CIS 122 Winter 2016 Project 2
Due Monday Jan. 18, Midnight

Use **Python 3** for all projects this term.
Submit your Python 3 .py programs to Canvas.

Submit each program as a separate file.

20 points

General Hint
Look in Canvas for Files > Examples

P2_list.py 5 points

2 points
1) Create a list called **majors_list**
Assign a list of 4 to 6 majors to majors_list.
Examples
CIS, Business, Chemistry, Journalism
Digital Art, Math, Music

1 point
2) Use the **len** function to assign the length (number of items) in your **majors_list** list to the variable **n_majors**
Print the variable **n_majors** with a suitable message.

2 points
3) Create a for loop that can access each item in the **majors_list.**
The **for** loop will print each of the majors in the list.

Your output should look somewhat like this:

```
There are 4 majors in the list

Majors
Physics
Digital Art
CIS
Journalism
--------
Finished
```

P2_listadd.py 9 points

2 points
Start with an **empty** **name_list**.

2 points
Use the `input(hint)` function to ask a user for a **name or "Quit" to stop**.

3 points
While the user has not typed "Quit", use
`name_list.append(name)` to add the name to the list.

2 points
After getting all the names, **print** a list of each name in the list.

Check out Canvas > Modules > Week2 for a .pdf of code to do similar tasks. You'll need to adapt it to work with this list of friends.

Here is an example of asking for the data, then displaying the list of friends.

```
Type 'Quit' or name to add such as Jan Smith: Adriane
Type 'Quit' or name to add such as Jan Smith: Zoe
Type 'Quit' or name to add such as Jan Smith: Anna
Type 'Quit' or name to add such as Jan Smith: Morgan
Type 'Quit' or name to add such as Jan Smith: Sam
Type 'Quit' or name to add such as Jan Smith: Quit

Name list has 5 names
Adriane
Zoe
Anna
Morgan
Sam

----------
Finished
>>>
```

Bonus + 1 Sort the names before printing them.

After collecting the names, sort them before printing them.
Your results will look something like this:

```
Type 'Quit' or name to add such as Jan Smith: Adriane
Type 'Quit' or name to add such as Jan Smith: Zoe
Type 'Quit' or name to add such as Jan Smith: Anna
Type 'Quit' or name to add such as Jan Smith: Morgan
Type 'Quit' or name to add such as Jan Smith: Sam
Type 'Quit' or name to add such as Jan Smith: Quit

Name list has 5 names

Adriane
Anna
Morgan
Sam
Zoe

----------
Finished
>>>
```

Notice that the names are now in alphabetic order

P2_Spiral.py 6 points

Never *save a file called "**turtle.py**" – if you do so, turtle graphics will not work on your computer until you change the name to anything else.*

2 points
Set **pencolor** to "**red**"
Set **pensize** to **2.**
Set **speed** to '**fastest**'
Set the variable **size** to **20**
Set the variable **angle** to 360 divided by 4
The Set the variable **nudge** to **4.7** (any amount from 3 to 8 could work here)
Set the variable **bump** to **5**

1 point
Repeat the following 60 times
2 points
Draw a square with side length **size**
1 point
Turn the turtle left **nudge** degrees
Move forward **bump** units
Change **size** to be **4** units larger

Your drawing will look like this: