

① write a program to matrix multiply?

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```
= import java.util.Scanner;  
public main {
```

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

```
        Scanner input = new Scanner (System.in);
```

```
        int mat1[][] = {{1,2}, {5,3}};
```

```
        int mat2[][] = {{2,3}, {4,1}};
```

```
        int matSum[][] = new int [2][2];
```

```
        int len = mat1.length;
```

```
        for (int i=0; i<len; i++)
```

```
        {
```

```
            for (int j=0; j<len; j++)
```

```
            {
```

```
                matSum[i][j] = mat1[i][j] + mat2[i][j];
```

```
                System.out.println (matSum[i][j] + " ");
```

```
            }
```

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

```
    }
```

```
}
```

```
}
```

12) write a program to print rectangle symbol pattern.

= class of 6 {

static void printrectangle (int n, int w)

{

for (int i=0; i<n; i++)

{

system.out.println();

for (int j=0; j<w; j++)

{

if (i==0 || i==n-1 || j==0 || j==w-1)

{

system.out.println("@");

}

use {

system.out.println(" ");

}

}

}

Print static void main (String args[])

{

int h=4, w=5;

printrectangle (h, w);

}

}

13) write a program that would sort a list of names in alphabetical order Ascending or descending.

```
=
import java.util.Scanner;

class main {
    public static void main (String args[]) {
        Scanner input = new Scanner (System.in);
        String arr[] = {"Banana", "Apple", "Carrot", "Radish", "Jack"};
        int len = arr.length();
        char order = input.next().charAt(0);
        if (order == 'A') {
            for (int i=0; i<len; i++) {
                for (int j=i+1; j<arr.length; j++) {
                    if (arr[i].compareTo(arr[j])>0) {
                        String temp = arr[i];
                        arr[i] = arr[j];
                        arr[j] = temp;
                    }
                }
            }
            System.out.println (Arrays.toString(arr));
        }
        else if (order == 'D') {
            for (int i=0; i<len; i++) {
```

```
for (int j = i+1; j < arr.length; j++) {
```

```
    if (arr[i] > arr[j]) {
```

```
        String temp = arr[i];
```

```
        arr[i] = arr[j];
```

```
        arr[j] = temp;
```

```
    }
```

```
}
```

```
}
```

```
System.out.println("Arrays: " + toString(arr));
```

```
}
```

14) write a program for matrix multiplication?

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

```
class main {
```

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

```
        Scanner input = new Scanner(System.in);
```

```
        int r = input.nextInt();
```

```
        int c = input.nextInt();
```

```
        int mat1[][] = new int[r][c];
```

```
        int mat2[][] = new int[r][c];
```

```
        for (int i = 0; i < r; i++)
```

```
        {
```

```
            for (int j = 0; j < c; j++)
```

```
            {
```

```
                mat2[i][j] = input.nextInt();
```

```
            }
```

```
        }
        int sum[][] = new int[r][c];
```

```
        for (int i = 0; i < r; i++)
```

```
        {
```

```

for (int j=0; j<c; j++)
{
    sum[i][j]=0;
    for (int k=0; k<c; k++)
    {
        sum[i][j]=sum[i][j]+(mat1[i][k]*mat2[k][j]);
    }
    system.out.println (sum[i][j]+" | ");
}
system.out.println();
}

```

⑤ write a program to print the following pattern.

```

1
1 1
1 1 1
1 1 1 1
1 1 1 1 1

```

```

= import java.util.Scanner;
class main {
    public static void main (String args[]) {
        Scanner input = new Scanner (System.in);
        System.out.println ("Enter a number to be printed");
        int x = input.nextLine();
        System.out.println ("max number of time printed");
        int n = input.nextInt();
        for (int i=1; i<=n; i++)
        {
            for (int j=1; j<=i; j++)
            {
                System.out.println (x);
            }
            System.out.println();
        }
    }
}

```



```
for (int i = n-1; i >= 1; i--)
```

```
{
    for (int j = 1; j <= i; j++)
```

```
{
    System.out.print(x);
```

```
}
```

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

3.

16) write a program to print special characters?

```
= import java.util.Scanner;
```

```
class specialcharacter {
```

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

```
        Scanner input = new Scanner (System.in);
```

```
        String s = input.nextLine();
```

```
        int sp = 0;
```

```
        for (char ch : s.toCharArray()) {
```

```
            if (!Character.isLetterOrDigit(ch)) {
```

```
                sp++;
```

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

```
}
```

```
System.out.println ("number of spec char: " + sp);
```

```
}
```

```
}
```

⑦ Write a program to composite number?

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

```
class composite {
```

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

```
        Scanner input = new Scanner (System.in);
```

```
        int a = input.nextLine();
```

```
        int b = input.nextLine();
```

```
        for (int i = a + 1; i < b; i++) {
```

```
            if (isComposite(i)) {
```

```
                System.out.println(i + " ");
```

```
            }
```

```
        }
```

```
    }
```

①9 find the mean, median, mode of array?

= import java.util.*;

class statistics {

public static void main (String[] args) {

int[] a = {16, 18, 27, 16, 23, 21, 19};

Arrays.sort(a);

double median = (a.length % 2 == 0) ? (a[a.length / 2 - 1] + a[a.length / 2]) / 2.0 :

System.out.println("median: " + median);

Map<Integer, Integer> countMap = new HashMap<>();

int mode = a[0];

{

int count = countMap.merge(num, 1, Integer::sum);

if (count > countMap.getOrDefault(mode, 0))

}

System.out.println("mode: " + mode);

}

}

② find the factorial of n ?

```
= import java.util.Scanner;  
class factorial {  
    public static void main (String[] args) {  
  
        Scanner input = new Scanner(System.in);  
        int n = input.nextLine();  
        int fact = 1;  
        for (int i = 1; i <= n; fact *= i++);  
        System.out.println (n + "factorial:" + fact);  
    }  
}
```

3

3.