**Experiment: 6**

PART A

(PART A: TO BE REFFERED BY STUDENTS)

**Aim:** **To study concept of arrays in C++ programming.**

**Learning Outcomes: Learner would be able to**

1. Interpret the scenario to decide on selective and repetitive blocks.
2. Explain using algorithm and flowchart working of 1-D array as per scenario.

**Task 1: For below statements declare array variable.**

a. To store integer marks of 10 students.

b. To store yearly average rating of 50 employees.

c. To store 10 characters.

**Task2:**

**For below arrays find the address of said position.**

a. int marks[10]; Find the address of element stored at index 5. Base address is 1000.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 45 | 70 | 80 | 30 | 67 | 85 | 98 | 34 | 25 | 56 |

[0] [1] [2] [3] [4] [5] [6] [7] [8] [9]

b. char c[10]; Find the address of element stored at index 7. Base address is 1000.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | C | D | R | Y | N | O | P | E | F |

[0] [1] [2] [3] [4] [5] [6] [7] [8] [9]

**Task 3: Find the output.**

1. #include<iostream>

int main()

{

float a[10];

cout<<sizeof(a);

}

1. int main()

{

int n=20;

float a[n];

//assuming values are stored in array.

cout<<a[0];

cout<<a[5];

cout<<a[-1];

cout<<a[n-21];

cout<<a[n+20];

cout<<a[n];

}

**Task 4: For given statements identify error.**

int a[n];

n=5;

**Task 5: What will be the output of the program?**

#include<iostream>

int main()

{

int a[5] = {5, 1, 15, 20, 25};

int i, j, m;

for(i=0;i<3;i++)

{ ++a[i];

a[i+1]++;

a[i++];

cout<<a[i];

}

}

**Task 6:** Write a program to search an element from given array (linear search)

**Theory:**

It is group of logically related data, stored in contiguous blocks of memory under common name. An Array is homogeneous or similar type of data items under common name. Data items or elements of arrays are separated from each other by subscript or index.

C++ Supports following arrays.

1. One Dimensional Arrays - One dimensional arrays are represented as set of values in one row.

2. Two or Multi-Dimensional Arrays - Multi-dimensional arrays are views as table containing data in row & column.

**Declaring One Dimensional Array:** We must declare array before use, and following is the syntax:

**Syntax**:- data\_type arr\_name[size];

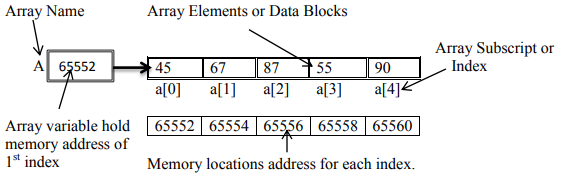
In above syntax,

* data\_type-can be‟char‟,‟int‟,‟float‟or‟double‟.
* arr\_name-is similar to normal variables name.
* size- is is the maximum size of array & size should be integer constant.

**Example** : int marks[50];

In primary memory array will get contiguous block of memory as shown in following declaration of integer array “a” of size 5.

**int a[5] ;**



PART B

(PART B: TO BE COMPLETED BY STUDENTS)

Students must submit the soft copy as per following segments within two hours of the practical. The soft copy must be uploaded on the portal at the end of the practical. The filename should be **PPS\_batch\_rollno\_experimentno Example: PPS\_B2\_B001\_Exp1**

|  |  |
| --- | --- |
| **Roll No.:** | **Name:** |
| **Prog/Yr/Sem:** | **Batch:** |
| **Date of Experiment:** | **Date of Submission:** |

**Task 1:**

**Task 2:**

**Task 3:**

**Task 4:**

**Task 5:**

**Task 6:**

**Task 7:**

**Task 8:**

**Conclusion (Learning Outcomes):** Reflect on the questions answered by you jot down your learnings about the Topic: One dimensional array.

**Home Work Questions:**

|  |  |
| --- | --- |
| 1. What will be the output of the program?   #include<iostream>  int main()  { int arr[] = {1, 2, 3, 4, 5}, a, b=0;  for(a=0;a<5;++a)  b+=arr[a];  cout<< b;  } |  |
| 1. What will be the output of the program?   #include<iostream>  void main()  {  int arr[5] = {4, 1, 2, 20, 5};  int a, b=0;  for(a=0;a<5;a++)  if (arr[a]%2) b+=arr[a];  cout<< b;  } |  |
| 1. What will be the output of the program?   int main()  {  int arr[5], i=0;  while(i<5)  arr[i]=++i;  for(i=0; i<5; i++)  cout<<arr[i];  } |  |