

LAB TASK (week-2)

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Question #1

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

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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;  
}
```