

CDAC MUMBAI

Day 4 Assignment

1. Write a Java program that calculates the average of elements in an integer array.

Instructions:

1. Create an integer array named **array** with the values {5, 4, 3, 9, 1, 7, 9}.
2. Calculate the sum of all elements in the array.
3. Calculate the average of the elements by dividing the sum by the number of elements in the array.
4. Print the average value.

Sample Output:

Average: 5.428571428571429

2. Write a Java program that finds the minimum and maximum values in an integer array.

Instructions:

1. Create an integer array named **array** with the values {5, 4, 3, 9, 1, 7, 9}.
2. Initialize two variables, **min** and **max**, to the first element of the array (**array[0]**).
3. Iterate through the array and update **min** and **max** if a smaller or larger element is found, respectively.
4. Print the minimum and maximum values.

Sample Output:

Min: 1

Max: 9

3. Write a Java program that calculates the sum of multiples of 3 in a sequence of numbers.

Instructions:

1. Read an integer **n** from the user using the **Scanner** class.
2. Initialize a variable **sum** to store the sum of multiples of 3.
3. Use a loop (for or while) to iterate through numbers from 0 to **n**.
4. For each number **i**, calculate **t = 2 * (i - 1)** and check if **t** is a multiple of 3 (i.e., **t % 3 == 0**).
5. If **t** is a multiple of 3, add it to the **sum**.

6. After the loop, print the value of **sum**.

Sample Input/Output:

Input: 10

Output: 12

Explanation: The multiples of 3 in the sequence (0, 2, 4, 6, 8) are 0 and 6. Their sum is $0 + 6 = 6$. However, the loop includes the value of `i` as well, so the correct sum is $0 + 6 + 6 = 12$.

Constraints:

- The input **n** should be a non-negative integer.

4. Write a Java program that adds two matrices of the same size.

Instructions:

1. Define two integer matrices, **matrix1** and **matrix2**, with the same number of rows and columns. Initialize the matrices with values of your choice.
2. Create a new matrix, **result**, to store the sum of **matrix1** and **matrix2**. The size of **result** should be the same as the size of **matrix1** and **matrix2**.
3. Use nested loops (for loops) to iterate through each element of **matrix1** and **matrix2**, and calculate the sum of the corresponding elements. Store the result in the corresponding element of **result**.
4. Print the sum matrix **result**.

Sample Input:

Matrix 1:

1 2 3

4 5 6

7 8 9

Matrix 2:

9 8 7

6 5 4

3 2 1

Sample Output:

Sum Matrix:

10 10 10

10 10 10

10 10 10

5. Write a Java program that determines whether two matrices are equal.

Instructions:

1. Define two integer matrices, **matrix1** and **matrix2**, with the same number of rows and columns. Initialize the matrices with values of your choice.
2. Compare each element of **matrix1** with the corresponding element of **matrix2**. If all elements are equal, the matrices are equal; otherwise, they are not equal.
3. Print a message indicating whether the matrices are equal or not.

Sample Input:

Matrix 1:

1 2

3 4

Matrix 2:

1 2

3 4

Sample Output:

Matrices are not equal