ARTIFICIAL INTELLIGENCE LAB

ASSIGNMENT – 10

MIN MAX PROBLEM

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Q) IMPLEMENT MIN MAX ALGORITHM IN AI

CODE :

```
import java.util.Scanner;
public class Main {
   public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
System.out.println("Enter value of n:");
int n = sc.nextInt();                int a[][] =
new int[n][n];                for (int i = 1; i <=
n; i++) {
          System.out.print(i + "        ");
       }
       System.out.println();
System.out.println();
for (int i = 1; i <= n; i++) {
for (int j = 1; j <= n; j++) {
int m = j + i;
if (m % 2 == 0) {
a[i - 1][j - 1] = m;
                System.out.print(a[i - 1][j - 1] + " ");
```

```
            } else {
                a[i - 1][j - 1] = -m;
                System.out.print(a[i - 1][j - 1] + " ");
            }
        }
        System.out.print("   ");
    }
    System.out.println();
    System.out.println();
    System.out.println("Now Maiximizer performs:(E)");          maxelement(n, a);
  }
  public static void maxelement(int num, int[][] a) {              int i = 0;
int max = 0;              int[] result = new int[num];              while (i <
num) {                    for (int j = 0; j < a[i].length; j++) {
if (a[i][j] > max) {                                  max = a[i][j];
            }
        }                   result[i] = max;
max = 0;                  i++;
    }
    printArray(result);
  }
  public static void printArray(int[] result) {              for (int i = 0; i
< result.length; i++) {
        System.out.print(result[i] + " ");
```

```
    }               int smallest_element = result[0];
for (int i = 0; i < result.length; i++) {
            {                   if (result[i] < smallest_element) {
smallest_element = result[i];
              }
            }
         }
      System.out.println();
         System.out.println("After Minimizer performance(O): " +
smallest_element);
    }
  }
```

Main.java

```
1  import java.util.Scanner;
2  public class Main {
3      public static void main(String[] args) {
4          Scanner sc = new Scanner(System.in);
5          System.out.println("Enter value of n:");
6          int n = sc.nextInt();
7          int a[][] = new int[n][n];
8          for (int i = 1; i <= n; i++) {
9              System.out.print(i + "         ");
10         }
11         System.out.println();
12         System.out.println();
13         for (int i = 1; i <= n; i++) {
14             for (int j = 1; j <= n; j++) {
15                 int m = j + i;
16                 if (m % 2 == 0) {
17                     a[i - 1][j - 1] = m;
18                     System.out.print(a[i - 1][j - 1] + " ");
19                 } else {
20                     a[i - 1][j - 1] = -m;
21                     System.out.print(a[i - 1][j - 1] + " ");
22                 }
23             }
24             System.out.print("   ");
25         }
26         System.out.println();
27         System.out.println();
28         System.out.println("Now Maiximizer performs:(E)");
29         maxelement(n, a);
30     }
31     public static void maxelement(int num, int[][] a) {
32         int i = 0;
33         int max = 0;
```

```
        int[] result = new int[num];
        while (i < num) {
            for (int j = 0; j < a[i].length; j++) {
                if (a[i][j] > max) {
                    max = a[i][j];
                }
            }
            result[i] = max;
            max = 0;
            i++;
        }
        printArray(result);
    }
    public static void printArray(int[] result) {
        for (int i = 0; i < result.length; i++) {
        System.out.print(result[i] + " ");
        }
            int smallest_element = result[0];
            for (int i = 0; i < result.length; i++) {
                {
                    if (result[i] < smallest_element) {
                        smallest_element = result[i];
                    }
                }
            }
        System.out.println();
            System.out.println("After Minimizer performance(O): " + smallest_element);
        }
    }
```

OUTPUT :

```
Enter value of n:
4
1        2        3        4

2 -3 4 -5    -3 4 -5 6    4 -5 6 -7    -5 6 -7 8

Now Maiximizer performs:(E)
4 6 6 8
After Minimizer performance(O): 4
```

```
Enter value of n:
6
1        2        3        4        5        6

2 -3 4 -5 6 -7    -3 4 -5 6 -7 8    4 -5 6 -7 8 -9    -5 6 -7 8 -9 10
6 -7 8 -9 10 -11    -7 8 -9 10 -11 12

Now Maiximizer performs:(E)
6 8 8 10 10 12
After Minimizer performance(O): 6
```