# Web Technologies

## Fall 2020

**LAB-02**

***Date: April 12, 2023.***

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**The objective of this lab is to**

1. Practice basic python programming concepts.
2. Utilize built-in python data structures like *lists, tuples, dictionaries, exception handling and file handling.*
3. Practice DRY (don't repeat yourself) via functions.

**Instructions!**

1. Keep your student identity cards with you.
2. This is an individual lab, you are strictly **NOT** allowed to discuss your solutions with your fellow colleagues, even not allowed to ask how is he/she is doing, it may result to **zero marks**.
3. You can **ONLY** discuss this with TAs or Ma'am.
4. Save your work frequently. Make a habit of pressing CTRL+S after every line of code you write.
5. This is a **GRADED** lab, so, at the end of the lab session, you should have your complete work ready for evaluation.
6. Follow proper coding conventions and put comments where needed.
7. ***Total Time for this Lab is 50 minutes.***

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# *Blood Donation System*

For this task, you are being asked to create a software system that manages blood donations. The system should allow users to input, retrieve, update, and delete data about blood donors. To accomplish this, you will need to create a file called "DonorData.txt" that will be used to store the donor information.

To make the system user-friendly, you need to create a menu-based system that will allow users to navigate and perform the necessary actions. The menu should have following options:

1. Add donor data
2. Update donor
3. Search donor
4. Delete donor
5. Show list of all donors
6. Exit

To implement the above functionality, you are required to write the Donor class with default and parametrized constructors, properties and the following member functions:

i. Function that will add the donor object in file
ii. Function that will update the donor object
iii. Parameters of class are (id, name, age, phoneNumber, bloodGroup, city)

Some functions should be defined outside the class.

i. Function that will search the donor (This function will take user id as parameter and return donor object)
ii. Function that will delete the donor (This function will take user id as parameter)
iii. Function that will return the list of donors after reading from file
iv. Function that will take the list of donors and print the donors data in good looking format

**Cases of raising exception in constructor and setters:**

i. user is trying to set empty string in class` members
ii. Phone number length is not equal to 11 or it contains non-numeric digit.
iii. Blood groups value can only be any of the following A+,A-,AB+,AB-,B+,B-,O+,O-. If user tries to assign other than these values, exception should be raise.
iv. Age should be greater than 15

**Note:**

Donor id should not be taken from user. You are free to use any approach to manage unique id.

## *File Format:*

The file "DonorData.txt" should be formatted to represent donor data in this structure.

```
100,Abdullah,AB-,03141544233,Lahore,18
101,Ahmad,A+,03151234567,Lahore,20
102,Aliyan,B+,0345678888,Faisalabad,22
102,Ibrahim,B-,0345678888,Faisalabad,24
102,Ali,o-,0345678888,Faisalabad,21
```

| Sr. # | Description | Marks |
|---|---|---|
| 1 | Class Structure  (Donor class) | 10 |
| 2 | Add function | 10 |
| 3 | Update function | 10 |
| 4 | Delete function | 5 |
| 5 | Search function | 5 |
| 6 | Function that will return list of donors | 7 |
| 7 | Function to print the list of donors | 3 |
| Total | | 50 |

*(BEST OF LUCK)*

**In some ways, programming is like painting. You start with a blank canvas and certain basic raw materials. You use a combination of science, art, and craft to determine what to do with them.**