Lab Objectives: Classes, Searching and Sorting.

1. Download the class, `Country`, from Moodle.

   The class has the following attributes:

   - name
   - continent
   - life expectancy for men
   - life expectancy for women

2. Update the class to include the following:

   a. Write a method `calculate_average` which returns the average life expectancy of men and women.

   b. Override the `__eq__` method which compares two country objects for equality, and returns True if they are equal, False if not. Two countries are equal if their names are the same.

3. Create a script which includes the following:

   - **selectionSort()**: takes a list of **Countries** as a parameter, and sorts the countries according to their continent and name using the selection sort algorithm. The list should be sorted in place, no new lists should be created.

   - **searchCountries()**: a <u>recursive</u> function that takes a list of Countries, and the continent to search and the ending index of the list and returns all Countries in the list from the given continent (returns an empty list if no countries found for the given continent.

   - **readCountries()**: takes an empty list and a file name as parameters, and using the file data, creates Country objects and adds them to the list.

   - Your script should do the following:
     - Read the data from the `country.txt` into a list.
     - Input a continent from the user and display the countries and their average life expectancy in the given continent (or appropriate message if no countries exist)

     - Input the information about a country from the user, and if the country does not exist, add it to the list.

     - Sort the list according to the continent and country name

     - Display the sorted list.

Sample Run:

```
Enter continent to search: Asia
List of Countries in Asia
Country:Jordan
Average Life Expectancy: 69.75

Country:Afghanistan
Average Life Expectancy: 45.5

Country:Turkey
Average Life Expectancy: 69.1

Country:China
Average Life Expectancy: 69.95

Country:Iran
Average Life Expectancy: 69.25

Country:Iraq
Average Life Expectancy: 62.4

Country:Japan
Average Life Expectancy: 79.9


Enter county name, continent, life expectany for Men and life expectany for
Women: Egypt, Africa, 45.7, 42.5
New Country added

Countries by Continent and Name:
[Country:Egypt
Continent: Africa
Life Expectancy for Males: 45.7
Life Expectancy for Females: 42.5
, Country:Nigeria
Continent: Africa
Life Expectancy for Males: 50.8
Life Expectancy for Females: 54.0
, Country:Bolivia
Continent: America
Life Expectancy for Males: 59.8
Life Expectancy for Females: 63.2
, Country:Brazil
Continent: America
Life Expectancy for Males: 63.4
Life Expectancy for Females: 71.2
, Country:Canada
Continent: America
Life Expectancy for Males: 76.1
Life Expectancy for Females: 81.8
, Country:United.States
Continent: America
Life Expectancy for Males: 73.4
Life Expectancy for Females: 80.1
, Country:Afghanistan
Continent: Asia
```

```
Life Expectancy for Males: 45.0
Life Expectancy for Females: 46.0
, Country:China
Continent: Asia
Life Expectancy for Males: 68.2
Life Expectancy for Females: 71.7
, Country:Iran
Continent: Asia
Life Expectancy for Males: 68.5
Life Expectancy for Females: 70.0
, Country:Iraq
Continent: Asia
Life Expectancy for Males: 60.9
Life Expectancy for Females: 63.9
, Country:Japan
Continent: Asia
Life Expectancy for Males: 76.9
Life Expectancy for Females: 82.9
, Country:Jordan
Continent: Asia
Life Expectancy for Males: 67.7
Life Expectancy for Females: 71.8
, Country:Turkey
Continent: Asia
Life Expectancy for Males: 66.5
Life Expectancy for Females: 71.7
, Country:Bulgaria
Continent: Europe
Life Expectancy for Males: 67.8
Life Expectancy for Females: 74.9
, Country:France
Continent: Europe
Life Expectancy for Males: 74.6
Life Expectancy for Females: 82.9
, Country:Germany
Continent: Europe
Life Expectancy for Males: 73.4
Life Expectancy for Females: 79.9
, Country:Greece
Continent: Europe
Life Expectancy for Males: 75.5
Life Expectancy for Females: 80.6
, Country:Hungary
Continent: Europe
Life Expectancy for Males: 64.5
Life Expectancy for Females: 73.8
, Country:Italy
Continent: Europe
Life Expectancy for Males: 75.1
Life Expectancy for Females: 81.4
, Country:Norway
Continent: Europe
Life Expectancy for Males: 74.8
Life Expectancy for Females: 80.6
, Country:Russia
Continent: Europe
Life Expectancy for Males: 58.0
Life Expectancy for Females: 71.5
```

, Country:United.Kingdom
Continent: Europe
Life Expectancy for Males: 74.5
Life Expectancy for Females: 79.8
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