Exercise: Boxes

Functions

This exercise is designed to give you experience in creating and using functions to make your programs more organized. You will also need to ask the user for input, repeat actions using loops, and display information for the user. If you haven’t completed the Box exercise, you should do it first.

Boxes

Your program must draw a rectangle using text output. For example, a rectangle that is 4 characters wide and 6 lines high looks like this:

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

Your program should ask the user how wide and how high to make the rectangle. Then, it should draw the rectangle.

Things You Should Know About Functions

You can group together lines of code into a function, so that you can use the code again later. For example, you can create a function to display a word repeatedly like this:

```python
def chatter(word, count):
    for i in range(count):
        print word
```

This will define a function named `chatter` that will display any `word` you give it, the number of times specified by `count`. This is an example of using the function to display `Hello` three times:

```python
chatter("Hello", 3)
```

Things You Should Know About Sending Data to a Function

The variables listed in ( ) when you define a function are called parameters. They are used so that functions can be created to solve many similar tasks. Where the details of the tasks are described by the values in the parameters.

When a function is used (or called) we must put the same number of values in ( ) as there are variables in the function definition. These values are called arguments. The values in the function call are given to the function in the order they are written.

Our `chatter` function receives two parameters, `word` and `count`. The values given to these parameters control the actual work done by the function.

In our example call to the function, we passed ("Hello" and 3) as the arguments. Since "Hello" was first, its value is given to the first parameter `word`, and the value 3 is given to `count`.

We could call the function again to get different output by sending in different values:

```python
chatter('4H', 4)
chatter('Code Club', 17)
```

Tasks:
Edit `boxes.py`, adding a function named `boxes` that receives two parameters, one for the width of a box and one for the height of a box. This function then draws a box of the specified size.

Make a the `main` function ask the user for the width and height of a box, then call the `boxes` function to draw it.

The sample box uses the `*` character to draw the rectangle, you can use whatever you want. However, spaces don’t look very impressive.

Allow the user to tell your program what character to use to display the box. You’ll need to add a value to the function call, and a parameter to the function definition. Hint: `raw_input()` will allow you to ask the user for characters instead of numbers.

Allow the user to choose filled in or outlined box drawing. Change your function so it can show the outline of a box, or fill it in. Change the function call and definition to allow this.

Make a function for drawing right triangles like the ones from the right triangle exercise. Allow the user to choose whether they want a box or a triangle.

**Download**

- [Boxes](#)