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C:\Users\brend\Desktop\CS 150 Workspace\HW_02.cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
HW_02.cpp
001 /*
002 Name : Brendan Kirby
003 Course : CS 150 - C++ I
004 HW : 02
005 Project : 1
006
007 Algorithm:
008
009 Open write stream to target file
010
011 DO
012 Read user input for height of triangle
013
014 IF input is between bounds THEN
015 - input is valid
016 - draw triangle
017 ELSE
018 - input is not valid
019 - print error message
020 END IF
021 WHILE input is not valid
022
023 Close write stream to target file
024
025 Print confirmation that write was completed
026 */
027
028 #include <iostream>
029 #include <fstream>
030
031 int main() {
032 //declaration & initialization
033 int height = 0;
034 int doubleHeight = 0;
035 bool isValid = true;
036 std::string fileName = "Triangle.txt";
037 std::ofstream fout;
038
039 //open filestream to write file
040 fout.open(fileName.c_str());
041
042 //error checking input for lower and upper bounds
043 do {
044
045 //input
046 std::cout << "Enter an integer between 1 and 50 as the height of your triangle: ";
047 std::cin >> height;
048 std::cout << "\n";
049
050 if (height > 0 && height < 51) {
051
052 isValid = true;
053 std::cout << "writing triangle of height " << height << " to file " << fileName << ". . .";
054 std::cout << "\n";
055
056 doubleHeight = height * 2;
057
```

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(globals)

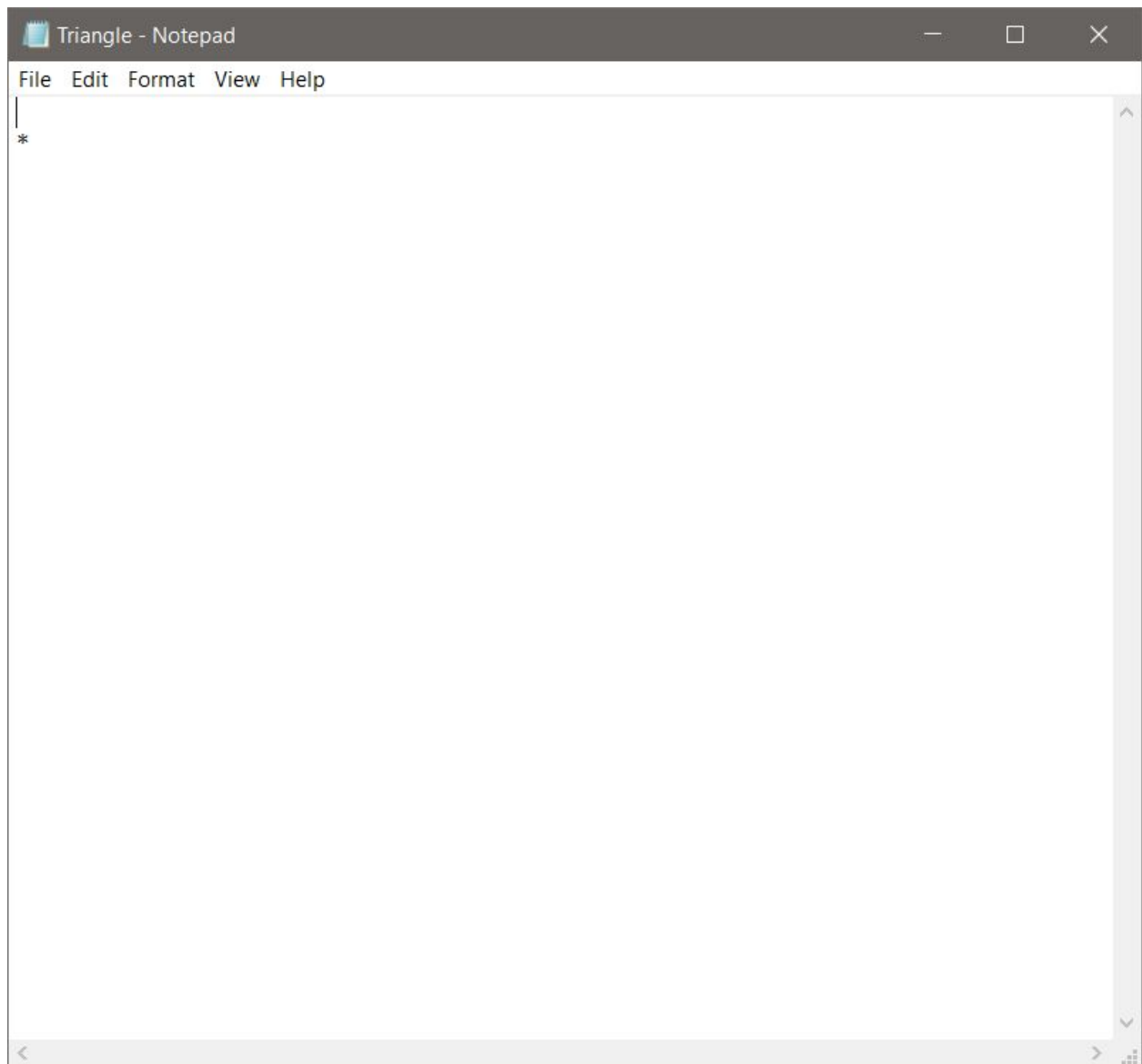
HW\_02.cpp

```
058
059 //drawing first half of triangle, up to and including the central, tallest
060 //line of length equal to the user supplied value of height
061 for (int i = 0; i <= height; i++) {
062     for (int j = 0; j < i; j++) {
063         fout << "*";
064     }
065     fout << "\n";
066 }
067
068 //drawing the second half of triangle, beginning at one row past the
069 //center and continuing down the slope to zero
070 for (int i = (height - 1); i > 0; i--) {
071     for (int j = i; j > 0; j--) {
072         fout << "*";
073     }
074     fout << "\n";
075 }
076
077 else { //input was not between 1 and 50 (inclusive)
078     isValid = true;
079     std::cout << "Integer out of bounds, try again.\n\n";
080 }
081
082 } while (isValid);
083
084 //close filestream to write file
085 fout.close();
086
087 //confirm write completion
088 std::cout << "\nDone writing to " << fileName << ".\n\n";
089
090 system("PAUSE");
091
092 return 0;
093 }
```

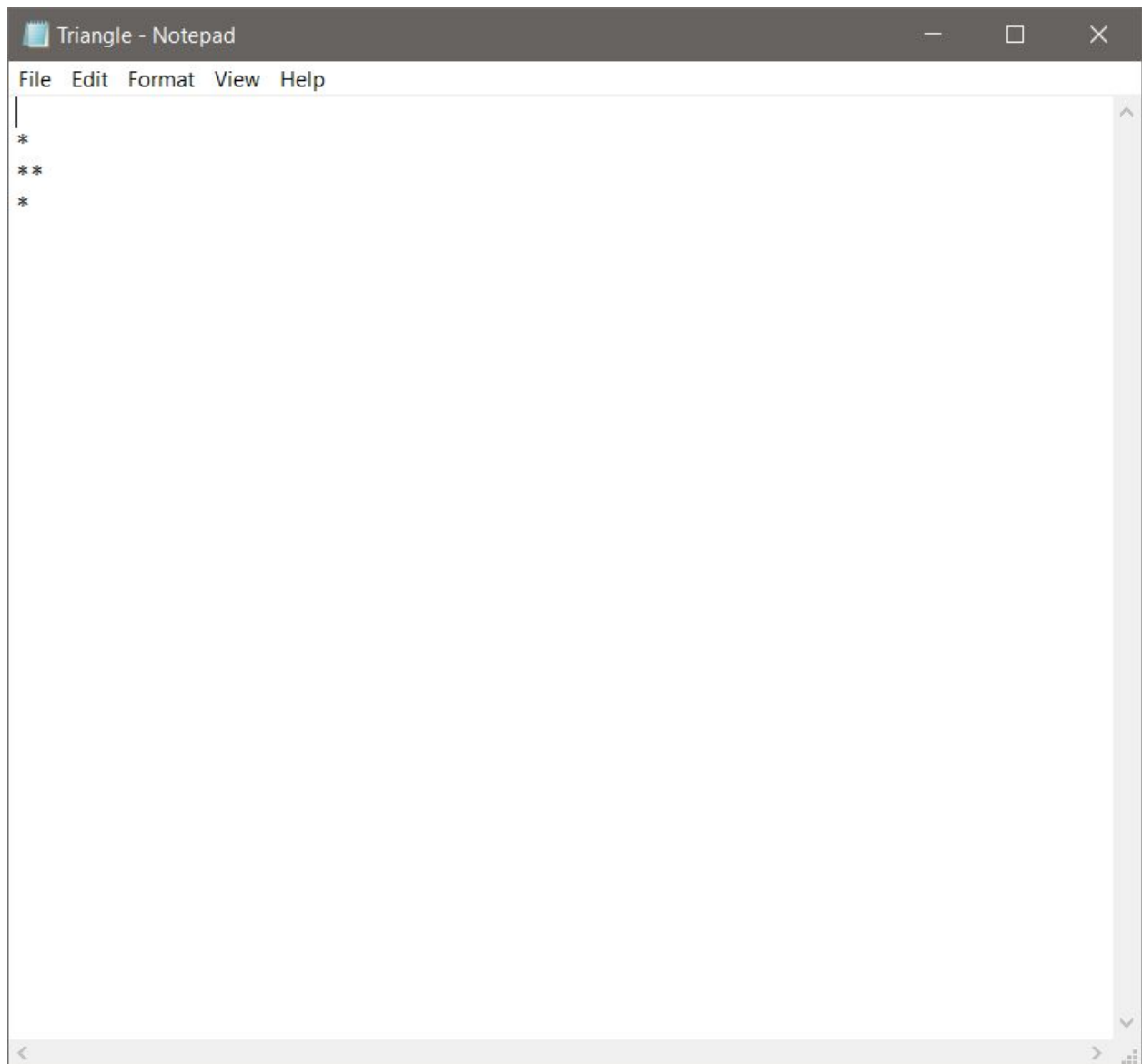
Compiler Resources Compile Log Debug Find Results

Line: 1 Col: 1 Sel: 0 Line: 100 Length: 2130 Insert

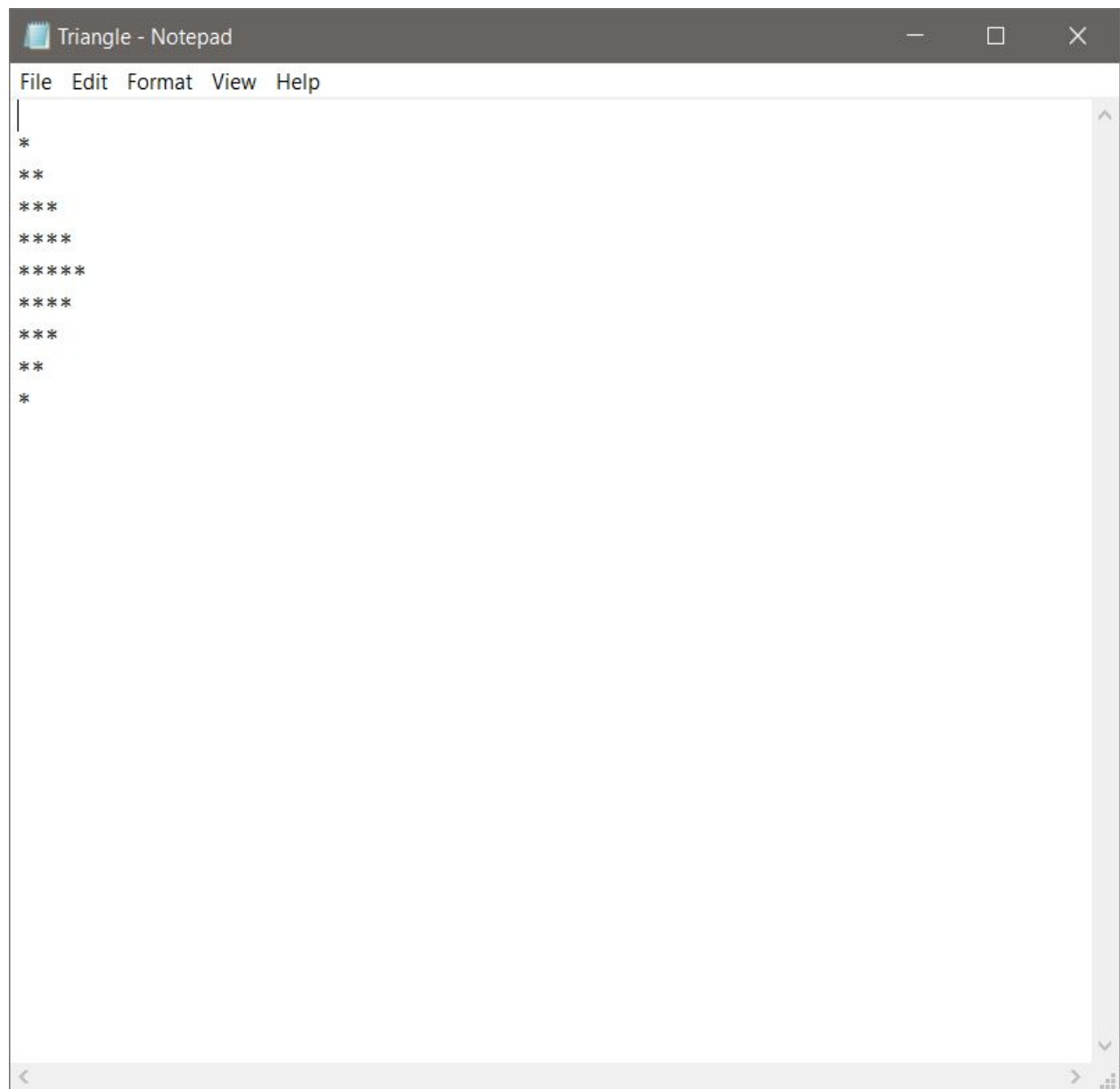
**Run case : user entered 1**



**Run case : user entered 2**



**Run case : user entered 5**



The image shows a Notepad window titled "Triangle - Notepad". The window has a menu bar with "File", "Edit", "Format", "View", and "Help". The text area contains a pattern of asterisks (\*) arranged in a triangle. The pattern consists of 10 lines of text:

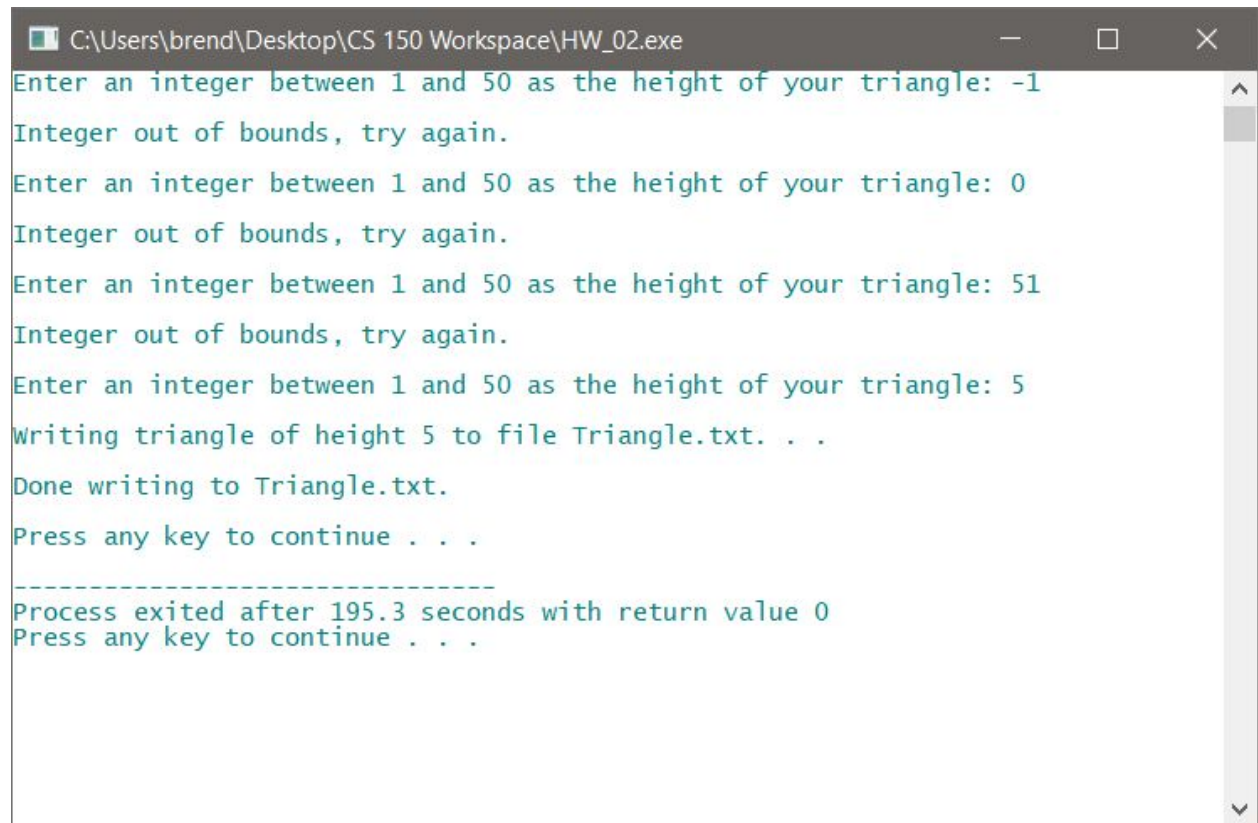
```
*  
* *  
* * *  
* * * *  
* * * * *  
* * * * *  
* * * * *  
* * * *  
* * *  
* *  
*
```

The pattern is a right-angled triangle with 10 rows. The first row has 1 asterisk, the second row has 2, the third has 3, the fourth has 4, the fifth has 5, the sixth has 5, the seventh has 4, the eighth has 3, the ninth has 2, and the tenth has 1. The window has a scrollbar on the right side, and the status bar at the bottom shows the file name "Triangle - Notepad".

**Run case : user entered 10**

[illegible]

**Run case : user entered -1, 0, or 51 (invalid values), then 5 (valid value)**



```
C:\Users\brend\Desktop\CS 150 Workspace\HW_02.exe
Enter an integer between 1 and 50 as the height of your triangle: -1
Integer out of bounds, try again.
Enter an integer between 1 and 50 as the height of your triangle: 0
Integer out of bounds, try again.
Enter an integer between 1 and 50 as the height of your triangle: 51
Integer out of bounds, try again.
Enter an integer between 1 and 50 as the height of your triangle: 5
Writing triangle of height 5 to file Triangle.txt. . .
Done writing to Triangle.txt.
Press any key to continue . . .

-----
Process exited after 195.3 seconds with return value 0
Press any key to continue . . .
```