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Assignment#1

```
/**Question#1**/
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    const int size = 10;
```

```
    int ages[size];
```

```
    cout << "Enter the ages of " << size << " students: " << endl;
```

```
    for (int i = 0; i < size; i++) {
```

```
        cout << "Student [" << i + 1 << "]: ";
```

```
        cin >> ages[i];
```

```
    }
```

```
    int largest = ages[0];
```

```
    for (int i = 1; i < size; i++) {
```

```
        if (ages[i] > largest) {
```

```
            largest = ages[i];
```

```
        }
```

```
    }
```

```
    cout << "The largest age is: " << largest << endl;
```

```
    return 0;
```

```
}
```

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     const int size = 10; // fixed size of the array
6     int ages[size]; // array to hold ages of students
7
8     // Input ages for 10 students
9     cout << "Enter the ages of " << size << " students: " << endl;
10    for (int i = 0; i < size; i++) { // loop through to get each age
11        cout << "Student [" << i + 1 << "]: "; // ask for student number
12        cin >> ages[i]; // Input age for each student
13    }
14
15    int largest = ages[0]; // assume first age is the largest
16    // loop to find the largest age
17    for (int i = 1; i < size; i++) { // start from second element
18        if (ages[i] > largest) { // check if current age is larger
19            largest = ages[i]; // update largest if found
20        }
21    }
22
23    // Output the largest age
24    cout << "The largest age is: " << largest << endl;
25
26    return 0; // end of the program
27 }
28
```

Output

```
Enter the ages of 10 students:
Student [1]: 12
Student [2]: 14
Student [3]: 12
Student [4]: 13
Student [5]: 16
Student [6]: 15
Student [7]: 17
Student [8]: 11
Student [9]: 10
Student [10]: 9
The largest age is: 17

--- Code Execution Successful ---
```

//*****Question#2*****

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    int size;
```

```
    cout << "Enter the size of the arrays: ";
```

```
    cin >> size;
```

```
    // Create arrays
```

```
    int* array1 = new int[size];
```

```
    int* array2 = new int[size];
```

```
    int* array3 = new int[size];
```

```
    int* sumArray = new int[size];
```

```
    cout << "Enter elements for Array 1: " << endl;
```

```
    for (int i = 0; i < size; i++) { // loop for size of array
```

```

        cout << "Element [" << i << "]: ";
        cin >> array1[i];
    }

    cout << "Enter elements for Array 2: " << endl;
    for (int i = 0; i < size; i++) {
        cout << "Element [" << i << "]: ";
        cin >> array2[i];    }

    cout << "Enter elements for Array 3: " << endl;
    for (int i = 0; i < size; i++) {
        cout << "Element [" << i << "]: ";
        cin >> array3[i];
    }

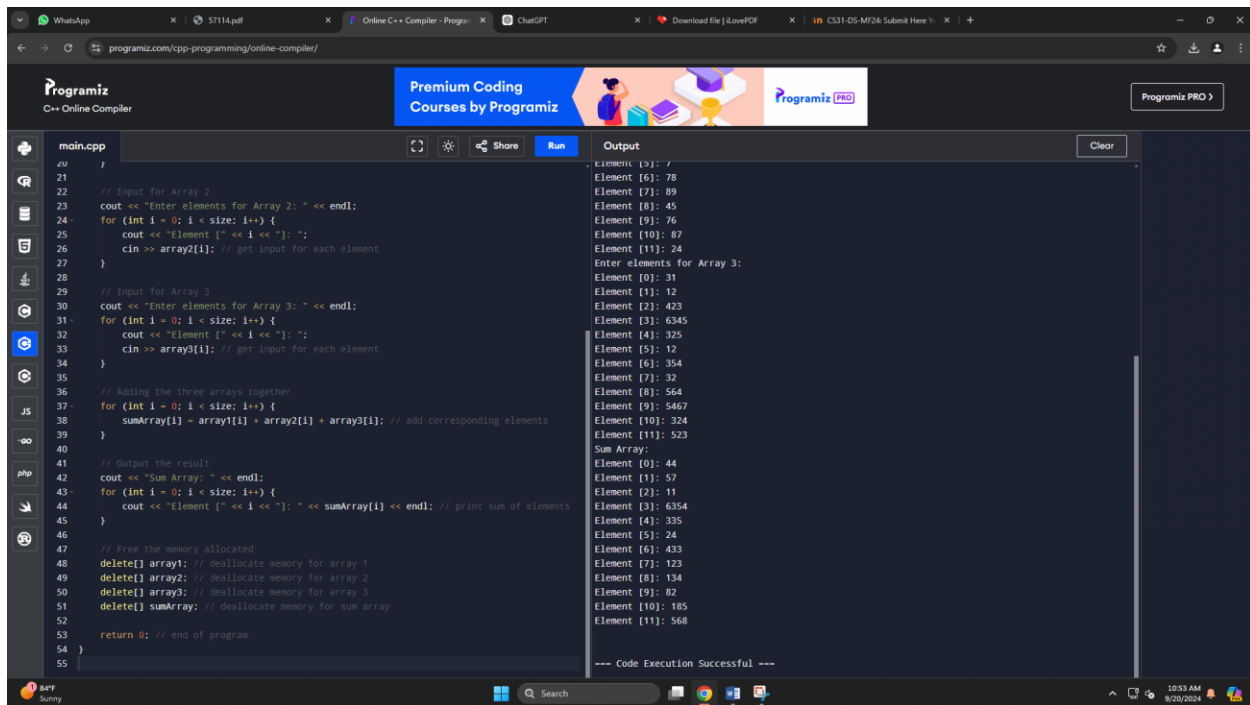
    for (int i = 0; i < size; i++) {
        sumArray[i] = array1[i] + array2[i] + array3[i];
    }


    cout << "Sum Array: " << endl;
    for (int i = 0; i < size; i++) {
        cout << "Element [" << i << "]: " << sumArray[i] << endl;
    }

    delete[] array1;
    delete[] array2;  delete[] array3;
    delete[] sumArray;

    return 0;
}

```



```
main.cpp
21 //
22 // Input for Array 2
23 cout << "Enter elements for Array 2: " << endl;
24 for (int i = 0; i < size; i++) {
25     cout << "Element [" << i << "]: ";
26     cin >> array2[i]; // get input for each element
27 }
28 // Input for Array 3
29 cout << "Enter elements for Array 3: " << endl;
30 for (int i = 0; i < size; i++) {
31     cout << "Element [" << i << "]: ";
32     cin >> array3[i]; // get input for each element
33 }
34 // Adding the three arrays together
35 for (int i = 0; i < size; i++) {
36     sumArray[i] = array1[i] + array2[i] + array3[i]; // add corresponding elements
37 }
38 // Output the result
39 cout << "Sum Array: " << endl;
40 for (int i = 0; i < size; i++) {
41     cout << "Element [" << i << "]: " << sumArray[i] << endl; // print sum of elements
42 }
43 // Free the memory allocated
44 delete[] array1; // deallocate memory for array 1
45 delete[] array2; // deallocate memory for array 2
46 delete[] array3; // deallocate memory for array 3
47 delete[] sumArray; // deallocate memory for sum array
48 return 0; // end of program
49 }
50 }
51 }
52 }
53 }
54 }
55 }
```

Output

```
Element [0]: 78
Element [1]: 89
Element [2]: 45
Element [3]: 76
Element [4]: 87
Element [5]: 24
Enter elements for Array 3:
Element [0]: 31
Element [1]: 12
Element [2]: 423
Element [3]: 6345
Element [4]: 325
Element [5]: 12
Element [6]: 354
Element [7]: 32
Element [8]: 564
Element [9]: 5467
Element [10]: 324
Element [11]: 523
Sum Array:
Element [0]: 44
Element [1]: 57
Element [2]: 11
Element [3]: 6354
Element [4]: 335
Element [5]: 24
Element [6]: 433
Element [7]: 123
Element [8]: 134
Element [9]: 82
Element [10]: 185
Element [11]: 568
--- Code Execution Successful ---
```

//*****QUESTION#3*****

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    int size;
```

```
    cout << "Enter the size of the array: ";
```

```
    cin >> size;
```

```
    int* array = new int[size];
```

```
    cout << "Enter elements of the array: " << endl;
```

```
    for (int i = 0; i < size; i++) {
```

```
        cout << "Element [" << i << "]: ";
```

```
        cin >> array[i];
```

```
    }
```

```
int item;

cout << "Enter the item to search for: ";
cin >> item;

bool found = false;
for (int i = 0; i < size; i++) {
    if (array[i] == item) {
        found = true; // item is found
        cout << "Item found at index: " << i << endl;
        break;
    }
}

if (found == false) {
    cout << "Item not found in the array." << endl; // output if not found
}

delete[] array;
return 0;
}
```

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main.cpp

```
1 int main() {
2     int size; // variable to hold the size of the array
3     cout << "Enter the size of the array: ";
4     cin >> size; // user inputs the size of the array
5
6     int* array = new int[size]; // dynamic allocation for the array
7     cout << "Enter elements of the array: " << endl;
8
9     // Loop to get input for each element of the array
10    for (int i = 0; i < size; i++) { // note: using i instead of ++i
11        cout << "Element [" << i << "]: ";
12        cin >> array[i]; // storing input in the array
13    }
14
15    int item; // variable to hold the item to search for
16    cout << "Enter the item to search for: ";
17    cin >> item; // user inputs the item to search
18
19    bool found = false; // flag to check if item is found
20
21    // Loop through the array to search for the item
22    for (int i = 0; i < size; i++) {
23        if (array[i] == item) { // check if current element matches item
24            found = true; // item is found
25            cout << "Item found at index: " << i << endl; // output index
26            break; // exit the loop since we found the item
27        }
28    }
29
30    // If the item was not found, output a message
31    if (!found) {
32        cout << "Item not found in the array." << endl; // output if not found
33    }
34
35    delete[] array; // deallocate memory for the array
36    return 0; // end of the program
37 }
```

Output

Clear

```
Enter the size of the array: 12
Enter elements of the array:
Element [0]: 2
Element [1]: 1
Element [2]: 2
Element [3]: 1
Element [4]: 43
Element [5]: 33
Element [6]: 1
Element [7]: 65
Element [8]: 23
Element [9]: 43
Element [10]: 645
Element [11]: 656
Enter the item to search for: 2
Item found at index: 0

--- Code Execution Successful ---
```

Sunny

Search

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