Assignment 1

Lab Explanation

The requirements for this assignment was to create a program that would print out a triangle based on the given input of height.

Code

```cpp
#include <iostream>
using std::cout, std::cin;

int main() {
  int height;

  cin >> height;

  for(unsigned int i = height; i > 0; --i) {
    for(unsigned int j = 0; j < i; ++j) {
      cout << "* ";
    }
    cout << '\n';
  }

  return 0;
}
```

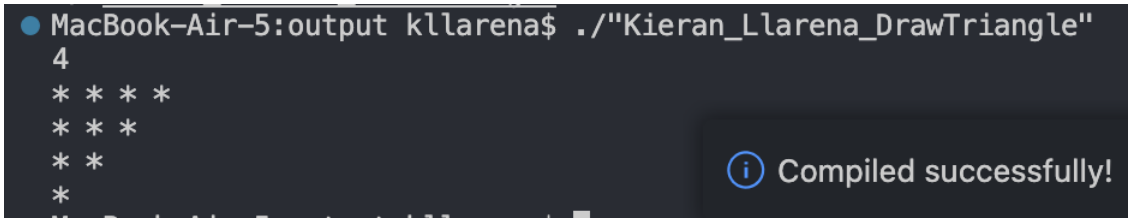
In my program, I used a nested for loop. The outside loop was in charge of handling the rows and the inside loop was in charge of handling the columns. Additionally, I decided to only use std::cout and std::cin instead of the entire std library to save memory and increase the speed of the application. I also decided to use '\n' instead of std::endl to increase the speed of the application as well.

Test 1

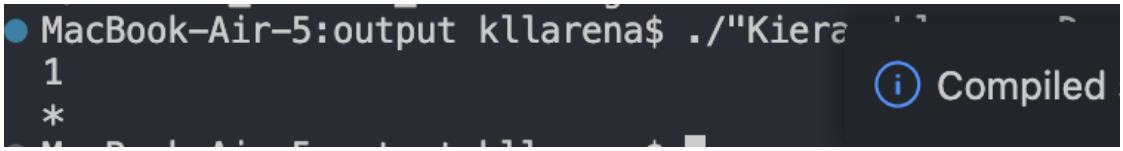
```
MacBook-Air-5:output kllarena$ ./"Kieran_Llarena_DrawTriangle"
3
* * *
* *
*
```

Compiled successfully!

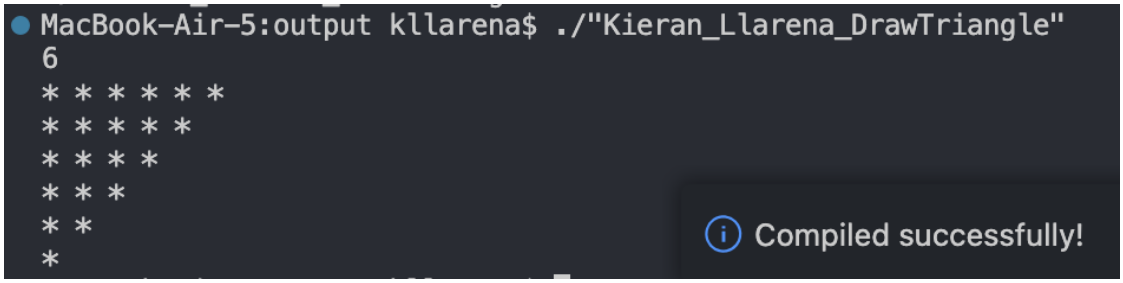
Test 2


MacBook-Air-5:output kllarena$ ./"Kieran_Llarena_DrawTriangle"
4
* * * *
* * *
* *
*
Compiled successfully!

Test 3


MacBook-Air-5:output kllarena$ ./"Kiera
1
*
Compiled

Test 4

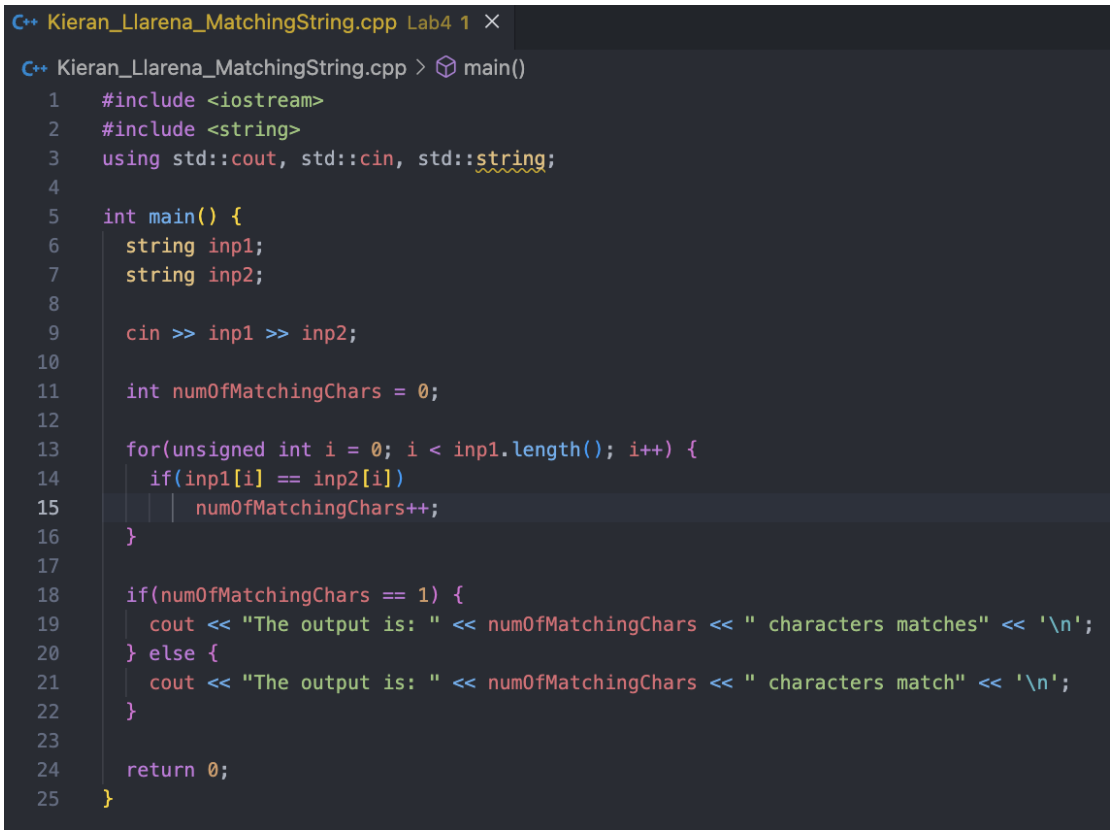

MacBook-Air-5:output kllarena$ ./"Kieran_Llarena_DrawTriangle"
6
* * * * * *
* * * * *
* * * *
* * *
* *
*
Compiled successfully!

Assignment 2

Lab Explanation

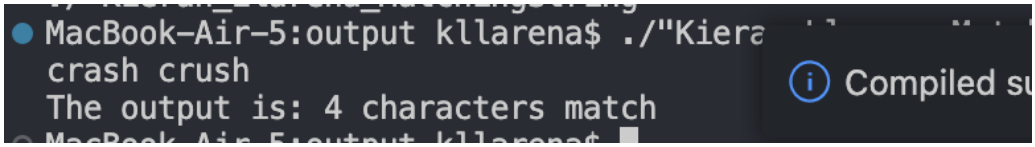
The requirements for this assignment were to create a program that would output the number of matching characters in two inputted strings.

Code

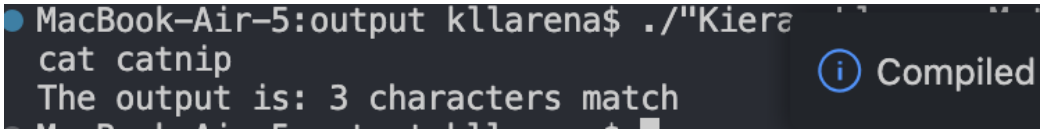


I used a nested loop to iterate through the first inputted string and then compare each individual character to each individual character in the second inputted string. If a character matched, then a variable that was created to keep track of the number of matching characters would be incremented. Additionally, I decided to only use std::cout and std::cin instead of the entire std library to save memory and increase the speed of the application. I also decided to use ‘\n’ instead of std::endl to increase the speed of the application as well.

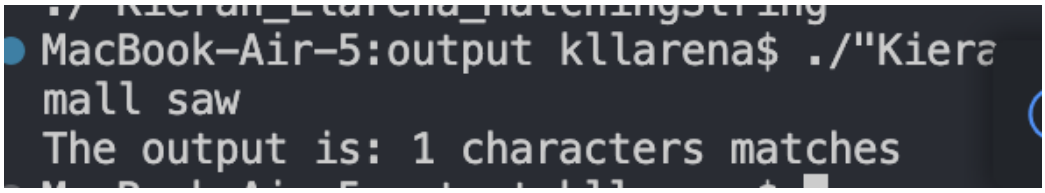
Test 1



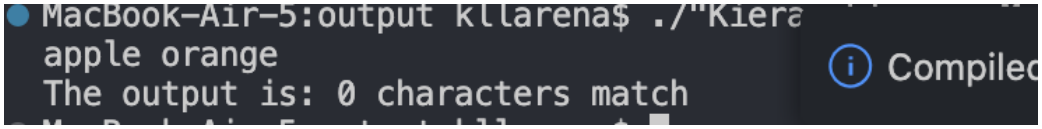
Test 2



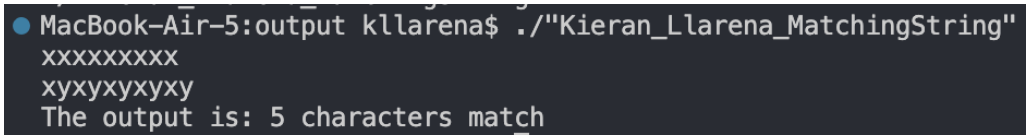
Test 3



Test 4



Test 5



Assignment 3

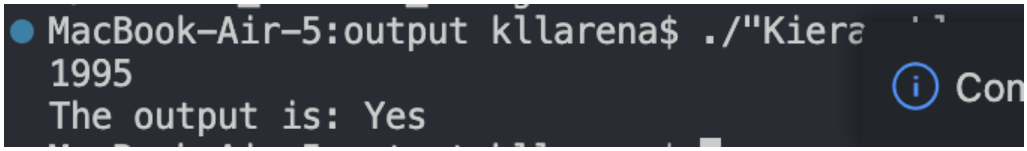
Lab Explanation

The requirements for this assignment were to create a program that would output if every character was a digit.

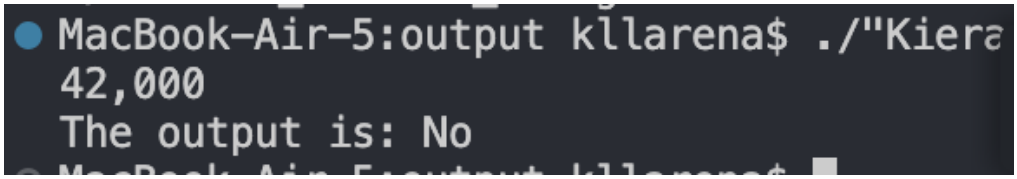
Code

I created a for loop that would iterate through each character in an inputted string and test if it was a digit. If the character was not a digit, then a variable would be incremented causing the program to output “No”. Additionally, I decided to only use std::cout and std::cin instead of the entire std library to save memory and increase the speed of the application. I also decided to use ‘\n’ instead of std::endl to increase the speed of the application as well.

Test 1



Test 2



Test 3

```
MacBook-Air-5:output kllarena$ ./"Kiera
2001!
The output is: No
```

Test 4

```
MacBook-Air-5:output kllarena$ ./"Kiera
938751
The output is: Yes
```

Test 5

```
MacBook-Air-5:output kllarena$ ./"Kiera
-1995
The output is: No
```

Test 6

```
MacBook-Air-5:output kllarena$ ./"Kiera
32.45
The output is: No
```