Recursion

Lab Assignment 1: Drawing an upside down triangle

Write a recursive function called **DrawTriangle()** that outputs lines of '' to form an upside down isosceles triangle. Function **DrawTriangle()** has one parameter, an integer representing the base length of the triangle. Assume the base length is always odd and less than 20. Output 9 spaces before the first " on the last line for correct formatting.

Hint: The number of '*' decreases by 2 for every line drawn.

```
Ex. If the input is:
```

```
In [ ]:
         the function DrawTriangle() outputs:
```

```
In [
          Ex: If the input of the program is:
```

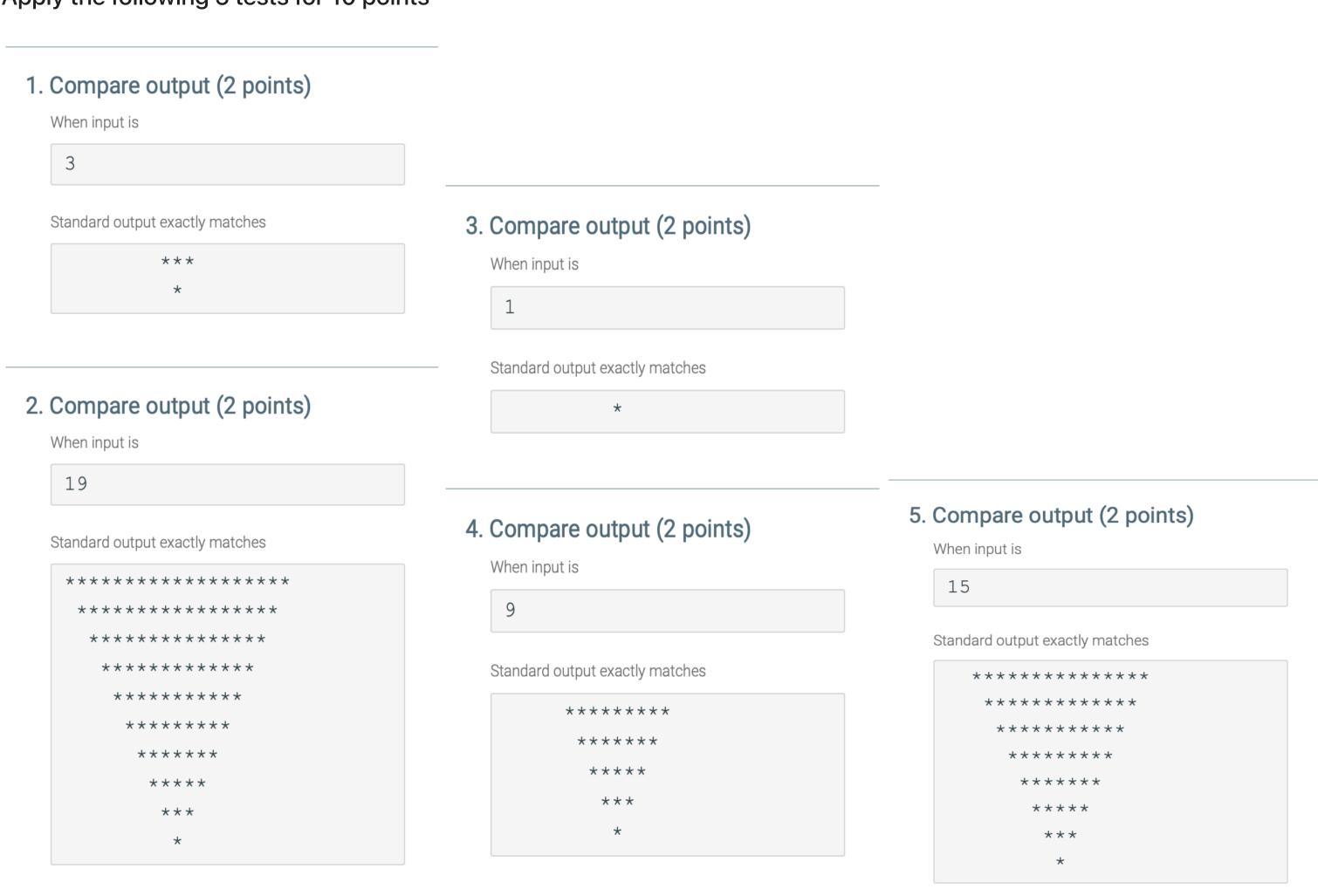
```
In [ ]:
```

Note: No space is output before the first '*' on the first line when the base length is 19.

```
main.cpp
 1 #include <iostream>
  using namespace std;
   /* TODO: Write recursive DrawTriangle() function here. */
 5
 7 int main() {
      int baseLength;
10
      cin >> baseLength;
      DrawTriangle(baseLength);
11
12
      return 0;
13 }
```

Assignment 1 Tests:

Apply the following 5 tests for 10 points



Lab Assignment 2: Reverse a string

Write a recursive function called **ReverseString()** that takes in a string as a parameter and returns the string in reversed order. The main function is provided to read a string from the user and call the ReverseString() function.

Ex: If the input of the program is:

```
In [ ]:
           Hello
         the ReverseString() function returns and the program outputs:
```

```
In [
          Reverse of "Hello" is "olleH".
         Ex: If the input of the program is:
```

Hello, world!

```
the ReverseString() function returns and the program outputs:
In [ ]:
          Reverse of "Hello, world!" is "!dlrow ,olleH".
                                                             main.cpp
            1 #include <iostream>
            2 using namespace std;
            4 /* TODO: Write recursive ReverseString() function here. */
            6 int main() {
                 string input, result;
            9
                 getline(cin, input);
           10
                 result = ReverseString(input);
                 cout << "Reverse of \"" << input << "\" is \"" << result << "\"." << endl;</pre>
           11
          12
          13
                 return 0;
```

Assignment 2 Tests:

14 }

In [

Apply the following 2 tests for 4 points

```
1. Compare output (2 points)
  When input is
   Hello
  Standard output exactly matches
   Reverse of "Hello" is "olleH".
2. Compare output (2 points)
  When input is
   Hello, world!
  Standard output exactly matches
   Reverse of "Hello, world!" is "!dlrow ,olleH".
```

Submissions Note: Do not forget to submit the assignment and its corresponding test outputs to receive full credit.

- 1. Name your C++ files FirstName_Lastname_Draw_Triangle.cpp and FirstName_Lastname_Reservse_String.cpp.
- 2. Prepare your report in docx or pdf format and name it Firstname_Lastname.docx or Firstname_Lastname.pdf. 3. Add the screenshot of your codes to the report and provide a description for them. All tests should be performed and the result screenshot be included in the report.