

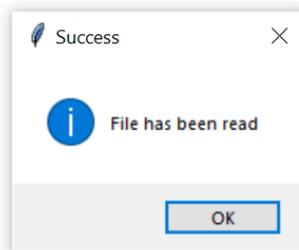
CIS 221 Programming Assignment 5a – Functions and GUI

Objectives:

- Create a modular program
- Execute functions as needed for program processing

For this assignment you will create functions that display the data in animals.txt in various sort orders and grouping.

1. Import tkinter *, as well as messagebox and simpledialog
2. The program will have 4 global variables – 3 lists and an output string
3. The program will have 4 functions, as follows:
 - Read the file
 - Display all animals
 - Display all by phylum
 - Display individual by name
 - LinearSearch (this function will find a value in a list and return its index)
4. When the program starts, read the animals.txt file and display a message as shown:



5. When the user clicks OK, run the remainder of the program in this order:

a. Display all animals:

Name	Diet	Phylum
Bear	Omnivore	Mammal
Bobcat	Carnivore	Mammal
Caiman	Carnivore	Reptile
Cheetah	Carnivore	Mammal
Crocodile	Carnivore	Reptile
Eagle	Carnivore	Bird
Elk	Herbivore	Mammal
Emu	Omnivore	Bird
Ermine	Carnivore	Mammal
Ibis	Carnivore	Bird
Iguana	Herbivore	Reptile
Lizard	Omnivore	Reptile
Llama	Herbivore	Mammal
Parrot	Herbivore	Bird
Raccoon	Omnivore	Mammal
Turtle	Omnivore	Reptile
Yak	Herbivore	Mammal

Do not borrow or share files, or collaborate with any other student on this assignment; doing so is a violation of the JMU Honor Code.

b. Display all animals by phylum (code for this shown below screenshot):

```
--- Animals by Phylum ---
```

```
Mammals
```

```
-----
```

```
Bear      Omnivore
Bobcat    Carnivore
Cheetah   Carnivore
Elk       Herbivore
Ermine    Carnivore
Llama     Herbivore
Racoon    Omnivore
Yak       Herbivore
```

```
Reptiles
```

```
-----
```

```
Caiman    Carnivore
Crocodile Carnivore
Iguana     Herbivore
Lizard     Omnivore
Turtle     Omnivore
```

```
Birds
```

```
-----
```

```
Eagle     Carnivore
Emu       Omnivore
Ibis      Carnivore
Parrot    Herbivore
```

This is the code for displaying animals by phylum. Put this code into a function and replace the list names that I have with the appropriate list names from your own program. Notice how the **output** string builds up as the function executes, then a **single print statement** prints the entire block of information.

```
outMam = ""
outRep = ""
outBird = ""
output = "\n\n--- Animals by Phylum ---"

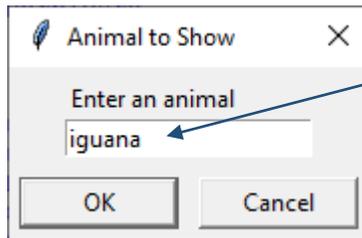
for i in range(len(names)):
    if phylum[i] == "Mammal":
        outMam += "\n" + format(names[i], "10s") + diet[i]
    elif phylum[i] == "Bird":
        outBird += "\n" + format(names[i], "10s") + diet[i]
    elif phylum[i] == "Reptile":
        outRep += "\n" + format(names[i], "10s") + diet[i]

output += "\n\nMammals\n-----"
output += outMam
output += "\n\nReptiles\n-----"
output += outRep
output += "\n\nBirds\n-----"
output += outBird

print(output)
```

Do not borrow or share files, or collaborate with any other student on this assignment; doing so is a violation of the JMU Honor Code.

- c. Display an individual animal from user input; first display a dialog box to request user input, then use the **appropriate list method to get the index value of that animal from the name list**. Using the same index value, retrieve the diet and phylum of the animal and display the information about that animal (this should work for *any* animal that is in the original list).



This should work even if the user types the name with lower case letters.

Iguana is a Reptile, Herbivore

This output appears on the screen.

The final output of the *entire program* will look similar to this:

```
Name      Diet      Phylum
----      -
Bear      Omnivore  Mammal
Bobcat    Carnivore Mammal
Caiman    Carnivore Reptile
Cheetah   Carnivore Mammal
Crocodile Carnivore Reptile
Eagle     Carnivore Bird
Elk       Herbivore Mammal
Emu       Omnivore  Bird
Ermine    Carnivore Mammal
Ibis      Carnivore Bird
Iguana    Herbivore Reptile
Lizard    Omnivore  Reptile
Llama     Herbivore Mammal
Parrot    Herbivore Bird
Racoon    Omnivore  Mammal
Turtle    Omnivore  Reptile
Yak       Herbivore Mammal
```

```
--- Animals by Phylum ---
```

```
Mammals
```

```
-----
Bear      Omnivore
Bobcat    Carnivore
Cheetah   Carnivore
Elk       Herbivore
Ermine    Carnivore
Llama     Herbivore
Racoon    Omnivore
Yak       Herbivore
```

```
Reptiles
```

```
-----
Caiman    Carnivore
Crocodile Carnivore
Iguana    Herbivore
Lizard    Omnivore
Turtle    Omnivore
```

```
Birds
```

```
-----
Eagle     Carnivore
Emu       Omnivore
Ibis      Carnivore
Parrot    Herbivore
```

```
Iguana is a Reptile, Herbivore
```

```
>>>
```

Deliverable:

Submit the .py file to the assignment in Canvas. You will **not** submit a .zip file and you **do not need to upload the animals.txt** file.

Do not borrow or share files, or collaborate with any other student on this assignment; doing so is a violation of the JMU Honor Code.