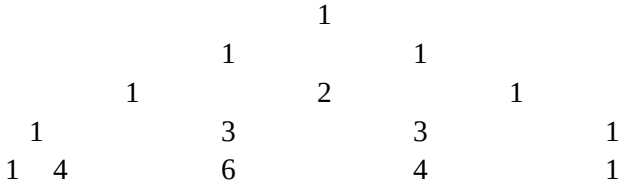
1. Write a program to print Right Triangle Star Pattern
   Sample Input:: n = 5
   Output:

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

   Ans:

```
class pattern
{
public static void main(String args[])
{
int i, j, row = 6;
for (i=0; i<row; i++)
{
for (j=2*(row-i); j>=0; j--)
{
System.out.print(" ");
}
for (j=0; j<=i; j++ )
{
System.out.print("* ");
}
System.out.println();
}
}
}
```

2. Write a program to print the below pattern?



Ans:

```
class Main {
public static void main(String[] args)
{
 int rows = 6, coef = 1;
for (int i = 0; i < rows; i++)
{
 for (int space = 1; space < rows - i; ++space)
 {
 System.out.print("  ");
  }
for(int j = 0; j <= i; j++)
{
 if (j == 0 || i == 0)
        coef = 1;
 else
        coef = coef * (i - j + 1) / j;

System.out.printf("%4d", coef);
}
 System.out.println();
}
}
}
```

3. Write a program to print rectangle symbol pattern. Get the symbol as input from user

Ans:

```
Import java.util.*;
class pattern
{
public static void main(String[]args)
{
int I, j, row ,col;
Scanner m=new Scanner(System.in)
Row=m.nextInt();
col=m.nextLine();
for (i=1 ; i<=row ;i++){
for (j=1 ; j<=col ; j++)
{ if ( i==1 || i==row || j==1 || j==col ){
System.out.println("*");}
else {
System.out.println("  ");}
System.out.println();
}
}
}
```

4. Write a program to print the following pattern

Sample Input:
Enter the number to be printed: 1
Max Number of time printed: 3
1
11
111
11
1

Ans:

```
 Import java.util.*;
class pattern
{
public static void main(System.in)
{int I ,j, row ;
Scanner m=new Scanner(System.in)
System.out.println("upto no of coloums or no of periods
row=m.nextInt();
for (i=0 ;i<row ;i++)
{for (j=1 ; j<=i ;j++){
System.out.println( "1" );
}
} System.out.println( "1" );
}
for (i=row-1; i>=0 ;i--){
for (j=0 ;j<=I ;j++){
System.out.println( "1");
}
System.out.println( "1" );
}
```

5. Write a program to print the Inverted Full Pyramid pattern?
   Ans;

```
import java.util.*;
class pattern
{
public static void main (String []args)
{int i , j, row ;
Scanner m=new Scanner(System.in)
System.out.println(“enter upto no rows to be period”);
row =m.nextInt();
for (i=1 ;i<=row ;i++)
{for (j=i-1 ;j>0 ;j--){
System.out,println(“ ”);
}
for (j=0 ; j< (row-(i-1))+(row-i) ;j++){
System.out.println(“*”);
}
System.out.println();
}
}
}
```

6. Write a program to print the following pattern

Sample Input:
Enter the Character to be printed: %
Max Number of time printed: 3
%
% %
% % %

Ans;

```
class pattern
{
public static void main(String args[])
{
int i, j, row ;
string char;
Scanner m=new Scanner(System.in)
System.out.println(“enter the character to be period”);
char=m.newLine();
System.out.println(“enter max number of times the period”);
row =m.nextInt();
for (i=0; i<row; i++)
{
for (j=0; j<=i; j++ )
{
System.out.print("% ");
}
System.out.println();
}
}
}
```

7. Write a program to print hollow square symbol pattern?

Ans:

```
Import java.util.*;
class pattern
{
public static void main(String[]args)
{
int I, j, row;
Scanner m=new Scanner(System.in)
Row=m.nextInt();
for (i=1 ; i<=row ;i++){
for (j=1 ; j<=row ;j++)
{ if ( i==1 || i==row || j==1 || j==row ){
System.out.println(“*”);}
else {
System.out.println(“  ”);}
System.out.println();
}
}
}
```

8. Write a program to print the below pattern

```
1
2  2
3  3  3
4  4   4   4
```

Ans:

```
import java.util.*;
public class Pattern5
{
public static void main(String[] args)
{
int i, j, rows;
Scanner sc = new Scanner(System.in);
System.out.print("Enter the number of rows you want to print: ");
 rows = sc.nextInt();
for (i = 1; i <= rows; i++)
{
for (j = 1; j <= i; j++)
{
System.out.print(i+" ");
}
System.out.println();
}
}
}
```

9. Write a program to print the below pattern

```
1
4    9
16   25    36
49   64    81    100
```

Ans:

```
class pattern
{
public static void main(String args[])
{
int i, j, row ;
string char;
Scanner m=new Scanner(System.in)
System.out.println("enter max number of times the
period");
row =m.nextInt();
for (i=1; i<=row; i++)
{
for (j=1; j<=i; j++ )
{
k=i*i
System.out.print( +k);
}
System.out.println();
}
}
}
```

10. Write a program to print the below pattern

```
1
2 2
3  3  3
4  4   4   4
3  3  3
2  2
1
```

Ans:

```
public class Pattern11
 {
 public static void main(String[] args)
 {
 int rows=8;
 for (int i = 1; i <= rows; i++)
 {
 for (int j = 1; j <= i; j++)
 {
 System.out.print(j+" ");
 }
 System.out.println();
 }
 for (int i = rows-1; i >= 1; i--)
 {
 for (int j = 1; j <= i; j++)
 {
 System.out.print(j+" ");
 }
System.out.println();
 }
 }
 }
```

11.Write a program to print hollow Square Dollar pattern?

Ans:

```
Import java.util.*;
class pattern
{
public static void main(String[]args)
{
int I, j, row;
Scanner m=new Scanner(System.in)
Row=m.nextInt();
for (i=1 ; i<=row ;i++){
for (j=1 ; j<=row ;j++)
{ if ( i==1 || i==row || j==1 || j==row ){
System.out.println("$");}
else {
System.out.println("  ");}
System.out.println();
}
}
}
```

12. Write a program to print inverted pyramid pattern.
    Input: no of rows: 3
    Output

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

Ans:

```
import java.util.*;
class pattern
{
public static void main (String []args)
{int i , j, row ;
Scanner m=new Scanner(System.in)
System.out.println("enter upto no rows to be period");
row =m.nextInt();
for (i=1 ;i<=row ;i++)
{for (j=i-1 ;j>0 ;j--){
System.out,println(" ");
}
for (j=0 ; j< (row-(i-1))+(row-i) ;j++){
System.out.println("*");
}
System.out.println();
}
}
}
```

13. Write a program for matrix multiplication?

Sample Input:

Mat1 = 1 2
5 3

Mat2 = 2 3
4 1

Sample Output:

Mat Sum = 10 5
22 18

```
class Matrix{
public static void main(String args[]){
int a[][]={{1,3,4},{2,4,3},{3,4,5}};
int b[][]={{1,3,4},{2,4,3},{1,2,4}};
int c[][]=new int[3][3];
for(int i=0;i<3;i++){
for(int j=0;j<3;j++){
c[i][j]=a[i][j]+b[i][j];
System.out.print(c[i][j]+" ");
}
System.out.println();
}
}}
```

14. Write a program for matrix addition?

Sample Input:

Mat1 = 1 2
5 3

Mat2 = 2 3
4 1

Sample Output:

Mat Sum = 3 5
9 4

```
class Matrix{
public static void main(String args[]){
int a[][]={{1,1,1},{2,2,2},{3,3,3}};
int b[][]={{1,1,1},{2,2,2},{3,3,3}};
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();
}
}}
```

15. Find the Mean, Median, Mode of the array of numbers?

Sample Input;:

Array of elements = {16, 18, 27, 16, 23, 21, 19}

Sample Output:

Mean = 20

Median = 19

Mode = 16

Ans;

```
import java.io.*;
import java.lang.*;
class Mean
{
public static void main(String[] args)
{
int[] invalue = new int[]{2,4,5,2,6};
int num_value=5;
double tot=0;
double mean=0;
for(int i=0; i<num_value; i++)
{
tot = tot+invalue[i];
}
mean = tot/num_value;
System.out.println("The mean value is: "+mean);
double median = 0;
double mid=0;
if(num_value%2 == 0)
{
int temp=(num_value/2)-1;
for(int i=0;i<num_value;i++)
{
if(temp==i || (temp+1)==i)
{
mid=mid+invalue[i];
}
}
mid=mid/2;
System.out.println("Median value is: "+mid);
}
else
{
```

```
int temp=(num_value/2);
for(int i=0;i<num_value;i++)
{
if(temp==i)
{
mid=invalue[i];
System.out.println("Median value: "+mid);
}
}
}
int i,j,z, tmp, maxCount, modeValue;
int[] tally=new int[num_value];
for(i=0;i<num_value;i++)
{
 for(j=0;j<num_value-i;j++)
{
if(j+1!=num_value)
{
if(invalue[j]>invalue[j+1])
{
tmp=invalue[j];
invalue[j]=invalue[j+1];
invalue[j+1]=tmp;
}
}
}
}
for (i = 0; i < num_value; i++)
{
for(z=i+1;z<num_value;z++)
{
if(invalue[i]==invalue[z])
{
tally[i]++;
}
}
}
maxCount = 0;
modeValue = 0;
for (i = 0; i <num_value; i++)
{
if (tally[i] > maxCount)
{
maxCount = tally[i];
modeValue = invalue[i];
}
}
```

```
        System.out.println("Mode value is :"+modeValue);
        }
         }
```