

Tasks:

1. Create one file called **lab02.py**. Don't forget comments (at the very least with your name and lab#) – this is the last time I'll remind you 😊
2. Break your program into 3 parts – label each with a comment indicating what you're doing (it's OK to paraphrase the descriptions I give):

a. part I: ASCII art

Output (using print) an ASCII art picture which is at least 8 lines of text high and includes at least two different types of escape sequences. Output your picture twice – once using a single print statement and triple-quoted strings and a second time using multiple print statements (one for each line) and single-quoted strings. Make sure the output the user sees is identical in both cases.

b. part II: calculate force

- i. Create some variables (named exactly as below) some will be entered by the user, others are hard-coded:
 1. **mass1**: Mass of the first object (in kilograms) [entered by user]
 2. **mass2**: Mass of the second object (in kilograms) [entered by user]
 3. **distance**: distance between the masses (in meters) [entered by user]
 4. **gravitational_constant**: the gravitation constant $6.67384 \times 10^{-11} \text{ m}^3\text{kg}^{-1}\text{s}^{-2}$ [hard-coded]
- ii. The program should then output the magnitude of the force (in Newtons), rounded to 5 decimal places using this formula:

$$force_magnitude = gravitational_constant * \frac{mass1 * mass2}{distance^2}$$

c. part III: HP Bar

- i. Create two variables (both should be integers entered by the user)
 1. **hp_cur**: The current number of hp
 2. **hp_max**: The maximum number of hp (you can assume this is \geq hp_cur)
- ii. Should draw a fixed-size hp bar (store the fixed size in a variable, hard-coded to 40, but make sure it will work with other sizes too, without changing the “drawing” code). Here are two separate runs of this part of the program:

```

HP Bar
=====
Enter the current hp: 10
Enter the maximum hp: 30
/-----\
|+++++++|
\-----/
HP Bar
=====
Enter the current hp: 25
Enter the maximum hp: 100
/-----\
|+++++++|
\-----/

```

Notice how there are always 40 dashes regardless of max-hp, but the number of pluses is always proportional to max-hp.

- d. At the end of your program pause (with a “Press Enter to Continue” message)
3. Submit your python file on blackboard.shawnee.edu on or before the due date.
 4. (On the back, I have the output of one complete run of the program – make sure your formatting / text match exactly)

