# CS 115 - Introduction to Programming in Python

# Lab Guide 06

**Lab Objectives:** 2 D Lists, Classes

**Notes:**

1. Upload your solutions as **a single .zip file** to the Lab06 assignment for your section on Moodle. You must use the following naming convention: Lab06\_Surname\_FirstName.zip where Surname is your family name and FirstName is your first name.
2. You should only use functionality covered in CS115 in your solution.
3. Include a docstring for your functions.
4. a. Write a function formSentence() that takes a two-dimensional list of words (inList) and a String (searchChr) as parameters. The function will check all words row-wise in inList and form a sentence from the words that start with the given character by putting a space between the words. The function should return the sentence formed.

Note: your function should work for a 2D array of any size.

b. Write a script to test the function defined in part a.

**Sample Run:** (search character is ‘s’)

Two Dimensional List:

['This', 'is', 'lab', 'Script']

['We', 'should', 'finish', 'it']

['we', 'solve', 'some', 'questions']

Sentence: Script should solve some

1. Create a class, Instructor (**Instructor.py**) that represents a typical **Instructor** object.

Instructors have the following attributes:

* + - Id
    - Name and surname
    - Status (F – Full-time, P – Part-time)
    - Number of teaching hours

**Note:** all data attributes should be private ( \_\_ )

* 1. Your class should have an **init()** methodthat takes the values of all four attributes as parameters.
  2. Your class should define the following methods:
     + get\_id: returns the id
     + get\_name: returns the name
     + get\_status: returns the status
     + get\_hours: returns the number of hours

1. Write a method, calculate\_salary(),which calculates the salary of an instructor according to the following:

Full-time Instructor: 5000 + (number\_of\_hours) x 500 TL

Part-time Instructor: (number\_of\_hours) x 400 TL

1. Your class should define the **\_\_str\_\_** and **\_\_repr\_\_** methods according to the output shown in the sample run.
2. Create a Python script that does the following:
   1. Implement a read\_file() function which takes a file name as a parameter and returns a dictionary which contains the id of instructors as keys and instructor objects as the values. (First examine the data file format).
   2. Read the contents of the file **‘instructor.txt’** into dictionary d using the read\_file() function.
   3. Input an id of an instructor and display his/her information.
   4. Input a status type and store the instructors with the given status in a list. Display the list. (see Sample Run)

**Sample Run:**

Enter instructor id: 7621

Name:Fatih Tekin

Status: F

Salary: 13000.0 TL

Enter status (F - Full-time / P) - Part-time: P

Part-time Instructors:

[Id:7623

Name:Burcu Koksal

Salary: 2400.0 TL

, Id:8911

Name:Fatos Gurun

Salary: 1200.0 TL

, Id:7833

Name:Lale Balci

Salary: 1600.0 TL

]