

Q1: Take m and n input from the user and m \* n integer inputs from user and print the following:

```
import java.io.*;
import java.util.*;
public class Main{
    public static void main(String args[]){

        int m,n;
        Scanner sc=new Scanner(System.in);
        System.out.print("enter the number of rows=");
        m=sc.nextInt();
        System.out.print("enter the number of column=");
        n=sc.nextInt();
        int arr[][]=new int[m][n];

        int i,j;

        System.out.println("enter the matrix element=\n");
        for(i=0;i<m;i++){
            for(j=0;j<n;j++){
                arr[i][j]=sc.nextInt();
            }
        }
        int positive = 0 , negative = 0 , zero = 0 , odd = 0 , even = 0;
        for( i = 0 ; i < m ; i++){
            for( j = 0 ; j < n ; j++){
                if(arr[i][j] > 0)positive++;
                if(arr[i][j] < 0)negative++;
                if(arr[i][j] == 0)zero++;
                if((arr[i][j] % 2) == 0)even++;
                if((arr[i][j] % 2) != 0)odd++;
            }
        }

        System.out.println("Number of positives = " + positive);
        System.out.println("Number of negatives = " + negative);
        System.out.println("Number of odds = " + odd);
        System.out.println("Number of evens = " + even);
        System.out.println("Number of zeroes = " + zero);
    }
}
```

Q2: write a program to print the elements above the secondary diagonal in a user inputted square matrix.

```
import java.io.*;
import java.util.*;
```

```

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

        int m,n;
        Scanner sc=new Scanner(System.in);
        System.out.print("enter the number of rows : ");
        m=sc.nextInt();
        System.out.print("enter the number of column : ");
        n=sc.nextInt();
        int arr[][]=new int[m][n];

        int i,j;

        System.out.println("enter the matrix element : ");
        for(i = 0 ; i < m ; i++){
            for(j = 0 ; j < n ; j++){
                arr[i][j]=sc.nextInt();
            }
        }

        System.out.println("Elements above secondary diagonal are as follows : ");
        for(i = 0 ; i < m ; i++){
            for(j = 0 ; j < n ; j++){
                if(i + j < m - 1)System.out.print(arr[i][j] + " ");
            }
        }
    }
}

```

Q3: write a program to print the elements of both the diagonals in a square matrix in any order.

```

import java.io.*;
import java.util.*;
public class Main{
    public static void main(String args[]){

        int m,n;
        Scanner sc=new Scanner(System.in);
        System.out.print("enter the number of rows : ");
        m=sc.nextInt();
        System.out.print("enter the number of column : ");
        n=sc.nextInt();
        int arr[][]=new int[m][n];
    }
}

```

```

int i,j;

System.out.println("enter the matrix element : ");
for(i = 0 ; i < m ; i++){
    for(j = 0 ; j < n ; j++){
        arr[i][j]=sc.nextInt();
    }
}

System.out.println("Elements of both the diagonals are as follows : ");
for(i = 0 ; i < m ; i++){
    for(j = 0 ; j < n ; j++){
        if(i + j == m - 1)System.out.print(arr[i][j] + " ");
        else if(i == j)System.out.print(arr[i][j] + " ");
    }
}
}

```

Q5

Write a function which accepts a 2D array of integers and its size as arguments and displays the elements of middle row and the elements of middle column. Printing can be done in any order.

[Assuming the 2D Array to be a square matrix with odd dimensions i.e. 3x3, 5x5, 7x7 etc...W

```

import java.io.*;
import java.util.*;
public class Main{
    public static void main(String args[]){

        int m,n;
        Scanner sc=new Scanner(System.in);
        System.out.print("enter the number of rows : ");
        m=sc.nextInt();

        int arr[][]=new int[m][m];

        int i,j;

        System.out.println("enter the matrix element : ");
        for(i = 0 ; i < m ; i++){
            for(j = 0 ; j < m ; j++){
                arr[i][j]=sc.nextInt();
            }
        }
    }
}

```

```
    }

    System.out.println("The elements of the middle row and middle column  
are as follows : ");

    for(i = 0 ; i < m ; i++)System.out.print(arr[i][m/2] + " ");
    for(j = 0 ; j < m ; j++){
        if(j == m/2)continue;
        System.out.print(arr[m/2][j] + " ");
    }
}
}
```