# 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 formEqualLength() that takes a two-dimensional list of words (words) and an integer (n) as parameters. The function will check all words column-wise, and form a sentence from the words with the length n 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:** (n is 6)

Two Dimensional List:

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

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

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

Sentence: should finish Script

1. Write a class, Personnel (**Personnel.py**) that represents a typical **Personnel** object.

Personnel objects have the following attributes:

* + - Id
    - Name and surname
    - Department
    - Status (M – Managerial, A – Academic, B- Both)
    - Salary

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

* 1. Your class should have an **init()** methodthat takes the values of all five attributes as parameters.
  2. Your class should define the following methods:
     + get\_id: returns the id
     + get\_name: returns the name
     + get\_department: returns the department
     + get\_status: returns the status
     + get\_salary: returns the salary

1. Write a method increase\_salary() which *updates* the salary of a personnel object according to the following:

Managerial: 12% increase

Academic: 15 % increase

Both: 18% increase

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 the read\_file() function which receives the file name and returns a list which contains all personnel objects (First examine the data file format)
   2. Read the contents of the file **‘personnel.txt’** into a list p\_list using the read\_file() function.
   3. Update the salary of all personnel objects in the list.
   4. Display the list.
   5. Put the personnel objects whose status is ‘B’ into a dictionary d where the *keys* of the dictionary are the ids and the *values* are personnel objects.
   6. Display the objects in the dictionary d (see sample run)

**Sample Run:**

All personnel:

[Id:7802

Name:Ahmet Saygin

Department: CS

Status:A

Salary: 8050.0 TL

, Id:1356

Name:Mert Kargi

Department: Man

Status:M

Salary: 3808.0 TL

, Id:8932

Name:Tuba Ustun

Department: EE

Status:B

Salary: 11800.0 TL

, Id:1342

Name:Cagla Bakir

Department: COMD

Status:B

Salary: 11564.0 TL

, Id:7545

Name:Betul Turan

Department: IE

Status:M

Salary: 5600.0 TL

, Id:4320

Name:Ali Yazi

Department: ECON

Status:A

Salary: 7360.0 TL

, Id:1987

Name:Ece Onur

Department: PHYS

Status:B

Salary: 14160.0 TL

]

Personnel With Both Managerial and Academic Responsibilities:

Id:8932

Department: EE

Salary: 11800.0 TL

Id:1342

Department: COMD

Salary: 11564.0 TL

Id:1987

Department: PHYS

Salary: 14160.0 TL