Introduction to Programing

Group 4

Main Thread

Exercise 7 & 8

ARRAY

```cpp
#include <iostream>

int main()
{
    // Array is collection of data

    // Array of 5 integers
    int firstArr[5];

    // Initialization
    int secondArr[5] = {1, 2, 3, 4, 5};
    int thirdArr[] = {1, 2, 3, 4, 5};

    // Array of 0
    int forthArr[5] = {0};

    // First Element
    std::cout << secondArr[0] << '\n';

    // The array indexes are starting from 0 to n - 1 (array length - 1)

    return 0;
}
```

ELEMENTS

```cpp
#include <iostream>

int main()
{
    const int n = 5;
    int arr[n] = {1, 2, 3, 4, 5};

    // The way to display every element

    for (int i = 0; i < n; ++i)
    {
        std::cout << arr[i] << '\n';
    }

    return 0;
}
```

SEARCH ELEMENT

```cpp
#include <iostream>

int main()
{
    const int n = 5;
    int arr[n] = {1, 2, 3, 4, 5};

    bool isElementFound = false;

    int findElement = 5;

    // The way search an element

    for (int i = 0; i < n; ++i)
    {
        if (arr[i] == findElement)
        {
            isElementFound = true;
            break;
        }
    }

    std::cout << "Is element found - " << isElementFound << '\n';

    return 0;
}
```

VECTOR

CLASS

Dynamic Array

```cpp
#include <iostream>
#include <vector>

using namespace std;

int main()
{
    // Creating a vector of integers (array which must store an integers)
    vector<int> arr;

    // Push 5 elements = 0 1 2 3 4

    for (int i = 0; i < 5; ++i)
    {
        arr.push_back(i);
    }

    // Get array size
    int arrSize = arr.size();

    // Get the element on position 2
    cout << arr[2] << " " << arr.at(2) << '\n';

    // Display array elements
    for (int i = 0; i < arr.size(); ++i)
    {
        cout << arr[i] << '\n';
    }

    // Remove the last element
    arr.pop_back();

    // Remove the first element
    arr.erase(arr.begin());



    return 0;
}
```

Thank you for watching