assgn1_D1228817

Designing the roof of the house:

For the roof of the house, I designed it in three separate parts, which are the topmost layer, the middle layers and the bottommost layer. The topmost layer is created using a for loop that prints out “#” for 40 times (value of r_top). The middle layers are created using an outer for loop and an inner for loop. The outer for loop controls the switching of layers. it will stop as it is executed for 16 times (value of r_side). Besides that, r_top increases by two every time the loop is run to account for the increase in width of each layer. The inner for loop on the other hand prints out the boundary points and interior points of the roof. The loop will be executed r_top+2 times because the width of the roof (r_top) does not take into account the two boundary points on each layer. To print the boundaries on either side of the layer, and print the interior points in the middle, conditional statements are used. If the for loop is printing the first or last character of the layer, “#” will be printed out. Otherwise, “*” will be printed. The bottommost layer of the roof is created using a for loop that will print out ”#” for 72 times (r_bottom). To make sure the roof is symmetrical, a triangle created using spaces with similar methods to the roof is printed out on the left hand side of the roof.

Designing the body of the house:

The body of the house is basically built using a for loop and several conditional statements within a for loop. The outer for loop controls the change of layers. It will run for h_height+4 times (the thickness of the ceiling and floor takes up 4 layers in total). The inner for loop centers the body of the house by printing out spaces on its left. Spaces will be printed out (r_bottom-(h_width+4))/2 times for each layer (width of the roof bottom minus the total width of the body divided by two is the space where the roof is longer than the body on either side of the house). The conditional statements are used to determine what characters to print for each layer. For example, while printing the first ten layers of the interior, only spaces will be printed out. However, starting from the 11th to 28th layer, the symbols representing the windows and door will also be printed.

Problems encountered:

I did not not encounter much difficulty during most of my time working on this assignment, since I have learned a bit of C programming before. However, I encountered a huge problem when I had to change the design of the program from requiring inputs from the user to not needing it. For some reason, the program would generate the house randomly even though there was nothing I could find that might have caused this. In the end, I realized that it was most likely DEV C++’s problem,

for when my program is run on another IDE, it was able to generate the house successfully.