

# 13A

```
1 import java.util.Scanner;
2
3 public class Array3A {
4     public static int[][] getTable ( int[][] T ){
5         Scanner inp = new Scanner(System.in);
6         System.out.print("Enter # row : ");
7         int rowUsed = inp.nextInt();
8         System.out.print("Enter # col : ");
9         int colUsed = inp.nextInt();
10        int a[][] = new int [rowUsed][colUsed];
11        for ( int i= 0; i < rowUsed ; i++){
12            for ( int j= 0; j < colUsed ; j++){
13                a[i][j] = inp.nextInt();
14            }
15        }
16        inp.close();
17        return a ;
18    }
19    public static void printTable (int[][] T ){
20        for ( int i= 0; i < T.length;i++){
21            for ( int j= 0; j < T[i].length;j++){
22                System.out.print(T[i][j]+" ");
23            }
24            System.out.println();
25        }
26    }
27    public static int FindLarge(int[][] T) {
28        int max = T[0][0];
29        for ( int i = 0; i < T.length; i++){
30            for ( int j = 0; j < T[i].length;j++){
31                if (T[i][j]>max){
32                    max=T[i][j];
33                }
34            }
35            System.out.println("Large value is : "+max);
36        }
37        return max;
38    }
39    public static int sumColumn(int[][]A,int col){
40        int sum = 0;
41        for(int i = 0 ; i<A.length ; i++){
42            sum += A[i][col];
43        }
44        return sum;
45    }
46    public static void main(String[] args) {
47        int[][] T = new int [10][8];
48        int X [11];
49        X=getTable(T);
50        printTable(X);
51        FindLarge(X);
52        for ( int i= 0; i <= X.length;i++){
53            System.out.println( "Sum of Column "+(i+1) + " is : "+sumColumn(X,i));
54        }
55    }
56 }
57 }//Sapadit Saengrattayon 64858694
```

```
C:\WINDOWS\system32\cmd.exe
Enter # row : 3
Enter # col : 4
1
2
3
4
5
6
7
8
9
8
7
6
1 2 3 4
5 6 7 8
9 8 7 6
Large value is : 4
Large value is : 8
Large value is : 9
Sum of Column 1 is : 15
Sum of Column 2 is : 16
Sum of Column 3 is : 17
Sum of Column 4 is : 18
Press any key to continue . . .
```

```
----- Java Compile -----
Picked up JAVA_TOOL_OPTIONS: -Dfile.encoding=UTF-8

Output completed (0 sec consumed) - Normal Termination
```

13A

13A

```

import java.util.Scanner;
public class Array13A {
    public static int[][] getTable(int[][] T){
        Scanner inp = new Scanner(System.in);
        System.out.print("Enter # row : ");
        int rowUsed = inp.nextInt();
        System.out.print("Enter # col : ");
        int colUsed = inp.nextInt();
        int a[][] = new int [rowUsed][colUsed];
        for (int i = 0; i < rowUsed; i++){
            for (int j = 0; j < colUsed; j++){
                a[i][j] = inp.nextInt();
            }
        }
        inp.close();
        return a;
    }

    public static void printTable(int [][] T){
        for (int i = 0; i < T.length; i++){
            for (int j = 0; j < T[0].length; j++){
                System.out.print(T[i][j] + " ");
            }
            System.out.println();
        }
    }

    public static int FindLargo(int [][] T){
        int max = T[0][0];
        for (int i = 0; i < T.length; i++){
            for (int j = 0; j < T[0].length; j++){
                if (T[i][j] > max){
                    max = T[i][j];
                }
            }
        }
        System.out.print("Largo value is : " + max);
    }

    public static int sumColumn(int [][] A, int col){
        int sum = 0;
        for (int i = 0; i < A.length; i++){
            sum += A[i][col];
        }
        return sum;
    }

    public static void main(String[] args){
        int[][] T = new int [10][5];
        int x = 3;
        x = getTable(T);
        printTable(x);
        FindLargo(x);
        for (int i = 0; i <= x.length; i++){
            System.out.print("Sum of Column : " + (i+1) + " is " + sumColumn(x,i);
        }
    }
}

```

Sapanit Saengrattananayon  
64050694

Output:

Enter # row : 3

Enter # col : 4

1  
2  
3  
4  
5  
6  
7  
8  
9

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

Largo value is : 4

Largo value is : 8

Largo value is : 9

Sum of Column 1 is : 15

Sum of Column 2 is : 16

Sum of Column 3 is : 17

Sum of Column 4 is : 16

- 1) เติมโปรแกรมให้สมบูรณ์ให้อ่านข้อมูลจำนวนแถว (rowUsed) และจำนวนคอลัมน์ (colUsed) แล้วอ่านข้อมูลทีละจำนวนใส่อาเรย์ สมมุติว่ามีข้อมูลที่จะป้อนดังต่อไปนี้

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

- 2) เพิ่มเมทอดสำหรับหาค่ามากที่สุดและพิมพ์ค่ามากที่สุด

Largest value is 9

- 3) เพิ่มเมทอดสำหรับหาค่ารวมค่าในคอลัมน์ของตาราง มีตัวแปรรับค่าคอลัมน์ที่จะหาผลรวม

```

public static int sumColumn(int[][] A, int col) {
    int sum = 0;
    for (int i = 0; i < A.length; i++)
        sum = sum + A[i][col];
    return sum;
}
// varying row, fix col

```

- 4) เพิ่มคำสั่งเรียกใช้เมทอดเพื่อพิมพ์ผลรวมแต่ละคอลัมน์ที่เหมาะสม เช่น

Sum of Column 1 is 15  
Sum of Column 2 is 16  
Sum of Column 3 is 17  
Sum of Column 4 is 16

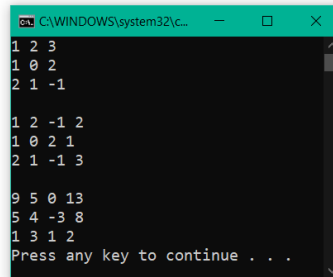
```

for (int i = 0; i < rowUsed; i++) {
    print("Sum of Column " + (i+1) + " is " + sumColumn( ... , i);
}

```

# 13B

```
1 public class Array13B {
2     public static void printMatrix(int[][] A){
3         for (int i=0; i<A.length; i++){
4             for (int j=0; j<A[i].length; j++){
5                 System.out.print(A[i][j] + " ");
6             }
7             System.out.println();
8         }
9     }
10    public static int[][] matrixProduct(int[][] A, int[][] B){
11        int[][] C = new int[A.length][B[0].length];
12        for (int i = 0; i < A.length; i++){
13            for (int j = 0; j < B[0].length; j++){
14                C[i][j] = 0;
15                for (int k = 0; k < B.length; k++){
16                    C[i][j] = C[i][j] + (A[i][k] * B[k][j]);
17                }
18            }
19        }
20        return C;
21    }
22    public static void main(String[] args) {
23        int [][] X = { { 1, 2, 3 }, { 1, 0, 2 }, { 2, 1, -1 } };
24        int [][] Y = { { 1, 2, -1, 2 }, { 1, 0, 2, 1 }, { 2, 1, -1, 3 } };
25        int [][] Z;
26        Z = matrixProduct(X, Y);
27        printMatrix(X);
28        System.out.println();
29        printMatrix(Y);
30        System.out.println();
31        printMatrix(Z);
32    }
33 } //Supawit Saengrattayanon 64050694
```



```
C:\WINDOWS\system32\cmd.exe
1 2 3
1 0 2
2 1 -1

1 2 -1 2
1 0 2 1
2 1 -1 3

9 5 0 13
5 4 -3 8
1 3 1 2
Press any key to continue . . .
```

```
----- Java Compile -----
Picked up JAVA_TOOL_OPTIONS: -Dfile.encoding=UTF-8

Output completed (0 sec consumed) - Normal Termination
```

# 13B

## 13B

```
public class Array13B
{
    public static void printMatrix(int[][] A) {
        for (int i = 0; i < A.length; i++) {
            for (int j = 0; j < A[i].length; j++) {
                System.out.print(A[i][j] + " ");
            }
            System.out.println();
        }
    }

    public static int[][] matrixProduct(int[][] A, int[][] B) {
        int[][] C = new int[A.length][B[0].length];
        for (int i = 0; i < A.length; i++) {
            for (int j = 0; j < B[0].length; j++) {
                C[i][j] = 0;
                for (int k = 0; k < B.length; k++) {
                    C[i][j] = C[i][j] + (A[i][k] * B[k][j]);
                }
            }
        }
        return C;
    }

    public static void main(String[] args) {
        int[][] X = {{1, 2, 3}, {1, 0, 2}, {2, 1, -1}};
        int[][] Y = {{1, 2, -1, 2}, {1, 0, 2, 1}, {2, 1, -1, 3}};
        int[][] Z;
        Z = matrixProduct(X, Y);
        printMatrix(X);
        System.out.println();
        printMatrix(Y);
        System.out.println();
        printMatrix(Z);
    }
}
```

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Output :

```
1 2 3
1 0 2
2 1 -1
```

```
1 2 -1 2
1 0 2 1
2 1 -1 3
```

```
9 5 0 13
6 4 -3 8
1 3 1 2
```