

# Short-term Hands-on Supplementary Course on C Programming



## **SESSION 4: Arrays**

**KARTHIK D**  
**NIVEDHITHA D**

Time: 6:30 - 8:00 PM

Date: 25 May 2022

Location: Online



# Agenda

1. Administrative Instructions
2. Definition of Array
3. 1D Arrays: Live Code Demo with Searching
  - a. Declaration
  - b. Initialization
  - c. Accessing Elements
  - d. Traversal using Loops
  - e. I/O for Arrays
4. Multi-dimensional Arrays
5. 2D Arrays: Live Code Demo
  - a. Declaration
  - b. Initialization
  - c. Accessing Elements
  - d. Traversal using Loops
  - e. I/O for Arrays
6. Tutorial
  - a. Common Operations on 1D Arrays
  - b. 2D Matrix Arithmetic Operations
7. Next Session

# Administrative Instructions

- Please fill out the feedback form - will be shared in the chat
- Join us on Microsoft Teams,  
Team Code: **rzlaicv**

**GITHUB REPOSITORY!** 

# Definition of Array

An Array is a data structure containing a number of data values (all of which are of same type)

a

5	6	10	13	56	76	1	2	4	8
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b

'a'	'b'	'c'	'd'	'e'
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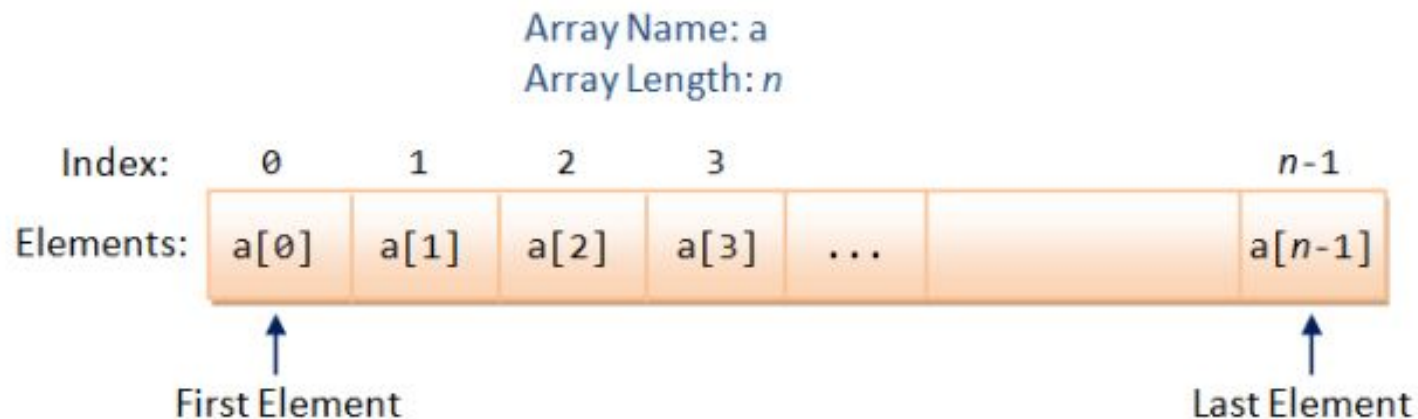
c

'a'	'b'	1	5.6	'e'	34	2	3
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# 1D Arrays: Live Code Demo

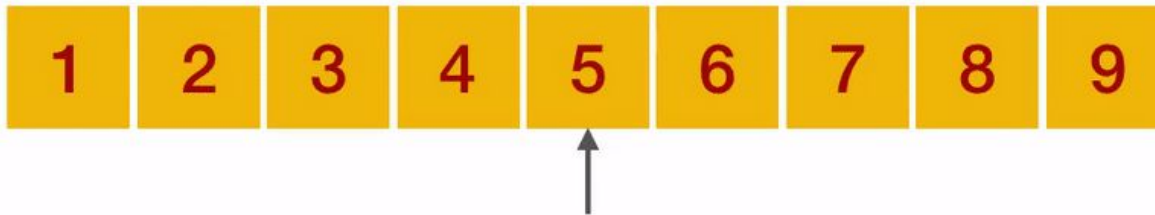
- [Declaration](#)
- [Initialization](#)
- Accessing Elements
- Traversal using Loops
- I/O for Arrays



# TUTORIAL

TARGET: 9

BINARY SEARCH



TARGET: 9

LINEAR SEARCH



Searching for an element in a 1D array!!!

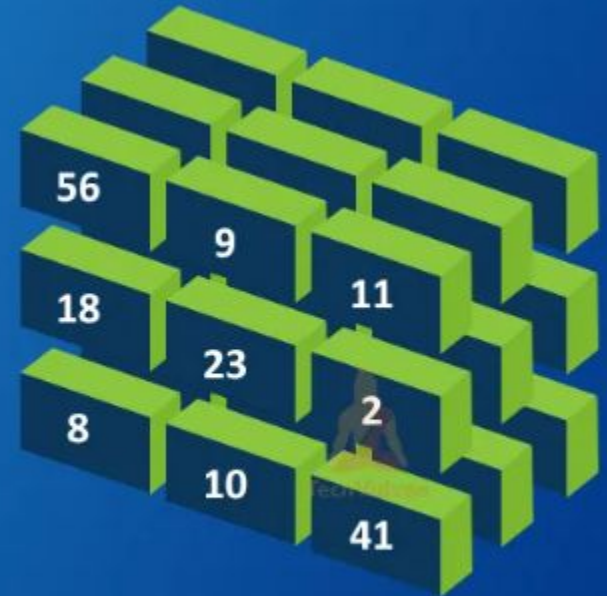
# KARTHIK!!!!!!!!!!



# Multi-dimensional Arrays

	column 0	column 1	column 2
Row 0	a[0][0]	a[0][1]	a[0][2]
Row 1	a[1][0]	a[1][1]	a[1][2]
Row 2	a[2][0]	a[2][1]	a[2][2]
Row 3	a[3][0]	a[3][1]	a[3][2]
Row 4	a[4][0]	a[4][1]	a[4][2]

**2-D Array**



**3-D Array**

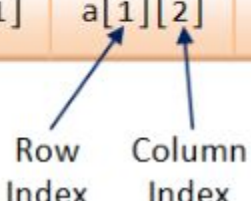


# 2D Arrays: Live Code Demo

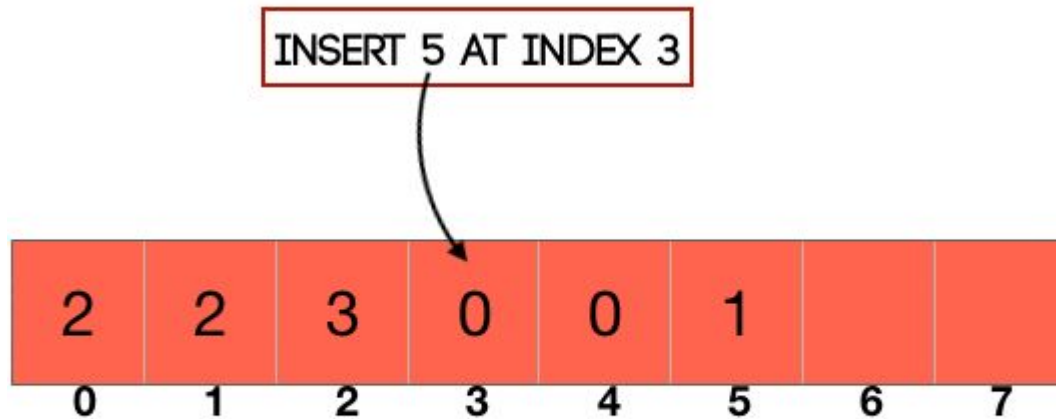
- Declaration
- Initialization
- Accessing Elements
- Traversal using Loops
- I/O for Arrays

	Column 0	Column 1	Column 2	Column 3	
Row 0	a[0][0]	a[0][1]	a[0][2]	a[0][3]	...
Row 1	a[1][0]	a[1][1]	a[1][2]	a[1][3]	...

Row Index      Column Index

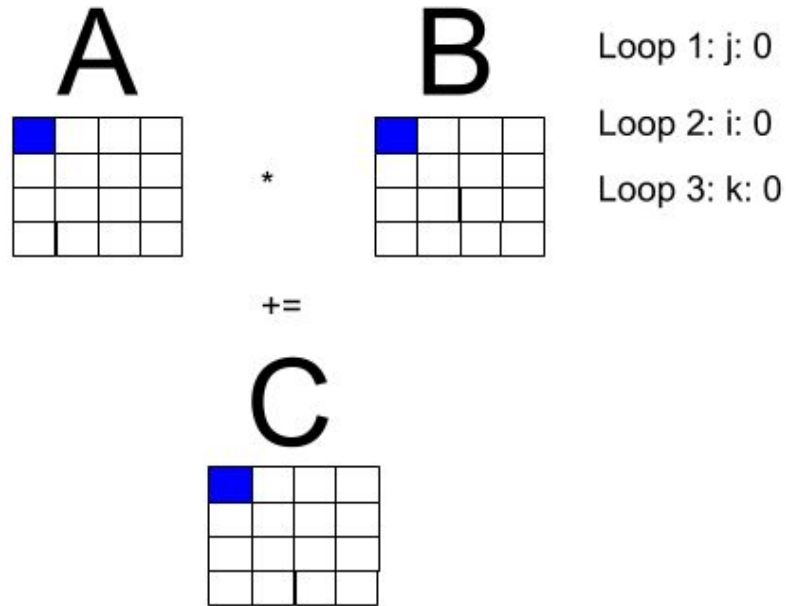


# TUTORIAL



**1D Common Operations!!!**

# Tutorial



2D Arithmetic Operations!!!

# Next Session

**SORTING!!!**

**INTERVIEWER :** Write a program to sort the array

**ME :**     **arr = [1, 3, 4, 2]**  
          **arr.sort()**



Any Questions