
CS110 : COMPUTING LABORATORY

Lab #5 Instructors: Dr. Ashish Anand & Prof. Diganta Goswami

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Concept Name: Arrays (1D, 2D).

Question 1: Write a C program to replace an element with a given element from an 1D array.

- **Task 01**: Read an integer **n** from the user.
- **Task 02**: Create an array of size **n** of integer datatype.
- **Task 03**: Read n number of elements using for/while/do-while loop from user.
- **Task 04**: Read integer **x** and **y**.
- **Task 05**: Replace the element **x** by **y** in the array .
- **Task 06**: Print the Final array.

Constraints:

- 1 <= n <= 100

Example Input & Output:

```
1. Input:
    5
    1 2 6 4 5
    6 3

   Output:
    1 2 3 4 5

2. Input:
    10
    -3 -5 4 -47 22 53 -8 65 0 94
    0 89

   Output:
   -3 -5 4 -47 22 53 -8 65 89 94
```

Question 2: Write a C program to find minimum and maximum element in an array.

- **Task 01**: Read an integer **n** from the user.
- **Task 02**: Create an array of size **n** of integer datatype.
- **Task 03**: Read n number of elements using for/while/do-while loop from user.
- **Task 04**: Use some logic to find the minimum and the maximum element of the array and store them into variables such as min and max.
- **Task 05**: Print min and max.

Constraints:

- 1 <= n <= 100

- -100000 <= min, max <= 100000

Example Input & Output:

```
1. Input:
    5
    1 2 4 5 6

   Output:
    1 6

2. Input:
    10
    94 -3 -5 4 -47 22 53 -8 65 89

   Output:
   -47 94
```

Question 3: Given a matrix of size M x N, find the transpose of the matrix. Transpose of a matrix is obtained by changing rows to columns and columns to rows. In other words, transpose of A[][] is obtained by changing A[i][j] to A[j][i].

- **Task 01**: Read integer M and N from the user.
- **Task 02**: Read the M x N matrix from the user.
- **Task 03**: Find the transpose of the entered matrix as mentioned above.
- **Task 04**: Print the transposed matrix.

Example Input & Output:

```
1. Input:
    3 3
    1 2 3
    4 5 6
    7 8 9

   Output:
    1 4 7
    2 5 8
    3 6 9

2. Input:
    2 3
    -1 0 8
    2 3 7

   Output:
    -1 2
    0 3
    8 7
```

Question 4: Given a matrix of size M x N. Print the index of the row having maximum sum.

1. **Task 01**: Read integer M and N from the user.
2. **Task 02**: Read the M x N matrix from the user.
3. **Task 03**: Print the index of the row having maximum sum.

```
Example Input & Output:


1. Input:
    3 3
    1 2 3
    4 5 6
    7 8 9

  Output:
    2
    The 0th index row sum = 6 , 1st index row sum = 15 , 2nd index row sum = 23


2. Input:
    2 3
    1 0 8
    2 3 7

  Output:
    1
```