
Lab Objectives: Searching and Sorting.

Notes:

1. Upload your solutions as **a single .zip file** to the Lab09 assignment for your section on Moodle **by 17:30 on Sunday, December 20**. You must use the following naming convention: Lab09_Surname_FirstName.zip where Surname is your family name and FirstName is your first name.
 2. Solutions sent through email will not be accepted.
 3. You should only use functionality covered in CS115 in your solution.
 4. Include a docstring for your functions.
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- 1) Download the class, `Doctor`, from Moodle.
 - 2) Update the class to include the following:
 - a. Override the `__lt__` method which determines if the id numbers of two doctors are in ascending order or not.
 - 3) Create a script which includes the following:
 - **`bubble_sort()`**: takes a list of Doctors as a parameter, and sorts the doctors according to their hospital name and specialty. The list should be sorted in place, no new lists should be created.
 - **`binary_search()`**: a **recursive** function that takes a list of Doctors, the id of a doctor to search and the starting and ending index of the list to be searched as parameters. The function should return the index of the doctor with the given id or -1 if the doctor does not exist in the list.
 - **`read_doctors()`**: takes a file name as parameter, and using the file data, creates a list of Doctor objects from the data in the input file and returns the Doctor list.
 - **Your script should do the following:**
 - Read the data from the doctors.txt into a list.
 - Sort the list according to the id of the doctors.
 - Input an id from the user and display the doctor with the given id (or appropriate message if doctor does not exist)
 - Sort the list according to hospital and specialty and display the sorted list.

Sample Run 1:

```
Enter id of doctor to search: 36985
Doctor with id 36985
36985 Irem Basar Gastroenterology Ankara Hospital
Doctors by Hospital and Specialty:
36985 Irem Basar Gastroenterology Ankara Hospital
74532 Elif Som Optometry Ankara Hospital
87954 Jale Tunc ENT Bayindir
15487 Mehmet Keskin Optometry Hacettepe Hospital
12345 Ali Ayhan Cardiology Medicana
47896 Ayla Guner Cardiology Medicana
63215 Veysel Karakus Optometry Medicana
56987 Melis Koc ENT TOBB ETU
```

Sample Run 2:

Enter id of doctor to search: 54635

No such doctor

Doctors by Hospital and Specialty:

36985 Irem Basar Gastroenterology Ankara Hospital

74532 Elif Som Optometry Ankara Hospital

87954 Jale Tunc ENT Bayindir

15487 Mehmet Keskin Optometry Hacettepe Hospital

12345 Ali Ayhan Cardiology Medicana

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