Homework 7

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This homework is due on Mar. 20, 2018 at 7:00pm. Please submit as a PDF file on Canvas. Before submission, please re-run all cells by clicking "Kernel" and selecting "Restart & Run All."

Problem 1 (5 pts): Create a list with the names of your favorite animals. Your list should contain at least 5 animals. Then, complete the following steps using python. *Each step should be completed in a different cell and your results should be printed with* `print()`.

1. Sort the list so that the names appear in alphabetical order.
2. Print how many items there are in the list. *Hint:* use the function `len()`.
3. Remove an animal from your list and print the length of the list again.
4. Add the animal "ostrich" to your list.
5. Make a new list in which every animal name in your original list is repeated 3 times.

```python
In [1]: # Creating a list of animals
        animals = ["Lion","Tiger","Crocodile","Giraffes","Penguin","Parrot","Elephant"]
```

```python
In [2]: # Sorting the list
        animals.sort()
        print(animals)
```

```
['Crocodile', 'Elephant', 'Giraffes', 'Lion', 'Parrot', 'Penguin', 'Tiger']
```

```python
In [3]: #Printing number of items in the list
        print("number of items in the list are ",len(animals))
```

```
number of items in the list are  7
```

```python
In [4]: # Removing an animal
        i=5 # The animal in the following index i is removed
        animals2=animals[:i]+animals[i+1:]

        print("new list is",animals2)
        print("number of items in the new list is",len(animals2))
```

```
new list is ['Crocodile', 'Elephant', 'Giraffes', 'Lion', 'Parrot', 'Tiger']
number of items in the new list is 6
```

```python
In [5]: # Using remove to remove an animal instead of the above manner.
        animals.remove('Lion')

        #new list
        print("new list is",animals)
        # length of the new list
        print("number of items in the new list is",len(animals))
```

```
new list is ['Crocodile', 'Elephant', 'Giraffes', 'Parrot', 'Penguin', 'Tiger']
number of items in the new list is 6
```

In [6]:
```python
# Adding Ostrich
animals.append('Ostrich')
print(animals)
```

['Crocodile', 'Elephant', 'Giraffes', 'Parrot', 'Penguin', 'Tiger', 'Ostrich']

In [7]:
```python
# Each element repeats 3 times
new_list = animals*3
print(new_list)
```

['Crocodile', 'Elephant', 'Giraffes', 'Parrot', 'Penguin', 'Tiger', 'Ostrich',
'Crocodile', 'Elephant', 'Giraffes', 'Parrot', 'Penguin', 'Tiger', 'Ostrich', '
Crocodile', 'Elephant', 'Giraffes', 'Parrot', 'Penguin', 'Tiger', 'Ostrich']

Problem 2 (5 pts): Now imagine that you have gone to the zoo to see your favorite animals listed in Problem 1. Create a dictionary that contains the names of the animals as keys and counts for each animal as the values. (For example, if there are 3 giraffes at the zoo, the key would be "giraffe" and the value would be 3.) The counts should just be made-up counts. Then, complete the following steps using python. *Each step should be completed in a different cell and your results should be printed with print().*

1. Write code that counts how many animals total you observed. (In other words, add up all of the animal counts.)
2. Add an animal "monkey" to your dictionary and give it a count of 5.
3. Print out a list of the *keys* and a list of the *values* in your dictionary (i.e., the animal names and the counts).
4. Change the count for one of the animals in your dictionary (i.e., monkey's count 5 to 8).
5. Remove a key-value pair from your dictionary.

In [8]:
```python
# Creating dictionary of animals and number of them.

animals = {"Lion":5,"Tiger":6,"Crocodile":10,"Giraffes":4,"Penguin":4,"Parrot":
6,"Elephant":2}
```

In [9]:
```python
# Counting total number of animals
count=0
for animal in animals:
    count+=animals[animal]
print("total no.of animals are",count)
```

total no.of animals are 37

In [10]:
```python
# Adding monkey and its value
animals["Monkey"]=5
print(animals)
```

{'Lion': 5, 'Tiger': 6, 'Crocodile': 10, 'Giraffes': 4, 'Penguin': 4, 'Parrot':
6, 'Elephant': 2, 'Monkey': 5}

In [11]:
```python
# Printing keys
print(animals.keys())
#Printing Values
print(animals.values())
```

dict_keys(['Lion', 'Tiger', 'Crocodile', 'Giraffes', 'Penguin', 'Parrot', 'Elep
hant', 'Monkey'])
dict_values([5, 6, 10, 4, 4, 6, 2, 5])

In [12]:
```python
# Changing the value of a key "Monkey"
animals["Monkey"]=8
print(animals)
```

{'Lion': 5, 'Tiger': 6, 'Crocodile': 10, 'Giraffes': 4, 'Penguin': 4, 'Parrot': 6, 'Elephant': 2, 'Monkey': 8}

In [13]:
```python
# Removing key-value pair whose key is Monkey
del(animals["Monkey"])
print(animals)
```

{'Lion': 5, 'Tiger': 6, 'Crocodile': 10, 'Giraffes': 4, 'Penguin': 4, 'Parrot': 6, 'Elephant': 2}