Tutorial 5: Sequences and Functions
Due: Friday, Feb 28

1: Moo Moo

Write a program to **efficiently** print the lyrics of the song "Old MacDonald." Your program should print the lyrics for 5 different farm animals.

Example verses:

Old MacDonald had a farm, Ee-igh, Ee-igh, Oh!
And on that farm he had a **cow**, Ee-igh, Ee-igh, Oh!
With a **moo**, **moo** here and a **moo**, **moo** there.
Here a **moo**, there a **moo**, everywhere a **moo**, **moo**.
Old MacDonald had a farm, Ee-igh, Ee-igh, Oh!

Old MacDonald had a farm, Ee-igh, Ee-igh, Oh!
And on that farm he had a **pig**, Ee-igh, Ee-igh, Oh!
With a**n oink**, **oink** here and a**n oink**, **oink** there.
Here a**n oink**, there a**n oink**, everywhere a**n oink**, **oink**.
Old MacDonald had a farm, Ee-igh, Ee-igh, Oh!

2: Password Generator

a) Write a function that generates a random 10 character password. Hint: use the random library to generate random numbers.
   The characters should be randomly selected from the following characters:
   - uppercase letters A-Z
   - lowercase letters a-z
   - numbers 0-9
   - special characters !@#$%^&*

b) Write a program that uses the function you created in part a) to save 100 passwords to the file "passwords.txt".

3: Polygon Perimeter

a) Write a function that calculates the distance between two Point objects. Hint: the line_draw.py example in the Objects and Graphics Programming Examples folder might help with this.
b) Write a function uses the function you created in part a) to find the perimeter of any Polygon object. Hint: the .getPoints() method can be used to return a list of the points used to construct the polygon.
c) Use an example polygon to show that your function in part b) works.

4: Ottawa Temperatures

a) Write a function that can convert a **list** of temperatures in Fahrenheit into a **list** of temperatures in Celsius.
b) Write a program that saves the temperature values from averageHighsOttawa.txt into a list. Use the function that you created in part a) to convert the values into degrees Celsius.
c) Create a bar graph of the average high temperatures in degrees Celsius in Ottawa by month. Hint: you can use the matplotlib library to create the bar graph.