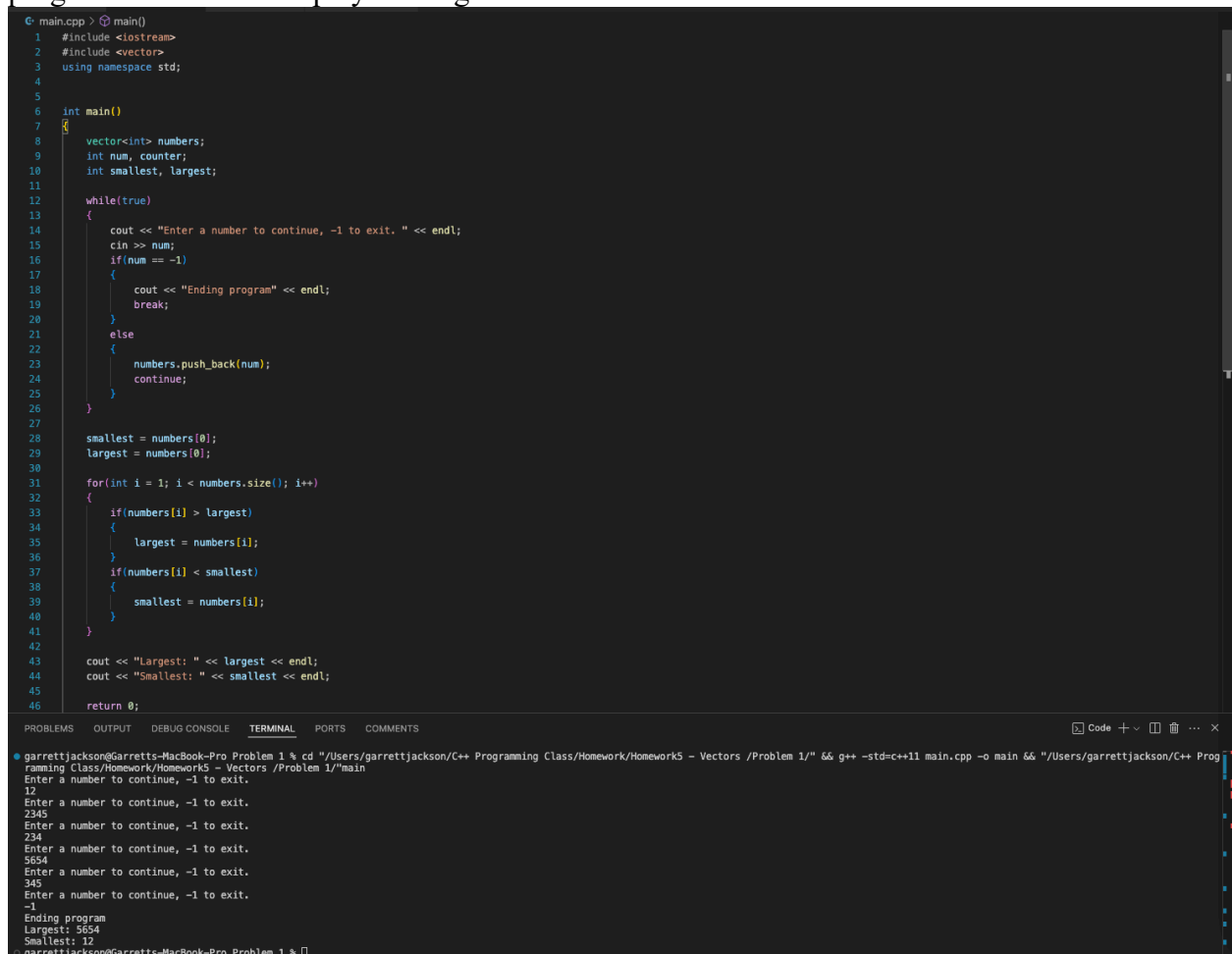


## 1. Largest/Smallest Array Values

Write a program that lets the user enter values into a vector until the user introduces -1. The program should then display the largest and smallest values stored in the vector.



```
1 #include <iostream>
2 #include <vector>
3 using namespace std;
4
5
6 int main()
7 {
8     vector<int> numbers;
9     int num, counter;
10    int smallest, largest;
11
12    while(true)
13    {
14        cout << "Enter a number to continue, -1 to exit. " << endl;
15        cin >> num;
16        if(num == -1)
17        {
18            cout << "Ending program" << endl;
19            break;
20        }
21        else
22        {
23            numbers.push_back(num);
24            continue;
25        }
26    }
27
28    smallest = numbers[0];
29    largest = numbers[0];
30
31    for(int i = 1; i < numbers.size(); i++)
32    {
33        if(numbers[i] > largest)
34        {
35            largest = numbers[i];
36        }
37        if(numbers[i] < smallest)
38        {
39            smallest = numbers[i];
40        }
41    }
42
43    cout << "Largest: " << largest << endl;
44    cout << "Smallest: " << smallest << endl;
45
46    return 0;
47 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS

```
garrettjackson@Garretts-MacBook-Pro Problem 1 % cd "/Users/garrettjackson/C++ Programming Class/Homework/Homework5 - Vectors /Problem 1/" && g++ -std=c++11 main.cpp -o main && "/Users/garrettjackson/C++ Prog
ramming Class/Homework/Homework5 - Vectors /Problem 1/"main
Enter a number to continue, -1 to exit.
12
Enter a number to continue, -1 to exit.
2345
Enter a number to continue, -1 to exit.
234
Enter a number to continue, -1 to exit.
5654
Enter a number to continue, -1 to exit.
345
Enter a number to continue, -1 to exit.
-1
Ending program
Largest: 5654
Smallest: 12
garrettjackson@Garretts-MacBook-Pro Problem 1 %
```

```
#include <iostream>
```

```
#include <vector>
```

```
using namespace std;
```

```
int main()
```

```

{

vector<int> numbers;

int num, counter;

int smallest, largest;


while(true)

{

    cout << "Enter a number to continue, -1 to exit. " << endl;

    cin >> num;

    if(num == -1)

    {

        cout << "Ending program" << endl;

        break;

    }

    else

    {

        numbers.push_back(num);

        continue;

    }

}


smallest = numbers[0];

largest = numbers[0];

```

```

for(int i = 1; i < numbers.size(); i++)
{
    if(numbers[i] > largest)
    {
        largest = numbers[i];
    }
    if(numbers[i] < smallest)
    {
        smallest = numbers[i];
    }
}

cout << "Largest: " << largest << endl;

cout << "Smallest: " << smallest << endl;

return 0;
}

```

## 2. Larger Than n

In a program, write a function that accepts three arguments: a vector, and a number  $n$ . Assume that the vector contains integers. The function should display all of the numbers in the vector that are greater than the number  $n$ . Do not pass the size of the vector.

The screenshot shows a C++ IDE with a file named `main.cpp`. The code defines a function `largerThan` that takes a vector of integers and an integer `n`. It iterates through the vector and prints elements greater than `n`. The `main` function initializes a vector with values from 0 to 100, prompts the user for a number, and calls `largerThan`.

```
1 #include <iostream>
2 #include <vector>
3 using namespace std;
4
5 //Function prototype
6 void largerThan(vector<int> greaterThan, int n);
7
8
9 int main()
10 {
11
12
13     //Vector Array
14     vector<int> greaterThan{0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100};
15
16     int n;
17
18     cout << "Enter a number, n: ";
19     cin >> n; // Example Value
20
21     largerThan(greaterThan, n);
22
23     return 0;
24 }
25
26
27 void largerThan(vector<int> greaterThan, int n)
28 {
29     // Iterates through the vector
30     for(int i = 0; i < greaterThan.size(); i++ )
31     {
32         if(greaterThan[i] > n) // Checks each number in the vector if it's larger than n
33         {
34             cout << greaterThan[i] << endl;
35         }
36     }
37 }
38
39
```

The terminal output shows the program execution. It prompts for a number, and two examples are shown: entering 90 results in printing numbers from 90 to 100, and entering 34 results in printing numbers from 40 to 100.

```
0
10
20
30
40
50
60
70
80
90
100

● garrettjackson@Garretts-MacBook-Pro Problem 2 - Larger Than N % cd "/Users/garrettjackson/C++ Programming Class/Homework/Homework
5 - Vectors /Problem 2 - Larger Than N/" && g++ -std=c++11 main.cpp -o main && "/Users/garrettjackson/C++ Programming Class/Homew
ork/Homework5 - Vectors /Problem 2 - Larger Than N/"main
Enter a number, n: 90
100

● garrettjackson@Garretts-MacBook-Pro Problem 2 - Larger Than N % cd "/Users/garrettjackson/C++ Programming Class/Homework/Homework
5 - Vectors /Problem 2 - Larger Than N/" && g++ -std=c++11 main.cpp -o main && "/Users/garrettjackson/C++ Programming Class/Homew
ork/Homework5 - Vectors /Problem 2 - Larger Than N/"main
Enter a number, n: 34
40
50
60
70
80
90
100

○ garrettjackson@Garretts-MacBook-Pro Problem 2 - Larger Than N %
```

#include <iostream>

#include <vector>

```
using namespace std;
```

```
//Function prototype
```

```
void largerThan(vector<int> greaterThan, int n);
```

```
int main()
```

```
{
```

```
    //Vector Array
```

```
    vector<int> greaterThan{0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100};
```

```
    int n;
```

```
    cout << "Enter a number, n: ";
```

```
    cin >> n; // Example Value
```

```
    largerThan(greaterThan, n);
```

```
    return 0;
```

```
}
```

```
void largerThan(vector<int> greaterThan, int n)
{
    // Iterates through the vector
    for(int i = 0; i < greaterThan.size(); i++ )
    {
        if(greaterThan[i] > n) // Checks each number in the vector if it's larger than n
        {

            cout << greaterThan[i] << endl;

        }
    }
}
```