Assessment item 3 - Files a

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Value: 16%
Due Date: 23-May-2021
Return Date: 15-Jun-2021
Group Assessment: No
Submission method options: Alternative submission method

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TASK

LifeServe Blood Institute (LBI) are happy with your performance in the previous project. They have decided to engage you for developing a more featureful software that will help LBI staff carry out their day to day jobs. The proposed system will provide several features such as managing inventory records, storing donor details and attending to blood demand. In addition, the system will enforce the following medical rules:

- Once a blood bag is collected, it must be used within 30 days. After that period, the bag is discarded.
- For every donor, there must be a minimum gap of 120 days between donations. During the gap period, a donor is labelled as ineligible.

ALL STEPS

Main Menu

As your program starts, you should prompt the user for two database file names, load their data into memory (via `load_db`), initialize the blood compatibility dictionary and then present the user with a main menu containing five options.

(1) Check inventory: With this option, the program will search for any bags older than 30 days, and if found, display their ID numbers so that staff can dispose them of. The database should be updated right away.

(2) Attend to blood demand: When the local hospital needs a supply of blood, they contact LBI to arrange it. With this option, your program should check what type of blood is currently needed at the hospital. The zip file provided to you contains a module `hospital.py` containing a single function `check_demand()`. Call this function to find out the blood type required by hospital. [Let us pretend this module is communicating with hospital web servers.] The function returns a single string value containing the blood type. In some cases, the function may return an `X` value to indicate server communication errors. Your program will then check the inventory to see if a bag with matching or compatible blood type exists in the stock.

- If compatible bag(s) are found in stock, the program pick any one and display its ID number so that staff can prepare it for dispatch to hospital. The said bag should be removed from database.
- Otherwise, the next task is to check the database of donors and find a list of eligible donors with a compatible blood type (eligibility criteria as defined earlier). A list of names will be displayed along with their contact details so that staff can communicate with them.
- If no eligible donor exists in database, just display an informational message.

(3) Record new donation: This option would allow the staff to add a new bag to the database. It will first ask for a valid donor ID and check their eligibility to donate. If eligible, a new bag will be added with current date (today, the time of execution) and a new auto generated ID number (increment the ID of the last bag). The respective donor's last donation date will also be updated. Database files should be saved once addition is confirmed.

(4) Stock visual report: Allow the user to see the distribution of in-stock blood bags in the form of a pie chart. Label the pies with blood types and the current number of bags in stock. Do not show the blood types with zero stock.

(5) Exit the program

To clearly understand the program requirements, study these sample runs.