**HOMEWORK 4 - Data Structures and Functions**

**PART I - Data Structures**

(i) Please create a **list** of first names. Print out the list.

```
['albert', 'angela, 'leo', 'bridget']
```

(ii) Iterate through the list and make all the names upper-cased, except for the letter A. So the name, amanda, should look like this after alteration: aMaNDa. Print out the altered list:

```
['aLBERT', 'aNGELa', 'LEO', 'BRIDGET']
```

(iii) Then, iterate through the list add people's last names to every name. Print out the altered list.

```
['aLBERT hwang', 'aNGELa ellington', 'LEO chau', 'BRIDGET campbell']
```

(iv) Finally, iterate through the list and populate a **dictionary** with the `key` being a lowercase string of their full name (no spaces). Print out the altered dictionary.

```
{'alberthwang': 'aLBERT hwang',
 'angelaellington': 'aNGELa ellington',
 'leochau': 'LEO chau',
 'bridgetcampbell': 'BRIDGET campbell'}
```

Print a few values in the dictionary to prove that it works.

**PART II - Data Structures (Again)**

Write a program that asks the user to enter a variable number of integers. Each integer should be stored in a list called `data`. Once `data` is created, the program should create summary statistics on `data` (I want to see - sum of all integers, max integer, max odd integer) in a dictionary named `summary`. At the end, print out the various parts of `summary` in easy-to-read sentences.

Here is what the output should look like (with the user's own integers of course):

```
Total integers in data: 4
Enter an integer: 3
Enter an integer: 1
Enter an integer: 7
Enter an integer: 8

The sum of all the data is: 19
The max int is: 8
The max odd int is: 7
```

Here is a template to get you started:

```
data = []
summary = {}

total_ints = int(raw_input('Total integers in data: '))

…(you fill in the rest!)...

print 'The sum of all the data is: ' + summary['sum']
print 'The max int is: ' + summary['max']
print 'The max odd int is: ' + summary['max_odd']
```

**PART III - Functions**

Write a function that converts integer distances in yards to feet and tacks on the string `'feet'` to the end. Then iterate through a list of distances in yards, converting them to feet and re-storing them in the same list. Print out the final result. Here's a template to start you.

```
def ConvertToFeet(yards):
  …
  return feet

distances = [32, 56, 111, 100] # add more of your own distances in yards

…(you fill in the rest!)...

print distances
```

This is what should print at the end:

```
['96 feet', '168 feet', '333 feet', '300 feet']
```

**Please complete all 3 parts of the assignment in a file named hw4.py (inside your home directory > python > week4) and email when complete so that I can check your home directory for the file. Be sure that the script follows all the style conventions.**