CS 115 - Introduction to Programming in Python

Lab 04

Lab Objectives: Strings, Files, Modules

Notes:

- You should only use functionality covered in CS115 in your solution.
- Your solution for this lab should not use the str.split() method, lists, tuples, dictionaries.
- Include a docstring for your functions. A template for function docstrings is below:

```
"""Summary or Description of the Function

    Parameters:
    argument1 (type): Description of arg1

    Returns:
    type: return value
"""
```

1. Download the files `ist_data.txt, ist_districts.txt.` The file `ist_districts.txt` contains a set of districts in Istanbul, and `ist_data.txt` contains the area and income data for each of the districts in the district file (in the same order).
2. Create a module, `Lab04_yourname_module.py` that contains the following functions:
    a. `extract_data()`: Takes 3 file names as parameters, the first file is an input file containing the district names, the second file is an input file containing the data for the districts where the last column contains the annual income data. The third file the output file to which you will write the results. The function should read the names from the district file, and the income from each line in the data file. The function should write the name and annual income (in $) of each district to the output file with the given name. Each line in the output file should contain the district name followed by the annual income in dollars (with no symbols/formatting). The columns should be separated by the tab (`\t`) character. You may assume that the last column in the data file contains the annual income for each district.

    Sample line from the output file:
    Adalar 10978
    …

    b. `find_income()`**:** takes a district name and a file name as parameters. Finds and returns the annual income for the district in the file with the given name. If the district is not found in the file, return 0.0.

3. Write a script, `Lab04_yourname_application.py` that does the following:
    a. Using data from the files: ist_districts.txt and ist_data.txt, create a file, ist_income.txt, containing the districts and their annual incomes.
    b. Input the name of a district from the user and display the annual income for the district with the input name, or an appropriate message if the district does not exist. Your program should not be case-sensitive.

4. Upload `Lab04_yourname_module.py` and Lab04_`yourname_application.py` in a compressed file with the name: `Lab04_yourname.zip`.

Sample Run:

```
Enter district to search(quit to exit): Kadikoy
Annual Income for Kadikoy: $14948.00

Enter district to search(quit to exit): BEYOGLU
Annual Income for BEYOGLU: $7905.00

Enter district to search(quit to exit): Cayyolu
Cayyolu not found...

Enter district to search(quit to exit): quit
Thank you - Goodbye
```