Activity No. 4.2	
Arrays	
Course Code: CPE007	Program: Computer Engineering
Course Title: Programming Logic and Designs	Date Performed: 09/11/25
Section: CPE11S1	Date Submitted: 09/11/25
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6. Output

ug Untitled1.cpp

```cpp
#include<iostream>
using namespace std;

#include <iostream>
using namespace std;

int main() {
    int n[10];

    // Initialize array elements to 0
    for (int i = 0; i < 10; i++) {
        n[i] = 0;
    }

    cout << "Element   Value" << endl;

    // Print index and value
    for (int i = 0; i < 10; i++) {
        cout << "    " << i << "         " << n[i] << endl;
    }

    return 0;
}
```

```
Element   Value
    0        0
    1        0
    2        0
    3        0
    4        0
    5        0
    6        0
    7        0
    8        0
    9        0

--------------------------------
Process exited after 0.01664 seconds with return
Press any key to continue
```

EXPLANATION:

An integer array called n with 10 elements is declared to store many numbers. A for loop is used to put value 0 in every element so that all start the same. Then the program prints the header “Element” and “Value” for organizing output. Another for loop displays each index number together with the value in the array. Because all elements were set to zero, the output shows elements 0 until 9 and all values are 0. This code gives an example of how to declare, initialize and print arrays in a simple way.

2.

Untitled1.cpp

```cpp
#include <iostream>
using namespace std;

int main() {
    int n[10] = {32, 27, 64, 18, 95, 14, 90, 70, 60, 37};

    cout << "Element  Value" << endl;

    for (int i = 0; i < 10; i++) {
        cout << "    " << i << "       " << n[i] << endl;
    }

    return 0;
}
```

```
C:\Users\TIPQC\Documents\M
Element  Value
    0       32
    1       27
    2       64
    3       18
    4       95
    5       14
    6       90
    7       70
    8       60
    9       37

--------------------------------
Process exited after 0.01369 seconds with return value 0
Press any key to continue . . .
```

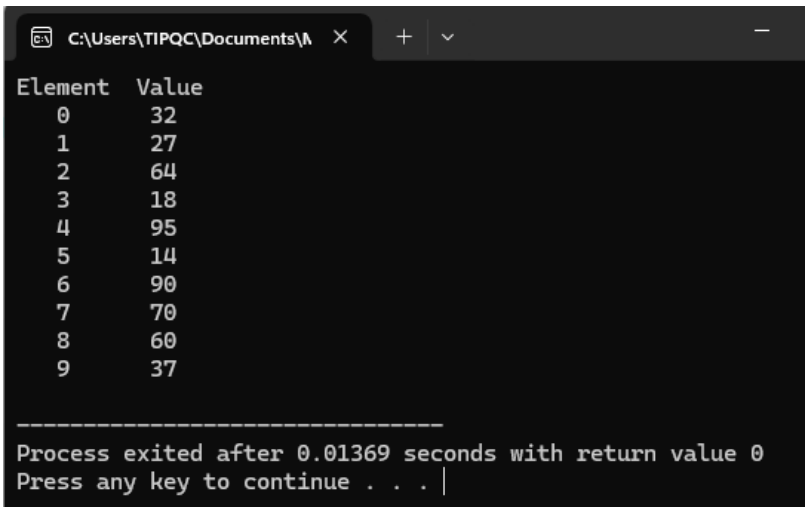
EXPLANATION:

The program shows how to initialize an array with values directly when declared. An integer array n with 10 elements is created and already has numbers inside like 32, 27, 64, 18, 95, 14, 90, 70, 60 and 37. After that the program prints the header “Element” and “Value” to organize the output. Then a for loop is used to display each index number and the value that belongs in that position. Because the array already has assigned values, the output shows elements 0 to 9 with their correct numbers. This code illustrates how to declare arrays with initial values and then display them in order.

3.

Untitled1.cpp

```cpp
#include <iostream>
using namespace std;

#define SIZE 12

int main() {
    int a[SIZE] = {1, 3, 5, 4, 7, 2, 99, 16, 45, 67, 89, 45};
    int total = 0;

    for (int i = 0; i < SIZE; i++) {
        total += a[i];
    }

    cout << "Total of array element values is " << total << endl;
    return 0;
}
```



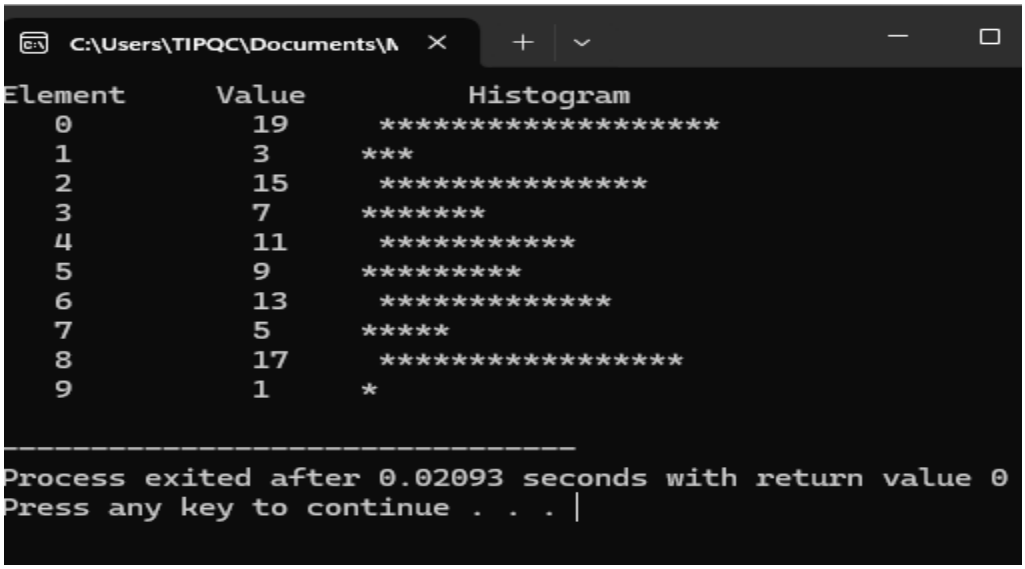
EXPLANATION:

The program demonstrate how to calculate the total of all element inside array. The array a is declare with size 12 and already have values assign like 1, 3, 5, 4, 7, 2, 99, 16, 45, 67, 89, 45. A variable total is also set to 0 before start. Then a for loop is use that run from index 0 up to 11, adding every element of array to the variable total. After the loop finish, the program display the final sum of all numbers using cout. This show how to use loop to add all element together and print one total value at the end.

7. Supplementary Activity

Untitled1.cpp

```cpp
#include <iostream>
using namespace std;

int main() {
    int values[10] = {19, 3, 15, 7, 11, 9, 13, 5, 17, 1};

    cout << "Element\t    Value\t  Histogram" << endl;

    for (int i = 0; i < 10; i++) {
        cout << "    " << i << "           " << values[i] << "      ";
        for (int j = 0;  j < values[i]; j++) {
            cout << "*";
        }
        cout << endl;
    }

    return 0;
}
```



1.Given the size of an array which is 10, and the elements such as 19, 3, 15, 7, 11, 9, 13, 5, 17 and 1, create a program that will display the following output:

EXPLANATION:

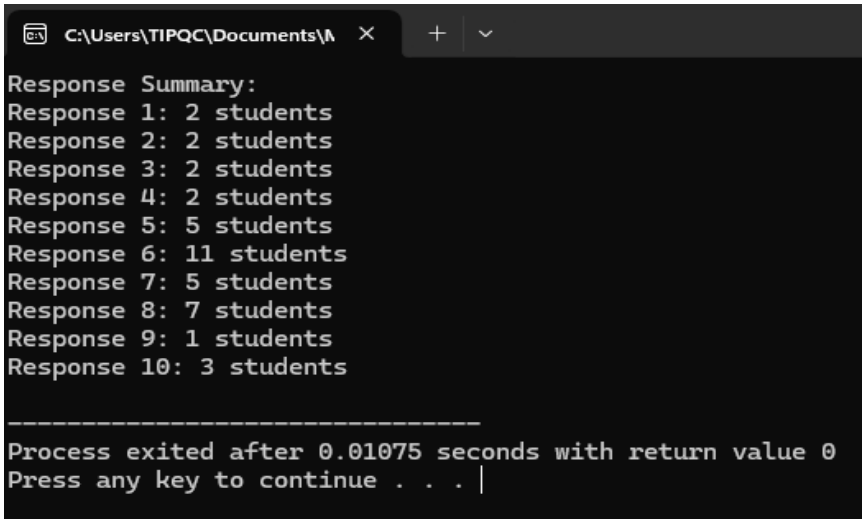
In this program, I declared an array with ten given values and I used a loop to put each element's index and value. Then I used the nested loop to print the number of asterisks equal to the value of the elements, which made the histogram output.

2.Given the following data, create a program that summarizes the number of each type. Use array responses for the 40 element array of student's responses. Such as

int responses[RESPONSE_SIZE] = { 1, 2, 6, 4, 8, 5, 9, 7, 8, 10, 1, 6, 3, 8, 6, 10, 3, 8, 2, 7, 6, 5, 7, 6, 8, 6, 7, 5, 6, 6, 5, 6, 7, 5, 6, 4, 8, 6, 8, 10}

Untitled1.cpp

```cpp
#include <iostream>
using namespace std;

#define RESPONSE_SIZE 40
#define MAX_RESPONSE_VALUE 10

int main() {
    int responses[RESPONSE_SIZE] = {
        1, 2, 6, 4, 8, 5, 9, 7, 8, 10,
        1, 6, 3, 8, 6, 10, 3, 8, 2, 7,
        6, 5, 7, 6, 8, 6, 7, 5, 6, 6,
        5, 6, 7, 5, 6, 4, 8, 6, 8, 10
    };

    int responseCounts[MAX_RESPONSE_VALUE + 1] = {0};

    for (int i = 0; i < RESPONSE_SIZE; i++) {
        responseCounts[responses[i]]++;
    }

    cout << "Response Summary:" << endl;
    for (int i = 1; i <= MAX_RESPONSE_VALUE; i++) {
        cout << "Response " << i << ": " << responseCounts[i] << " students" << endl;
    }

    return 0;
}
```



EXPLANATION:
In this program, I first declared the responses that contained the forty student answers given in the problem. Since each response is a number between 1 and 10, I also declared the responseCounts with size 11. I initialized all elements of this array to 0, and then I used a loop to go through all forty responses. I incremented the corresponding index in responseCounts, it will automaticaly count how many times each response appears. Then lastly i printed out the code and got this results.

8. Conclusion

In this activity, I learned how to properly use arrays in C++ to store, access, and process multiple values efficiently. I understood that arrays allow us to group related data under one name and access each element using its index. By working on the histogram program, I saw how nested loops can be applied to display values in different forms, such as stars for visualization. Through the response summary program, I learned how to use arrays to count frequencies and summarize data in a clear format. Overall, this activity improved my programming skills, especially in using arrays for solving real problems like data organization and analysis.

9. Assessment Rubric

Rubric for SO 7 (7)

Criteria	Ratings						Pts
SO 7 PI 1 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently and applies knowledge learned into practice	5 pts Good | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently	4 pts Satisfactory | Look beyond classroom requirements, showing interest in pursuing knowledge independently	3 pts Unsatisfactory | Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently	2 pts Poor | Relies on classroom instruction only	1 pts Very Poor | No initiative or interest in acquiring new knowledge	6 pts
SO 7 PI 2 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Completes an assigned task independently and practices continuous improvement	5 pts Good | Completes an assigned task without supervision or guidance	4 pts Satisfactory | Requires minimal guidance to complete an assigned task	3 pts Unsatisfactory | Requires detailed or step-by-step instructions to complete a task	2 pts Poor | Shows little interest to complete a task independently	1 pts Very Poor | No interest to complete a task independently	6 pts
SO 7 PI 3 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions	5 pts Good | Evaluate information from a variety of sources; formulates a clear and precise perspective.	4 pts Satisfactory | Analyze information from a variety of sources; formulates a clear and precise perspective.	3 pts Unsatisfactory | Apply the gathered information to formulate the problem	2 pts Poor | Gather and summarized the information from a variety of sources but failed to formulate the problem	1 pts Very Poor | Gather information from a variety of sources	6 pts
SO 7 PI 4 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts Good | Ideas are creative and adapt the new knowledge to solve a problem or address an issue	4 pts Satisfactory | Ideas are creative in solving a problem, or address an issue	3 pts Unsatisfactory | Shows some creative ways to solve the problem	2 pts Poor | Shows initiative and attempt to develop creative ideas to solve the problem	1 pts Very Poor | Ideas are copied or restated from the sources consulted	6 pts