

CS 115 - Introduction to Programming in Python

Lab 05

Lab Objectives: Tuples, Lists, Dictionaries

Notes:

- You should only use functionality covered in CS115 in your solution.
- Include a docstring for your functions.

1. Download the files `city_data.txt`, `region_lookup.txt`. You can use as sample input files (see below).
2. Create a script, `yourname_lab05.py` that contains the following functions:
 - a. `import_cities()`: takes a dictionary, and a file name as parameter. The file contains information about all provinces in Turkey. The columns in the file are as follows: `city_name`, `short_code`, `numeric_code`, `population`, `area(km)`, `area(miles)`, `region`. The function should read the data from the file, and add each city to the dictionary, where the **key** is the text name of the city (for example, Ankara), and the **value** is a *list* containing the additional fields. **Note**: the two area (kms,miles) values should be stored in a tuple. The population, and areas should be numeric.
 - b. `import_regions()`: takes a dictionary and the name of a file as parameters. The function should import the data in the file into the dictionary, where the **key** is the region code, and the **value** is a *list* containing the English and Turkish long names of the region.
 - c. `get_region()`: takes the region dictionary and the English or Turkish long name of the region (for example, Ege Bolgesi) and returns the region short code (for example AG).
 - d. `get_cities()`: takes a city dictionary, region dictionary and region long name (either English or Turkish) as parameters, and returns *both* 1) a *list* containing the names of the cities in the region, **and** 2) a *tuple* containing the populations of the cities in the region.
 - e. `display_city_information()`: takes a city dictionary and a city name as parameters and displays all information about the city (from the dictionary).
3. Your program should use the functions above to implement the menu shown in the sample run below.

```
1-Find Cities in Region
2-Find Average Population of region
3-Display City Information
4-QUIT
```

```
Enter choice:1
```

```
Enter region to search: Ege Bolgesi
```

```
Cities in Ege Bolgesi: ['Afyonkarahisar', 'Aydin', 'Denizli', 'Izmir',
'Kutahya', 'Manisa', 'Mugla', 'Usak']
```

1-Find Cities in Region
2-Find Average Population of region
3-Display City Information
4-QUIT

Enter choice:2

Enter region to search: Central Anatolian Region
Average Population Central Anatolian Region : 871359

1-Find Cities in Region
2-Find Average Population of region
3-Display City Information
4-QUIT

Enter choice:3

Enter city to search: Ankara
6 TR.AN 4466756 (25706, 9925) CA

1-Find Cities in Region
2-Find Average Population of region
3-Display City Information
4-QUIT

Enter choice:6
Invalid choice...

1-Find Cities in Region
2-Find Average Population of region
3-Display City Information
4-QUIT

Enter choice:4
Program ended.....