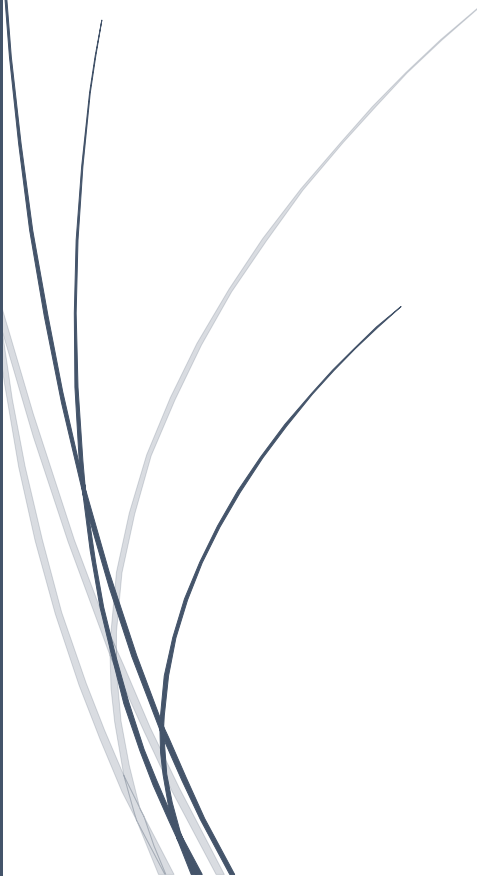


A dark blue vertical bar on the left side of the page. A blue arrow points to the right from the bar, containing the date.

8/22/2024

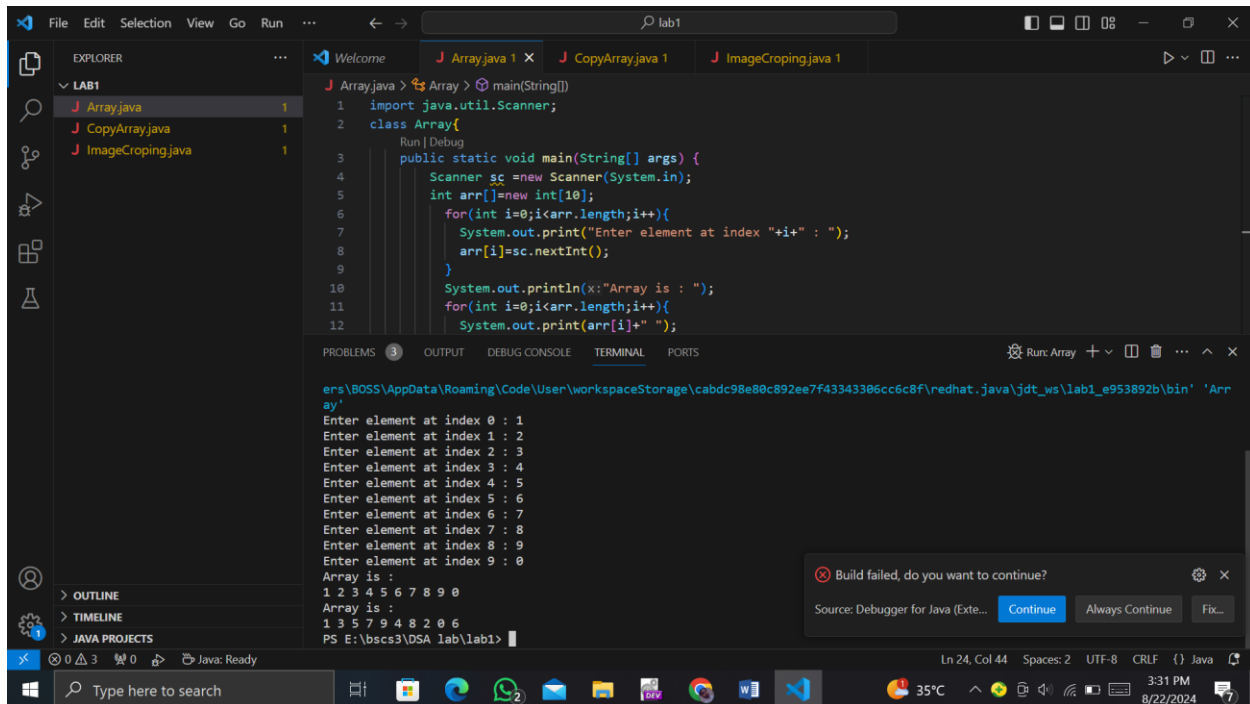
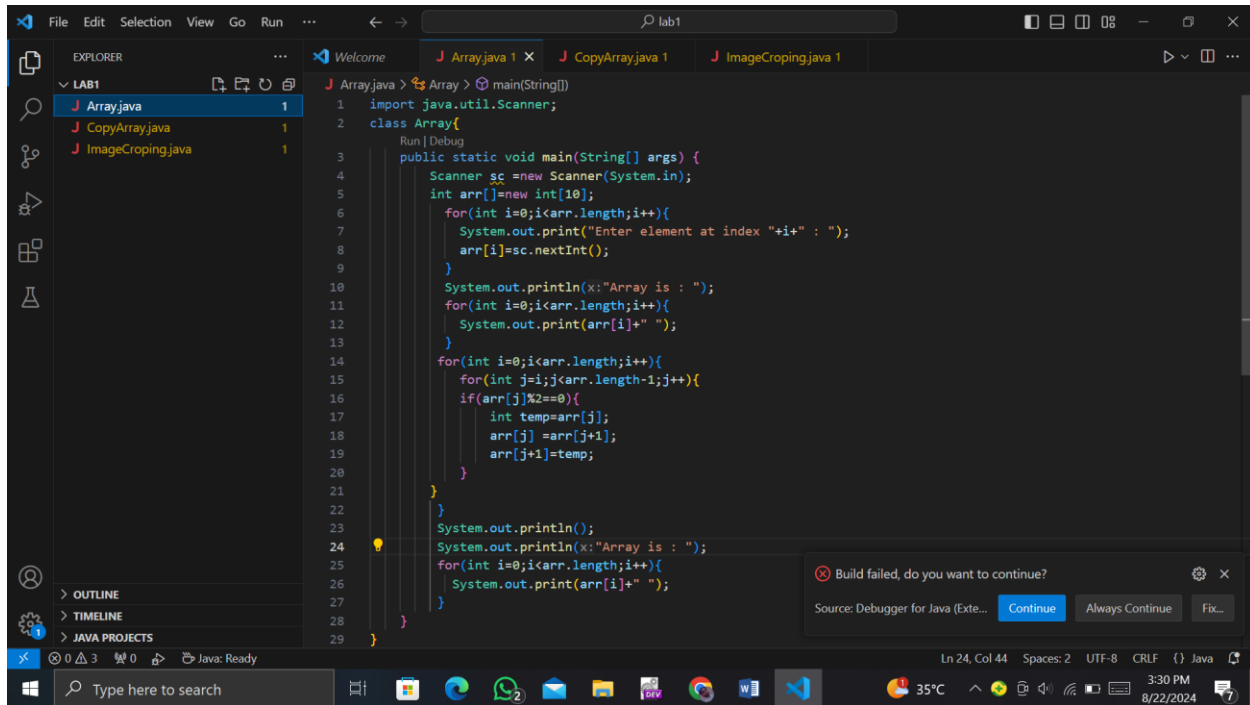
Data Structures

Exercise Solutions(lab 1)

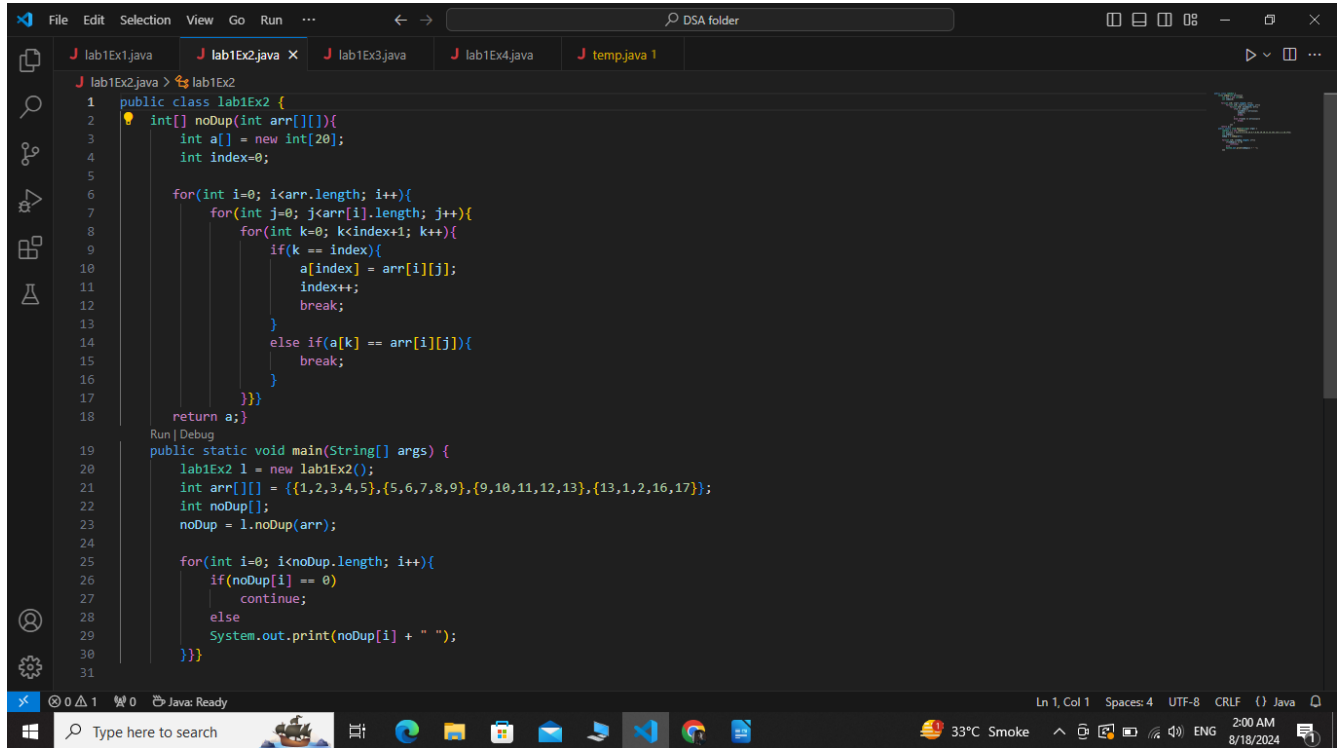
Several thin, curved lines in dark blue and light grey originate from the bottom left and curve upwards and to the right.

Uzair Ali S/O Yar Muhammad Memon
B-S CS III Section A
023-23-0350

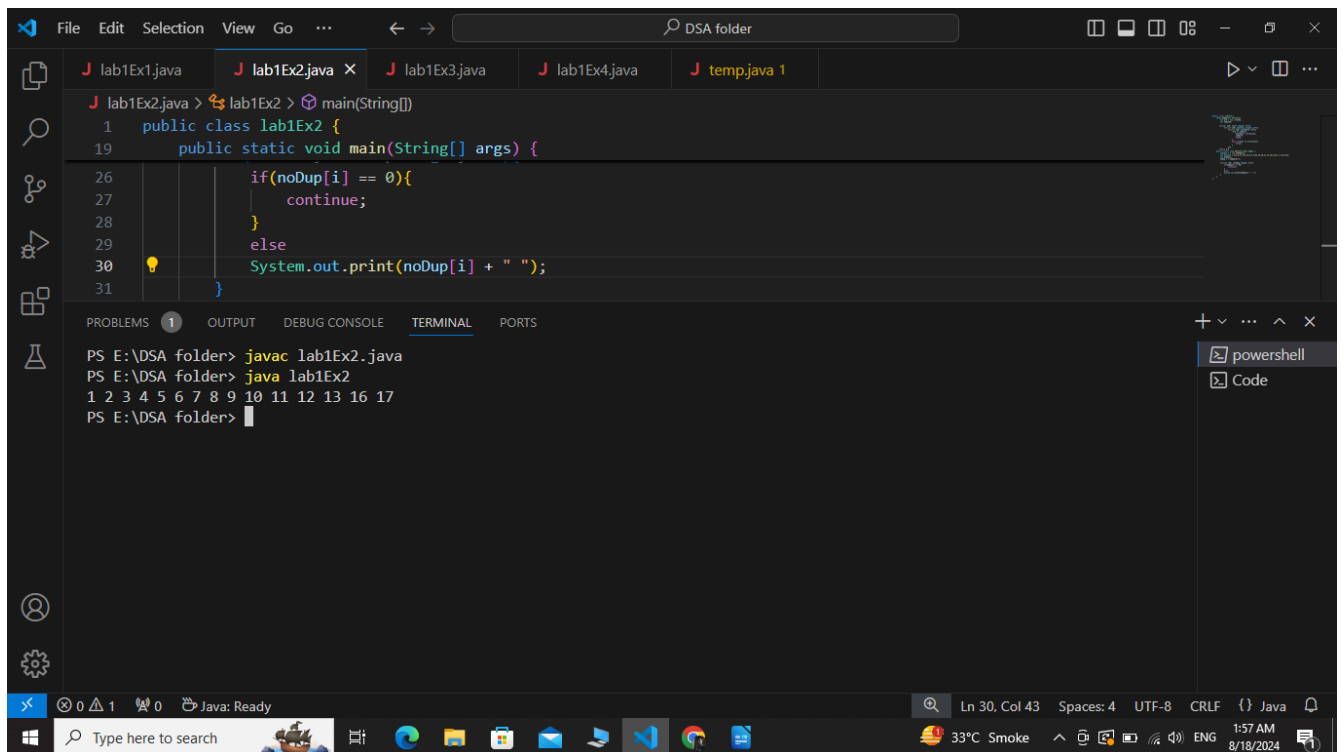
Task #1



Task #2



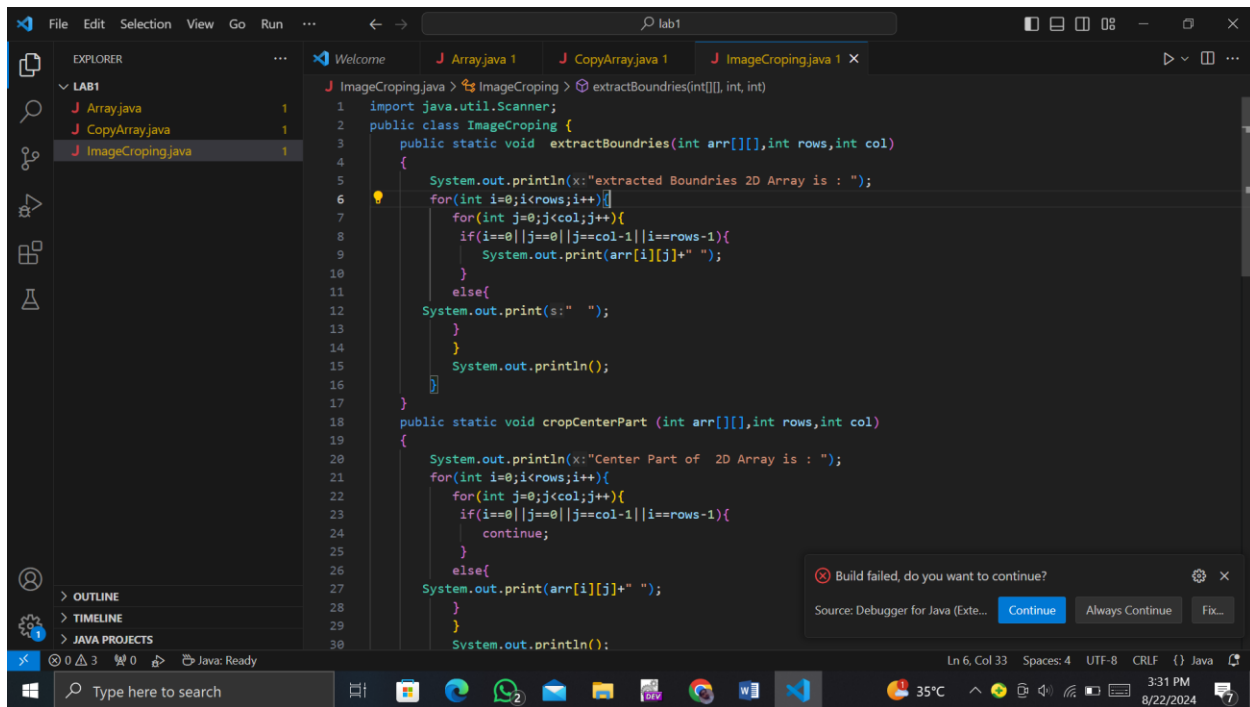
```
1 public class lab1Ex2 {
2     int[] noDup(int arr[][]){
3         int a[] = new int[20];
4         int index=0;
5
6         for(int i=0; i<arr.length; i++){
7             for(int j=0; j<arr[i].length; j++){
8                 for(int k=0; k<index+1; k++){
9                     if(k == index){
10                        a[index] = arr[i][j];
11                        index++;
12                        break;
13                    }
14                    else if(a[k] == arr[i][j]){
15                        break;
16                    }
17                }
18            }
19            return a;
20        }
21
22        public static void main(String[] args) {
23            lab1Ex2 l = new lab1Ex2();
24            int arr[][] = {{1,2,3,4,5},{5,6,7,8,9},{9,10,11,12,13},{13,1,2,16,17}};
25            int noDup[];
26            noDup = l.noDup(arr);
27
28            for(int i=0; i<noDup.length; i++){
29                if(noDup[i] == 0)
30                    continue;
31                else
32                    System.out.print(noDup[i] + " ");
33            }
34        }
35    }
36 }
```



```
1 public class lab1Ex2 {
2     int[] noDup(int arr[][]){
3         int a[] = new int[20];
4         int index=0;
5
6         for(int i=0; i<arr.length; i++){
7             for(int j=0; j<arr[i].length; j++){
8                 for(int k=0; k<index+1; k++){
9                     if(k == index){
10                        a[index] = arr[i][j];
11                        index++;
12                        break;
13                    }
14                    else if(a[k] == arr[i][j]){
15                        break;
16                    }
17                }
18            }
19            return a;
20        }
21
22        public static void main(String[] args) {
23            lab1Ex2 l = new lab1Ex2();
24            int arr[][] = {{1,2,3,4,5},{5,6,7,8,9},{9,10,11,12,13},{13,1,2,16,17}};
25            int noDup[];
26            noDup = l.noDup(arr);
27
28            for(int i=0; i<noDup.length; i++){
29                if(noDup[i] == 0)
30                    continue;
31                else
32                    System.out.print(noDup[i] + " ");
33            }
34        }
35    }
36 }
```

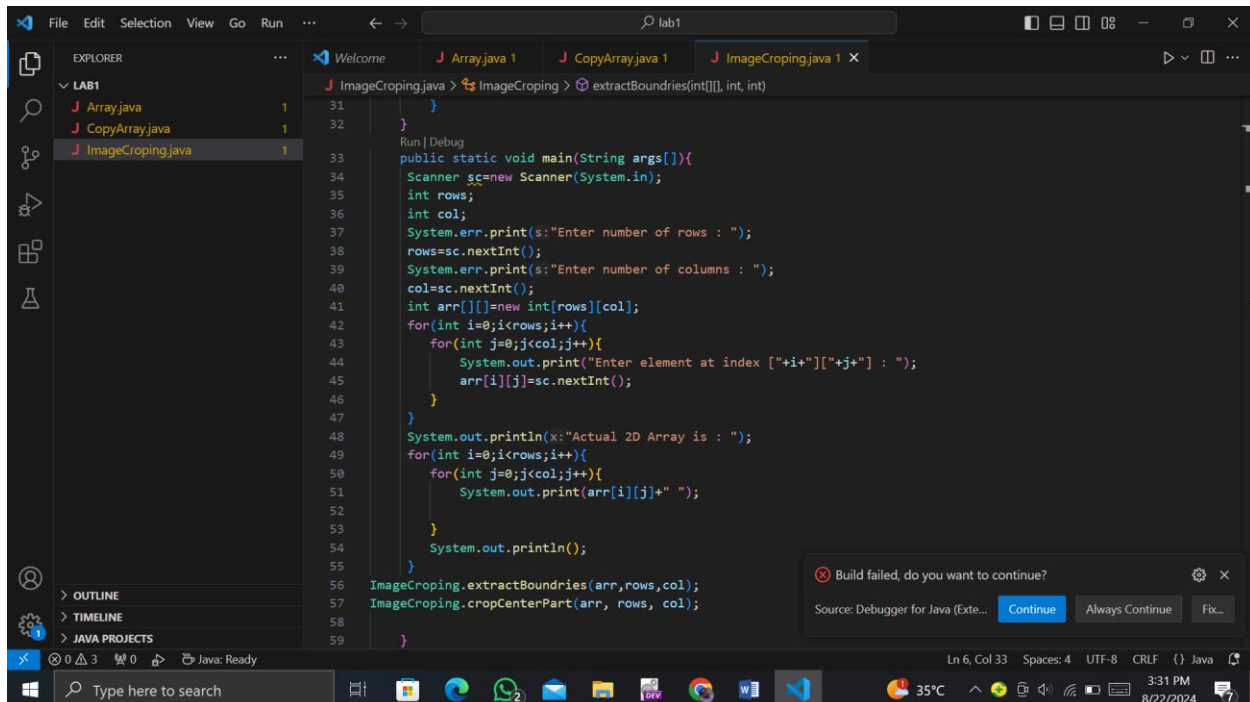
```
PS E:\DSA folder> javac lab1Ex2.java
PS E:\DSA folder> java lab1Ex2
1 2 3 4 5 6 7 8 9 10 11 12 13 16 17
PS E:\DSA folder>
```

Task #4



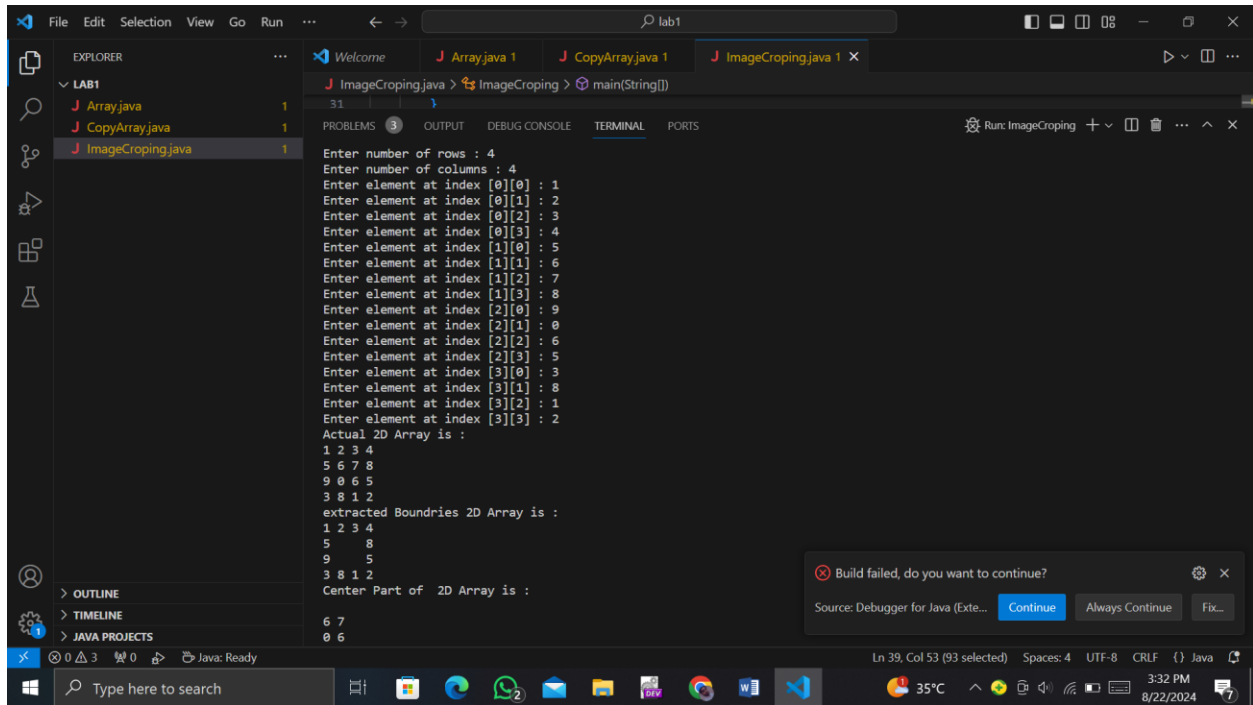
```
1 import java.util.Scanner;
2 public class ImageCropping {
3     public static void extractBoundries(int arr[][],int rows,int col)
4     {
5         System.out.println(x:"extracted Boundries 2D Array is : ");
6         for(int i=0;i<rows;i++){
7             for(int j=0;j<col;j++){
8                 if(i==0||j==0||j==col-1||i==rows-1){
9                     System.out.print(arr[i][j]+" ");
10                }
11            }
12            System.out.print(s:" ");
13        }
14        System.out.println();
15    }
16 }
17
18 public static void cropCenterPart (int arr[][],int rows,int col)
19 {
20     System.out.println(x:"Center Part of 2D Array is : ");
21     for(int i=0;i<rows;i++){
22         for(int j=0;j<col;j++){
23             if(i==0||j==0||j==col-1||i==rows-1){
24                 continue;
25             }
26             else{
27                 System.out.print(arr[i][j]+" ");
28             }
29         }
30         System.out.println();
31     }
32 }
```

Build failed, do you want to continue?
Source: Debugger for Java (Ext... Continue Always Continue Fix...



```
31 }
32
33 Run | Debug
34 public static void main(String args[]){
35     Scanner sc=new Scanner(System.in);
36     int rows;
37     int col;
38     System.err.print(s:"Enter number of rows : ");
39     rows=sc.nextInt();
40     System.err.print(s:"Enter number of columns : ");
41     col=sc.nextInt();
42     int arr[][]=new int[rows][col];
43     for(int i=0;i<rows;i++){
44         for(int j=0;j<col;j++){
45             System.out.print("Enter element at index [i+][j+]: ");
46             arr[i][j]=sc.nextInt();
47         }
48     }
49     System.out.println(x:"Actual 2D Array is : ");
50     for(int i=0;i<rows;i++){
51         for(int j=0;j<col;j++){
52             System.out.print(arr[i][j]+" ");
53         }
54         System.out.println();
55     }
56     ImageCropping.extractBoundries(arr,rows,col);
57     ImageCropping.cropCenterPart(arr, rows, col);
58 }
59 }
```

Build failed, do you want to continue?
Source: Debugger for Java (Ext... Continue Always Continue Fix...



THE END