Getting Started with Python: Lists

WHAT YOU WILL NEED

In this exercise we will build a very simple program that will help us choose a username. The exercise helps to introduce the use of 'lists' within Python programs.

THE PROBLEM

Often when registering on a new website we have to choose a new username and the username we would like to use has already been taken. So if we wanted 'jonny' we might end up with 'jonny1974'. We would like to create a program that will suggest a list of potential usernames. We will use Python to create two lists - a list of adjectives and a list of nouns. We will then choose adjectives and nouns randomly to create new username suggestions - most of the time they will not be good but occasionally they will.
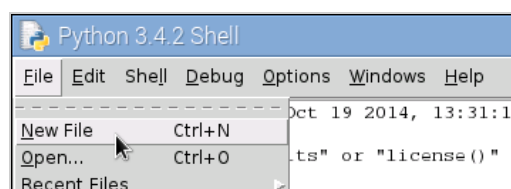
OPEN IDLE

To start you should use the IDLE editor for Python 3 - or your preferred Python editor (PyCharm, Spyder).

1. Open the **Python 3 (IDLE)** from the main menu:
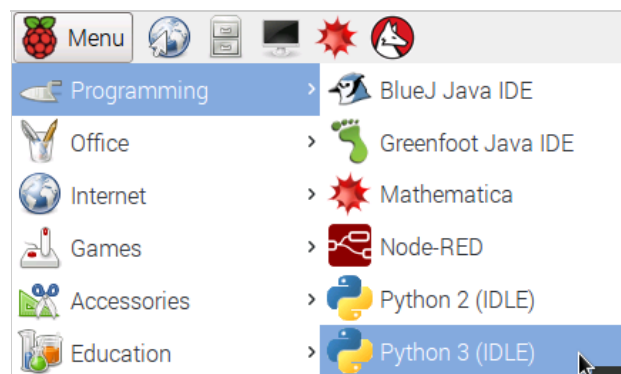
2. From the menu choose **File » New File**

```
Open Module...    Alt+M
Class Browser     Alt+C
```

3. A new window opens and into this window type the following Python code:

```
import random
```

We will need the random number functionality later in the program so we are importing that functionality now.

4. Under that line create your first Python list as follows:

```
list_of_nouns = ['cloud','ice','fire','storm','thunder','lightning','demon']
```

Our list of nouns is very short at first but we can increase the number of words in this list after we have hte program working.

5. Next we need a list of adjectives so type the next line of code as follows:

```
list_of_adjectives = ['blue','red','sharp','jumbo','high','low','killer']
```

6. Next we want to type code that will choose a word from each of the lists randomly. Enter the following below your two lists:

```
for i in range(20):
    random_noun = random.choice(list_of_nouns)
    random_adjective = random.choice(list_of_adjectives)
    print(random_adjective.capitalize()+random_noun.capitalize())
```

Notice the first line. That is a 'for' loop. A 'for' loop is used in programming to instruct the computer to repeat a set of instructions a given number of times. In our example above we have asked Python to loop over the instructions in the 3 lines below 'for' 20 times.
Note: Don't forget the colon (:) at the end of the first line above! Python will not understand your code if you forget it.
**Note:** Don't forget that you must 'indent' any instructions that are to be run as part of the 'for' loop. If we don't indent each command using a space (or tab) then Python will not realise that these instructions belong to the 'for' loop. If we forget to indent then the instructions would only be run once.

Your code should now look similar to the code below:

```
3    import random
4
5    list_of_nouns = ['form','blinkers','dune','storm','thunder','lightning','cross
6    list_of_adjectives = ['terra','red','sharp','dull','high','low','silent','quie
7
8    for i in range(20):
9        random_noun = random.choice(list_of_nouns)
10       random_adjective = random.choice(list_of_adjectives)
11       print(random_adjective.capitalize()+random_noun.capitalize())
```

7. Choose File > Save As.. and name your file **create_usernames.py**

8. Now it is time to run your code. From the menu choose **Run » Run Module** - as shown below
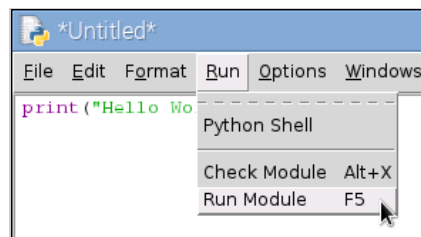
9. If you look at the Python Shell window you should see the output from your `create_usernames.py` program.
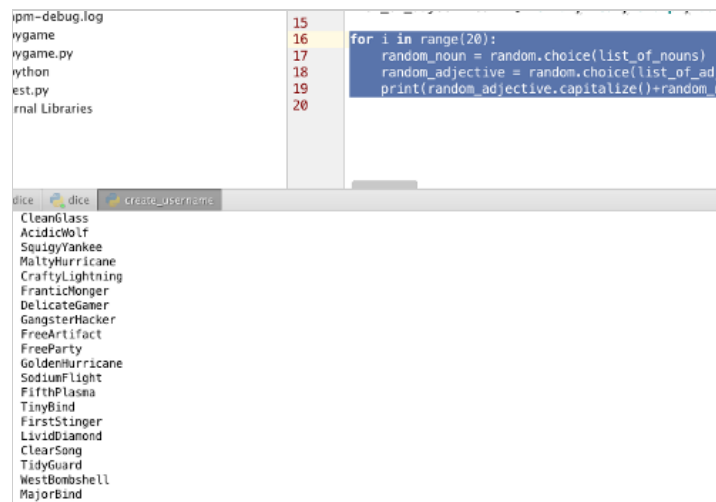
You've now written a useful Python program. Let's make it a little more interesting …

IDEAS TO ENHANCE YOUR PROGRAM

Now that you have created a useful program can you think of possibilities to improve the program?

- You could consider asking the user how many usernames they would like to generate. To do so you might want to make use of the 'input' command e.g.

```python
number_of_usernames = int(input('How many usernames would you like to create? '))
```

- You could add many more adjectivs and nouns to each of the lists to create much more interesting usernames

- You could add a GUI interface using tkinter with a 'Generate' button and a textarea or listbox to display the generated usernames.

```python
#!/usr/bin/env python3
from tkinter import *
import random
```

```python
5    list_of_nouns = ['form','blinkers','dune','storm','thunder','lightning','cross','knife
6    list_of_adjectives = ['terra','red','sharp','dull','high','low','silent','quiet','purp
7
8    def create_usernames():
9        listbox.delete(0, END)
10       for i in range(20):
11           random_noun = random.choice(list_of_nouns)
12           random_adjective = random.choice(list_of_adjectives)
13           listbox.insert(END, random_adjective.capitalize()+random_noun.capitalize())
14
15   root = Tk()
16   root.title("Name Generator")
17
18   label_generator = Label(root, text="Click the button to generate a new list : ")
19   listbox = Listbox(root)
20   listbox.pack()
21   btn = Button(root, text="Generate!", fg="red", command=create_usernames)
22
23   label_generator.grid(row=0,column=0)
24   listbox.grid(row=1,column=0, sticky=E)
25   btn.grid(row=2,column=0, sticky=E)
26
27   root.mainloop()
```

- You could hook into a domain name checking service to advise the user if a domain name matching their username is available to register. For example, if the generated username is FirstStinger then we could check if FirstStinger.com and FirstStinger.me is available to purchase.