

# Rajalakshmi Engineering College

Name: Akshaya Kirubakarraj  
Email: 241501016@rajalakshmi.edu.in  
Roll no: 241501016  
Phone: 9940136549  
Branch: REC  
Department: AI & ML - Section 1  
Batch: 2028  
Degree: B.E - AI & ML

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## 2024\_28\_III\_OOPS Using Java Lab

### REC\_2028\_OOPS using Java\_Week 3\_MCQ

Attempt : 1  
Total Mark : 15  
Marks Obtained : 12

#### Section 1 : MCQ

1. What will be the output of the following code?

```
class Q {  
    public static void main(String[] args) {  
        int[][] arr = {  
            {5, 6, 7},  
            {8, 9, 10}  
        };  
        System.out.println(arr[0][2]);  
    }  
}
```

**Answer**

7

**Status : Correct**

**Marks : 1/1**

2. What will be the output of the following code?

```
class Sample {  
    public static void main(String[] args) {  
        int[] a = {1, 2, 3};  
        int product = 1;  
        for (int i = 0; i < a.length; i++) {  
            product *= a[i];  
        }  
        System.out.println(product);  
    }  
}
```

**Answer**

6

**Status :** Correct

**Marks :** 1/1

3. What will be the output of the following code?

```
class Q {  
    public static void main(String[] args) {  
        int[] a = {1, 2, 1, 3, 1, 4};  
        int count = 0;  
        for (int i = 0; i < a.length; i++) {  
            if (a[i] == 1) count++;  
        }  
        System.out.println(count);  
    }  
}
```

**Answer**

1

**Status :** Wrong

**Marks :** 0/1

4. What will be the output of the following code?

```
class Q {
```

```
public static void main(String[] args) {  
    int[][] a = {  
        {1, 2},  
        {3, 4}  
    };  
    int sum = 0;  
    for (int i = 0; i < a.length; i++)  
        for (int j = 0; j < a[0].length; j++)  
            sum += a[i][j];  
    System.out.println(sum);  
}
```

**Answer**

10

**Status :** Correct

**Marks :** 1/1

5. What will be the output of the following code?

```
class Q {  
    public static void main(String[] args) {  
        int[] a = {1, 2, 3, 4};  
        for (int i = 0; i < a.length; i++) {  
            if (a[i] % 2 == 0)  
                a[i] = 0;  
        }  
        System.out.println(a[1] + " " + a[3]);  
    }  
}
```

**Answer**

2 4

**Status :** Wrong

**Marks :** 0/1

6. What will be the output of the following code?

```
class Sample {
```

```

public static void main(String[] args) {
    int[][] data = {
        {1, 2},
        {3, 4}
    };
    int sum = 0;

    for (int[] row : data) {
        for (int val : row) {
            sum += val;
        }
    }

    System.out.println("Sum = " + sum);
}

```

**Answer**

Sum = 10

**Status :** Correct

**Marks :** 1/1

7. What will be the output of the following code?

```

class Q {
    public static void main(String[] args) {
        int[][] a = {
            {1, 2},
            {3, 4}
        };
        for (int i = 0; i < a.length; i++) {
            for (int j = 0; j < a[0].length; j++) {
                System.out.print(a[i][j] + " ");
            }
        }
    }
}

```

**Answer**

1 2 3 4

Status : Correct

Marks : 1/1

8. What will be the output of the following code?

```
class Q {  
    public static void main(String[] args) {  
        int[] nums = {4, 2, 9, 5};  
        int max = nums[0];  
        for (int i = 1; i < nums.length; i++) {  
            if (nums[i] > max)  
                max = nums[i];  
        }  
        System.out.println(max);  
    }  
}
```

Answer

9

Status : Correct

Marks : 1/1

9. What will be the output of the following code?

```
class Sample {  
    public static void main(String[] args) {  
        int[][] matrix = {  
            {1, 2, 3},  
            {4, 5, 6}  
        };  
        System.out.println(matrix[1][2]);  
    }  
}
```

Answer

6

Status : Correct

Marks : 1/1

10. What will be the output of the following code?

```
class Q {  
    public static void main(String[] args) {  
        int[] a = {1, 2, 3, 4};  
        for (int i = 0; i < a.length / 2; i++) {  
            int temp = a[i];  
            a[i] = a[a.length - 1 - i];  
            a[a.length - 1 - i] = temp;  
        }  
        System.out.println(a[0]);  
    }  
}
```

**Answer**

4

**Status :** Correct

**Marks :** 1/1

11. What will be the output of the following code?

```
class ReverseArray {  
    public static void main(String[] args) {  
        int[] a = {1, 2, 3, 4};  
        for (int i = 0; i < a.length / 2; i++) {  
            int temp = a[i];  
            a[i] = a[a.length - 1 - i];  
            a[a.length - 1 - i] = temp;  
        }  
        for (int i : a)  
            System.out.print(i + " ");  
    }  
}
```

**Answer**

4 3 2 1

**Status :** Correct

**Marks :** 1/1

12. What will be the output of the following code?

```
public class Test {  
    public static void main(String[] args) {  
        int[] x = {4, 8, 12};  
        int result = x[0] * x[2];  
        System.out.println(result);  
    }  
}
```

**Answer**

48

**Status :** Correct

**Marks :** 1/1

13. What will be the output of the following code?

```
class M {  
    public static void main(String[] args) {  
        int[][] arr = {  
            {1, 2},  
            {3, 4},  
            {5, 6}  
        };  
        for (int i = 0; i < arr.length; i++) {  
            System.out.print(arr[i][0] + " ");  
        }  
    }  
}
```

**Answer**

1 2 4

**Status :** Wrong

**Marks :** 0/1

14. What will be the output of the given code?

```
public class Main {
```

```

public static void main(String[] args) {
    int[] arr = {1, 2, 3, 4, 5};
    int n = arr.length;
    int temp = arr[0];

    for (int i = 0; i < n - 1; i++) {
        arr[i] = arr[i + 1];
    }
    arr[n - 1] = temp;

    for (int num : arr) {
        System.out.print(num + " ");
    }
}

```

**Answer**

2 3 4 5 1

**Status :** Correct

**Marks :** 1/1

15. What will be the output of the following code?

```

class Q {
    public static void main(String[] args) {
        int[] nums = {3, 6, 7, 2, 8};
        int sum = 0;
        for (int i = 0; i < nums.length; i++) {
            if (nums[i] % 2 == 0)
                sum += nums[i];
        }
        System.out.println(sum);
    }
}

```

**Answer**

16

**Status :** Correct

**Marks :** 1/1



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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 3\_Q1

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

Rosh is intrigued by numerical patterns. Today, she stumbled upon a puzzle while working with arrays. She wants to compute the sum of the third-largest and second-smallest elements from a list of integers. She seeks your help to implement a program that solves this for her efficiently.

##### ***Input Format***

The first line of input is an integer N, representing the size of the array.

The second line of input consists of N space-separated integers, representing the elements of the array.

##### ***Output Format***

The output displays a single integer representing the sum of the third-largest and second-smallest elements in the array.

Refer to the sample output for the formatting specifications.

**Sample Test Case**

Input: 10

10 20 30 40 50 60 70 80 90 100

Output: 100

**Answer**

```
import java.util.*;

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int N = sc.nextInt();
        int[] arr = new int[N];
        for (int i = 0; i < N; i++) arr[i] = sc.nextInt();
        Arrays.sort(arr);
        int secondSmallest = arr[1];
        int thirdLargest = arr[N - 3];
        System.out.println(secondSmallest + thirdLargest);
    }
}
```

**Status :** Correct

**Marks :** 10/10

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 3\_Q2

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

Monica is interested in finding a treasure but the key to opening is to get the sum of the main diagonal elements and secondary diagonal elements.

Write a program to help Monica find the diagonal sum of a square 2D array.

Note: The main diagonal of the array consists of the elements traversing from the top-left corner to the bottom-right corner. The secondary diagonal includes elements from the top-right corner to the bottom-left corner.

##### ***Input Format***

The first line of input consists of an integer N, representing the number of rows and columns.

The following N lines consist of N space-separated integers, representing the 2D array elements.

### **Output Format**

The first line of output prints "Sum of the main diagonal: " followed by an integer, representing the sum of the main diagonal.

The second line prints "Sum of the secondary diagonal: " followed by an integer, representing the sum of the secondary diagonal.

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: 3

1 2 3

4 5 6

7 8 9

Output: Sum of the main diagonal: 15

Sum of the secondary diagonal: 15

### **Answer**

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

```
public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int N = sc.nextInt();
        int[][] arr = new int[N][N];
        for (int i = 0; i < N; i++) {
            for (int j = 0; j < N; j++) {
                arr[i][j] = sc.nextInt();
            }
        }
        int mainSum = 0, secondarySum = 0;
        for (int i = 0; i < N; i++) {
            mainSum += arr[i][i];
            secondarySum += arr[i][N - 1 - i];
        }
        System.out.println("Sum of the main diagonal:" + mainSum);
    }
}
```

```
        System.out.println("Sum of the secondary diagonal: " + secondarySum);  
    }  
}
```

**Status :** Correct

**Marks :** 10/10

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 3\_Q3

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

You are developing a warehouse management system for a shipping company. The system uses an integer array to represent the weights of packages in a specific order. To verify that the weight capacity is not exceeded, the program needs to calculate the sum of the weights of the first and last packages in the list.

Task:

Write a code to calculate the sum of the weights of the first and last packages in the list. The program should take an integer array as input and return the total weight of the first and last packages.

##### ***Input Format***

The first line of the input is an integer N representing the size of the array.

The second line of the input is N space-separated integer values.

### **Output Format**

The output is displayed in the following format:

"Sum of the first and last elements: <<Sum>>"

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: 5

10 20 30 40 50

Output: Sum of the first and last elements: 60

### **Answer**

```
import java.util.*;

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int N = sc.nextInt();
        int[] arr = new int[N];
        for (int i = 0; i < N; i++) arr[i] = sc.nextInt();
        int sum = arr[0] + arr[N - 1];
        System.out.println("Sum of the first and last elements: " + sum);
    }
}
```

**Status :** Correct

**Marks :** 10/10

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 2\_Q4

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

Amit wants to evaluate the depreciation of his car over time to understand its current value and categorize it based on that value.

Write a program that helps him determine the current value of his car after a certain number of years of depreciation and classify it into one of three categories:

High: If the current value is greater than 10,000. Medium: If the current value is between 5,000 and 10,000, both inclusive. Low: If the current value is less than 5,000.

The depreciation rate of the car is 15% per year. The program should calculate the current value of the car after applying this depreciation over the given number of years and print the current value along with the category.



### ***Input Format***

The first line of input consists of an integer, representing the initial cost of the car.

The second line consists of an integer, representing the number of years the car has been depreciating.

### ***Output Format***

The first line of output prints a double value, representing the current value of the car, rounded off to two decimal places "Current Value: <value>".

The second line prints its category "Category: <categories>".

Refer to the sample output for formatting specifications.

### ***Sample Test Case***

Input: 20000  
5

Output: Current Value: 8874.11  
Category: Medium

### ***Answer***

```
// You are using Java
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        int initialCost = scanner.nextInt();
        int years = scanner.nextInt();

        double currentValue = initialCost;
        for (int i = 0; i < years; i++) {
            currentValue *= 0.85;
        }

        currentValue = Math.round(currentValue * 100.0) / 100.0;
```

```
System.out.println("Current Value: " + String.format("%.2f", currentValue));

    if (currentValue > 10000) {
        System.out.println("Category: High");
    } else if (currentValue >= 5000) {
        System.out.println("Category: Medium");
    } else {
        System.out.println("Category: Low");
    }
}
}
```

**Status :** Correct

**Marks : 10/10**

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 3\_Q5

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

Sharon is creating a program that finds the first repeated element in an integer array. The program should efficiently identify the first element that appears more than once in the given array. If no such element is found, it should appropriately display a message.

Help Sharon to complete the program.

##### ***Input Format***

The first line of input consists of an integer  $n$ , representing the number of elements in the array.

The second line consists of  $n$  space-separated integers, representing the array elements.

### **Output Format**

If a repeated element is found, print the first element that appears more than once.

If no repeated element is found, print "No repeated element found in the array".

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: 8

12 21 13 14 21 36 47 21

Output: 21

### **Answer**

```
import java.util.*;

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        int[] arr = new int[n];
        for (int i = 0; i < n; i++) arr[i] = sc.nextInt();

        Set<Integer> seen = new HashSet<>();
        int repeated = -1;
        for (int i = 0; i < n; i++) {
            if (seen.contains(arr[i])) {
                repeated = arr[i];
                break;
            }
            seen.add(arr[i]);
        }

        if (repeated == -1) {
            System.out.println("No repeated element found in the array");
        } else {
            System.out.println(repeated);
        }
    }
}
```

}  
}

**Status :** Correct

**Marks :** 10/10