main{
    Public static void main(String[] args)
    {
        String name = "Work Hard";
        name.concat("Success");
        System.out.println(name);
    }
}
```

Work Hard

Week-4 8B

① Count the commas, periods & Question marks.

```
import java.util.*;

class Main{
    public static void main (String[] args) {
        Scanner scan = new Scanner (System.in);
        int n = scan.nextInt();
        scan.nextLine();
        for (int i=0; i<n; i++)
        {
            int c=0, p=0, q=0;
            String s = scan.nextLine();
            char[] carr = s.toCharArray();
            for (int j=0; j< carr.length; j++)
            {
                if (carr[j] == ',')
                    c++;
                else if (carr[j] == '.')
                    p++;
                else if (carr[j] == '?')
                    q++;
            }
        }
        System.out.println (c+" "+p+" "+q);
    }
}
```

S.I

```
1
Hello, world. How are you?
```

S.O

```
1 1 1
```

② Sort the given string based on the first letter each word.

```
import java.util.*;
Class Main{
    public static void main(String[] args){
        Scanner scan = new Scanner (System.in);
        int n = Integer.parseInt(scan.nextLine());
        String[] keywords = scan.nextLine().split
        Arrays.sort(keywords);
        for (int i=0; i<n ; i++){
            System.out.print(keywords[i]);
            if (i !=n-1)
                System.out.print(" ");
        }
        System.out.println();
    }
}
```

S.I

```
5
Blockchain Cloud AI Data
Cybersecurity
```

S.O

```
AI Blockchain Clou
Da Cybersecurity
Data
```

Week-4 PAH

① Write a program to find the sum of all the numbers written on each ball in the grid.

```
import java.util.Scanner;
Class Main{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        int a = scan.nextInt();
        int b = scan.nextInt();
        int[][] arr = new int[a][b];
        int sum=0;
        for(int i=0 ; i<a; i++)
        {
            for(int j=0; j<b; j++)
            {
                arr[i][i] = scan.nextInt();
                sum+= arr[i][j];
            }
        }
        System.out.println(sum);
    }
}
```

S.I

```
3
3
1 2 3
4 5 6
7 8 9
```

S.O

```
45
```

② Print the count of

Uppercase,
Lowercase,
Digit.

```
import java.util.Scanner;

class CharacterCounter{
    public static void main(String[] args){
        Scanner sc = new Scanner(System.in);
        String sentence = sc.nextLine();

        int ucc = 0;
        int lcc = 0;
        int dc = 0;
        for(char ch : sentence.toCharArray()){
            if(Character.isUpperCase(ch))
                ucc++;
            else if(Character.isLowerCase(ch))
                lcc++;
            else if(Character.isDigit(ch))
                dc++;
        }
        System.out.println(ucc + " " + lcc + " " + dc);
    }
}
```

S.I

Hello World 123

S.O

2 8 3

Week-4 CY

① print the count of Exclamation, colon & semicolon.

```
import java.util.Scanner;
class Spread {
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        int T = Integer.parseInt(sc.nextLine());
        for(int i=0; i<T; i++)
        {
            String passage = sc.nextLine();
            int ec=0, cc=0, sc=0;
            for(char ch : passage.toCharArray())
            {
                if(ch=='!')
                    ec++;
                else if(ch==':')
                    cc++;
                else if(ch==';')
                    sc++;
            }
        }
        System.out.println(ec+" "+cc+" "+sc);
    }
}
```

S.I

1

Hello! How are you

S.O

1 0 0

② Print all the words in a given sentence that have a length greater than or equal to 5

```
import java.util.Scanner;

class LongWordsFinder{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        String sentence = sc.nextLine();
        String[] words = sentence.split(" ");
        StringBuilder result = new StringBuilder();

        for (String word : words)
        {
            if (word.length() >=5)
                result.append(word).append(" ");
        }
        if (result.length() >0)
        {
            System.out.println(result.toString());
        }
        else
        {
            System.out.println("No long words");
        }
    }
}
```

S.I

The quick brown fox jumps over the lazy dog

S.O

quick brown jumps