SWT11022: Practical for Fundamentals of Programming

Department of Information & Communication Technology
Faculty of Technology
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Time: - 08.30am - 12.30 pm Labsheet 10

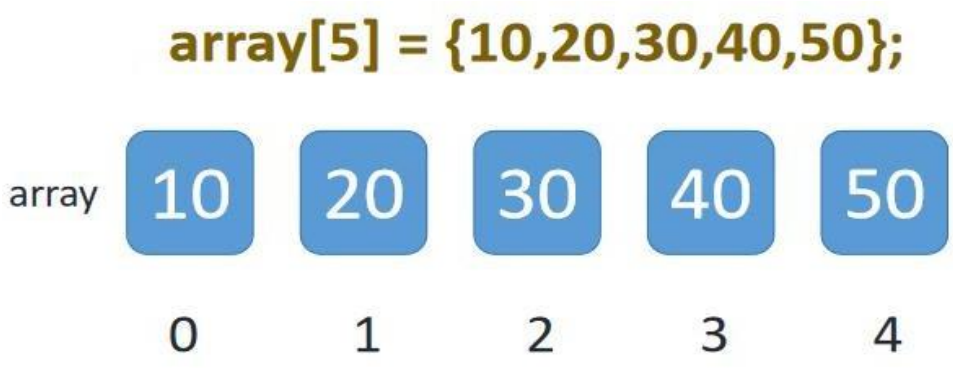
Title: Introduction to the Array

Objective:

- Understand the syntax and structure of arrays.
- Understand the usage of arrays for storing data.
- Understand accessing array elements.

Arrays in C

- Declaration:
  - Use the data_type array_name[size]; syntax.
  - Example: int numbers[10]; declares an array of 10 integers.
- Initialization:
  - During declaration: int scores[] = {90, 85, 72, 98};
  - After declaration: numbers[0] = 10; numbers[1] = 20;
- Accessing Elements:
  - Use the index within square brackets: int first_score = scores[0];
  - Indexes start from 0 (first element) and go up to size - 1 (last element).
- Iterating Over Elements:
  - Use loops like for or while to access each element



Syntax :

```
// Declare the array

data_type name_of_the_array[] = {value1, value2, value3, ...};


data_type name_of_the_array[size_of_the_array] = {value1, value2, value3, ...};
```

Exercise 01 : (Basic)

1. Declare the "marks" array to store marks of five students.
2. Add the first student's mark as 98 to the marks array.
3. Declare and initialize an array for storing 5 students' ages. Ages will be 21, 21, 23, 24, and 25.
4. Change the second student's age to 27.
5. Declare the array name as "students_marks" and get marks from the user.
6. Display the array elements stored within the students_marks array.

Exercise 02 : (Average Calculator)

1. Implement the program for following scenario.
   - Declare an array to store six subject marks of a student.
   - Declare a variable to store the average value.
   - Print the message that can help the user identify the input prompt.
   - Use a loop to get the user input for student marks.
   - Calculate the average.
   - Display the user's marks and the average of the marks.

Exercise 03 : (Find Largest Element)

1. Implement the program for following scenario.
    - Declare an array to store 10 floating point numbers.
    - Declare a variable to store maximum value.
    - Print the message that can user identify the input prompt.
    - Using a loop get the user input for student marks
    - Implement a loop for find the maximum value among the input elements.
    - Display the maximum value.

Exercise 04

1. Implement the program for following scenario.
    - Get 10 char inputs from user.
    - Check whether the given input alphabet, is a lower-case or upper-case alphabet.

Discussion :

- Advantages and Disadvantages in array.
- Types of array.

Report Submission Guidelines

- Submit the Report by 07/04/2025.
- Report Structure Practical No
    - Date of Submission
    - Title
    - Objective of the practical.
    - Tasks
    - Discussion
    - Challenges
    - References