Functions – void and with parameters

Void functions

1. Write and test a `draw_box()`function to display the following.

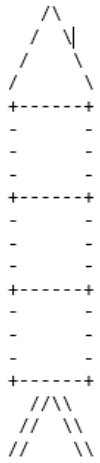
```
-       -
-       -
-       -
+------+
```

Use a **loop** to create the first three lines i.e. use a loop to write `"-  -"` three times. This will make it easier to edit later.

2. Write and test a function called `draw_shuttle()` which uses three functions

- `draw_nose()` - new[1]
- `draw_box()` – already written
- `draw_thrusters()` – new

to produce the output on the right:



Parameters and Arguments

3. Write a function to write one verse of Ten Green Bottles called `sing_verse()`.

This function should receive an integer parameter which is the number of bottles. Test it.

For example, if a function is called with the argument 10 as follows:

```
sing_verse(10)
```

it should display

```
10 green bottles hanging on the wall,
10 green bottles hanging on the wall,
And if one green bottle should accidentally fall,
There'll be 9 green bottles hanging on the wall.
```

Use `sing_verse()` in `main()` to write code to display the full lyrics of the song.

Note: You will need a special function for the last verse and *may* need a special function for the second last verse.

Refer: https://en.wikipedia.org/wiki/Ten_Green_Bottles

[1] Recall you must using print("\\") to write one backslash.

4. Write functions for the following:

hair	Draw lines of #### to represent hair. `draw_hair(2)` should result in output of 2 lines of '####' `####` `####`

eyes	Draw eyes either **with or without eyebrows** depending on a boolean parameter.
	
	`draw_eyes(False)` should result in output of
	`@ @`
	
	`draw_eyes(True)` should result in output of
	`----`
	`@ @`

nose	Draw a nose by printing a character passed to it twice. **`draw_nose('|')`** should result in output of `||`
mouth	Draw equal signs for the mouth**.** **`draw_mouth(4)`** should result in output of `====`

Create the face on the right using these functions:

```
def main():
    draw_hair(2)
    draw_eyes(False)
    draw_nose("¦")
    draw_mouth(4)
```

```
####
####
@   @
 ¦¦
====
```

Files

5. Write a function that receives the name of a file, and displays on the screen a copy of that file.

   Recall:

```
source_file = open(filename)     # opens a reading connection to a file
contents = source_file.read()    # returns the contents of the file.
```

6. Add a function that displays the contents of the file in uppercase
7. Add a function that displays the content of the file in reverse

Complete in lab or for homework

1. Write a function called `countdown()` to display a count down from 10 to 1 finishing with "Blast Off!"

   ```
   10 9 8 7 6 5 4 3 2 1 Blast Off!
   ```

2. Modify the function so that it always expects a number and uses this as the starting number for you loop

   ```
   countdown(5)     // 5 4 3 2 1 Blast Off!
   countdown(7)     // 7 6 5 4 3 2 1 Blast Off!
   ```

3. CHALLENGE – TWO PARAMETERS - Modify the function so that it always expects two numbers - one to know where to start and one to know where to end.
   - If the end is 1 print "Blast Off!".
   - If the end is not 1, print 'Mission Aborted'.

   ```
   countdown(20,9)
   20 19 18 17 16 15 14 13 12 11 10 9 Mission Aborted!
   countdown(5,1)
   5 4 3 2 1 Blast Off!
   ```

4. Write a Python function named triangle() that receives a positive integer value n and that prints an triangular pattern of asterisks of \height" n e.g.

   ```
   *
   **
   ***
   ****
   *****
   ```
   for n = 5.