

LAB TASK (week-2)

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Question #1

```
#include <iostream>
```

```
using namespace std;
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
const int NUM_STUDENTS = 10;
```

```
int ages[NUM_STUDENTS];
```

```
// Input ages of 10 students
```

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

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

```
        cout << "Age of student " << (i + 1) << ": ";
cin >> ages[i];
    }

    // Find the largest age
    int maxAge = ages[0];
    for (int i = 1; i < NUM_STUDENTS; ++i)
    {
        if (ages[i] > maxAge) {
            maxAge = ages[i];
        }
    }

    // Display the largest age
    cout << "The largest age among the students is: " <<
maxAge << endl;

    return 0;
}
```

Question #2

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
int size;
```

```
    // Input the size of the arrays    cout  
<< "Enter the size of the arrays: ";    cin  
>> size;
```

```
    // Dynamically allocate memory for the  
arrays    int* array1 = new int[size];    int*  
array2 = new int[size];    int* array3 = new  
int[size];    int* sumArray = new int[size];
```

```
    // Input data for the first array  
    cout << "Enter " << size << " elements for the first array:" <<  
endl;    for (int i = 0; i < size; ++i) {        cout << "Element " << (i + 1)  
<< ": ";        cin >> array1[i];  
  
    }
```

```
// Input data for the second array

cout << "Enter " << size << " elements for the second array:" <<
endl;  for (int i = 0; i < size; ++i) {      cout << "Element " << (i + 1) <<
": ";    cin >> array2[i];
}
```

```
// Input data for the third array

cout << "Enter " << size << " elements for the third array:" <<
endl;  for (int i = 0; i < size; ++i) {      cout << "Element " << (i + 1)
<< ": ";    cin >> array3[i];
}
```

```
// Calculate the sum of the three arrays

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

```
// Display the result

cout << "The result of adding the three arrays is:" << endl;
for (int i = 0; i < size; ++i) {
    cout << "Element " << (i + 1) << ": " << sumArray[i] << endl;
}
```

```
}

// Free dynamically allocated
memory delete[] array1; delete[]
array2; delete[] array3; delete[]
sumArray;

return 0;
}
```

Question #3

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

int main() {
    int size; //
    Input the size
    of the array

    cout << "Enter the number of elements in the array: ";
    cin >> size;
```

```

    // Dynamically allocate memory for the array
    int* array = new int[size];

    // Input data for the array
    cout << "Enter " << size << " elements:" <<
endl;    for (int i = 0; i < size; ++i) {        cout <<
"Element " << (i + 1) << ": ";        cin >> array[i];
    }

    // Input the item to search for
    int item;

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

    // Perform linear search
    bool found = false;    for
(int i = 0; i < size; ++i) {
    if (array[i] == item) {

        cout << "Item " << item << " found at index " << i << "." <<
endl;        found = true;        break;
    }
}

```

```
}
```

```
if (!found) {
```

```
    cout << "Item " << item << " not found in the array." << endl;
```

```
}
```

```
// Free dynamically allocated memory
```

```
delete[] array;
```

```
return 0;
```

```
}
```