

Programming Fundamentals LAB – BSDSF21

(Both Morning and Afternoon)

Lab 14 – 19-05-2022

YOU may USE Command Prompt to interpret and execute all the PYTHON programs. Use of any IDE, except **Mu Editor** is not allowed for this LAB, despite you are expert. Unless and until you convinced me in personal capacity.

1. Read code and understand from all the example we covered in the last, execute them using different data values and files and used in the programs. The example codes are also provided.
2. Write an interactive program that takes roll no, name, course name and its mid, sessional and final marks from user. (Note: you may input data from the following data in file and later one or two records of students interactively).

Roll No	Name	Crs	Md	Ss	Fn
BSEF09M001	Hammad Khan	ITC	22	21	31
BSEF09M001	Hammad Khan	PF	14	15	25
BSEF09M001	Hammad Khan	DLD	20	18	22
BSEF09M003	Younas Ahmad	ITC	30	0	29
BSEF09M003	Younas Ahmad	PF	34	25	30
BSEF09M003	Younas Ahmad	DLD	10	15	10
BSEF09M005	Riffat Kaleem	ITC	33	20	33
BSEF09M005	Riffat Kaleem	PF	26	11	35
BSEF09M005	Riffat Kaleem	DLD	30	24	38
BSEF09M012	Barkat Jan	ITC	25	18	34
BSEF09M012	Barkat Jan	PF	19	0	28
BSEF09M012	Barkat Jan	DLD	28	21	34
BITF09M002	Khawer Hayat	ITC	11	18	37
BITF09M002	Khawer Hayat	PF	19	17	27
BITF09M002	Khawer Hayat	DLD	31	22	34
BITF09M003	Kishwar Hameed	ITC	24	20	33
BITF09M003	Kishwar Hameed	PF	28	24	37
BITF09M003	Kishwar Hameed	DLD	19	15	26
BITF09M010	Yasir Ubaid	ITC	18	20	31
BITF09M010	Yasir Ubaid	PF	25	21	34
BITF09M010	Yasir Ubaid	DLD	29	22	33

- a. You have to store the data in a binary file¹ in a fixed length record format.
- b. You have to read the data from the above mentioned binary file and display it in above mentioned format.

¹ You need encode, decode, to_bytes, from_bytes, struct pack and unpack, etc

- c. Output the record of k^{th} (say 1) student in the file without reading data of other students in the following form.

```
BSEF09M001 Hammad Khan
  Course Total  Grade
  ITC      74    B+
  PF       54    D
  DLD      60    C
  =====
  OPM      62.33  C
```

- d. As file is well structured, without reading extra data, output the average marks of the PF stored in the file.
- ```
Average result of PF is ##
```
- e. For the same file, search the record of a student by Roll No (say BITF09M003) and update his/her name taken from the user. The output the message on the screen “Name updated for Roll no”. Also, make sure that in the file, name is properly updated. Note: open file in rb+ mode and do update in the existing file.
- f. For the same file, search the record of a student by exact Full Name (say Barkat Jan) and remove his/her name from the file. You have to overwrite the record of last student in its place and truncate the file at appropriate location. Note: open file in r+ mode and do update in the existing file.

**Thanks, for your patience**

**For task 2, the first two sub tasks must be completed and evaluated in the LAB.**