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Manual 8 hometasks

1. Take an array and find the most repeated element in that array.

```
#include <iostream>

using namespace std;

int main() {

    int arr[] = {1, 2, 3, 2, 2, 3, 4, 5, 2, 2, 3, 3, 3};

    int n = sizeof(arr) / sizeof(arr[0]);

    int mostRepeated = arr[0];

    int maxCount = 0;

    for (int i = 0; i < n; ++i) {

        int currentCount = 1;

        for (int j = i + 1; j < n; ++j) {

            if (arr[i] == arr[j]) {

                ++currentCount;

            }

        }

        if (currentCount > maxCount) {

            maxCount = currentCount;

            mostRepeated = arr[i];

        }

    }

    cout << "The most repeated element in the array is: " << mostRepeated << endl;

    return 0;
```

```
}
```

A screenshot of a C++ program's output. On the left, a portion of the source code is visible, showing a closing curly brace and a line with the number 3. On the right, the program's output is displayed: "/tmp/ofJ0tIrC1H.o" followed by "The most repeated element in the array is: 2".

```
}  
3, 3};  
/tmp/ofJ0tIrC1H.o  
The most repeated element in the array is: 2
```

Let's say an array is `a[8] = {13, 15, 17, 9, 99, 77, 65, 43}`. Find largest and smallest element.

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    int a[8] = {13, 15, 17, 9, 99, 77, 65, 43};
```

```
    int n = sizeof(a) / sizeof(a[0]);
```

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

```
    int smallest = a[0];
```

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

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

```
            largest = a[i];
```

```
        }
```

```
        if (a[i] < smallest) {
```

```
            smallest = a[i];
```

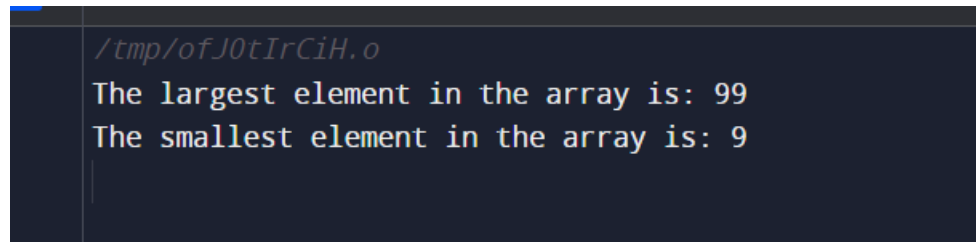
```
        }
```

```
    }
```

```
  
    cout << "The largest element in the array is: " << largest << endl;
```

```
    cout << "The smallest element in the array is: " << smallest << endl;
```

```
    return 0;
}
```

A terminal window with a dark background and light blue text. The prompt is `/tmp/ofJ0tIrCiH.o`. The output consists of two lines: `The largest element in the array is: 99` and `The smallest element in the array is: 9`.

```
/tmp/ofJ0tIrCiH.o
The largest element in the array is: 99
The smallest element in the array is: 9
```

Develop a program that takes 5 array elements from user. Swap position [2] element with position [4] element.

```
#include <iostream>
```

```
int main() {
```

```
    int arr[5];
```

```
    // Taking 5 array elements as input from the user
```

```
    std::cout << "Enter 5 elements for the array: " << std::endl;
```

```
    for (int i = 0; i < 5; ++i) {
```

```
        std::cout << "Enter element " << i + 1 << ": ";
```

```
        std::cin >> arr[i];
```

```
    }
```

```
    // Displaying the original array
```

```
    std::cout << "Original array: ";
```

```
    for (int i = 0; i < 5; ++i) {
```

```
        std::cout << arr[i] << " ";
```

```
    }
```

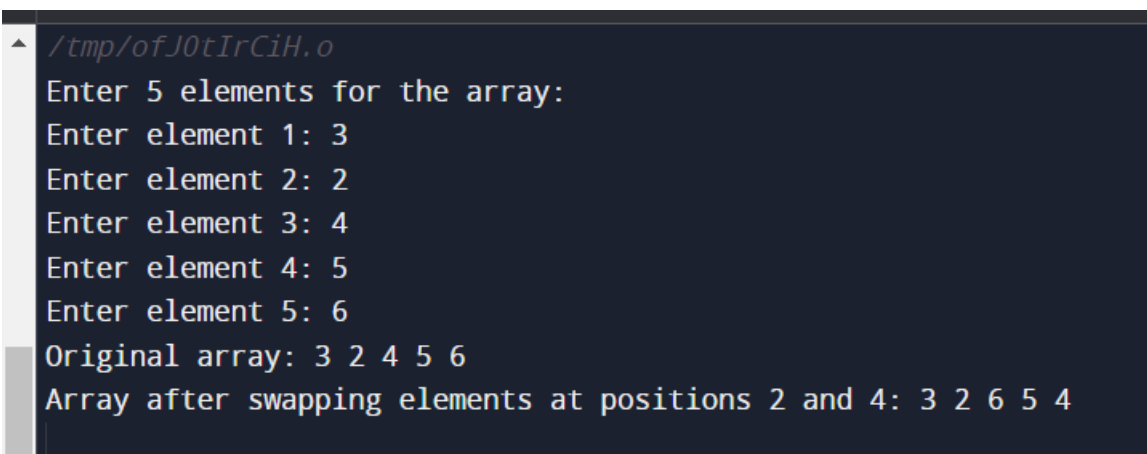
```
    std::cout << std::endl;
```

```
    // Swapping elements at positions 2 and 4 (0-indexed)
```

```
    if (2 < 5 && 4 < 5) { // Check if positions are within array bounds
```

```
        int temp = arr[2];
```

```
arr[2] = arr[4];  
arr[4] = temp;  
  
// Displaying the array after swapping  
std::cout << "Array after swapping elements at positions 2 and 4: ";  
for (int i = 0; i < 5; ++i) {  
    std::cout << arr[i] << " ";  
}  
std::cout << std::endl;  
} else {  
    std::cout << "Positions are out of array bounds."
```

A terminal window with a dark background and light-colored text. The prompt is `/tmp/ofJ0tIrCiH.o`. The program prompts the user to enter 5 elements for an array. The user enters 3, 2, 4, 5, and 6. The program then displays the original array as `3 2 4 5 6` and the array after swapping elements at positions 2 and 4 as `3 2 6 5 4`.

```
^ /tmp/ofJ0tIrCiH.o  
Enter 5 elements for the array:  
Enter element 1: 3  
Enter element 2: 2  
Enter element 3: 4  
Enter element 4: 5  
Enter element 5: 6  
Original array: 3 2 4 5 6  
Array after swapping elements at positions 2 and 4: 3 2 6 5 4
```