United Front for Transformation (UFT) member enrollment

United Front for Transformation (UFT) is a new political party, which was recently formed and registered in Uganda. The party has embarked on using agents to enroll new members across the country. The agents are allocated to the districts as they are registered and once registered via the web application by the administrator, the system automatically allocates the agent to a district that either lacks agents or has the fewest agents. Each district should have a head of the agents if they are more than one attached to that district. Else, if there is one agent, the agent automatically becomes the head. Whoever is enrolled by an agent, becomes a member of the party. An enrolled member may be upgraded to an agent by the system's administrator via a web interface. An enrolled member may introduce new members to the party. If a member introduces more than 40 new members, and there is an available position in any district, the web interface recommends the member to be upgraded to an agent. Agents are paid a sum of money per month based on available funds. The main source of funds is well-wishers and this money is declared and registered into the web interface by the administrator. If the treasury is 2 million or less, no payments are made that month. The excess of 2 million shillings in a given month can be distributed to the agents and administrator. Members do not get any form of payment, unless they become agents. Below is how the payments are distributed:-

i. The administrator gets half the amount received by an agent
ii. Each agent head gets 7/4 of the amount of money received by the agents as long as they are not from the district with the highest enrollment
iii. The rest of the money is shared equally amongst the agents as long as they are not from the district with the highest enrollment.

Agent or agent head from the district with the highest enrollment get twice as much as agents or agent heads from other districts. The party has confirmed that each month, money comes into the treasury but the amount varies.

The agents use a command-line client socket program to submit details of members who have been enrolled. These details include the name of the member, ID of new member, which is assigned by the system but starts with initials of the district and is assigned during insertion into the database, date of enrollment, if a member is recommended by another member, the member who recommended, gender of the new member, username for an agent who submitted the names.

Below are the commands that the agents will use to execute the required functions *(You should use the commands as they are provided.*). Before submitting any commands, the agent should enter their district, which is saved in that session.

- To submit the new member list
  Addmember *member_name, date, gender, recommender*
- To check status of the file
  Check_status
- To check statement of payments for the logged in user
  get_statement
- To submit new members from the file
  Addmember *filename.txt*
- To search and view a record from file by date or name
  Search *criteria*

Another alternative for adding a member is through uploading them from a text file. On running the addmember command, all records are inserted into the enrollment file. The data file is organized as per the example below

Sara Nakamya 2019-01-01 F Mary

Jacob Otim 2019-01-01 F Mary

Jill Sekajja 2019-01-01 F Mary

Magret Namata 2019-01-01 F Mary

Enrollment information is saved in a file (A file for each district) for validation by the agent head. On registering an agent, a signature should be supplied and should be a single character. The same character should have been stored stored in the database during registration. For example, B. In the file, letter B is stored for instance. Signing of the enrollment file is done as follows: -

i. The system prompts the user for either a 1 or 0 fifteen times (3 rows X 5 columns)
ii. The fifteen times represent the cells, which are an intersection of a row and a column. Rows and columns start from 1.

iii. One means that the * should be printed in the cell and zero means a * should not be printed.
iv. After entering the last binary digit, the stars should be printed in the cells as was indicated.
v. The signature is placed at the end of the document to which the names of the new members are.

Below is an example for letter B:

cell- (11) – 1
cell (12) – 1
Cell (13) – 0
Cell (21) 1
.
.
Cell (52) – 1
Cell (53) - 0

Output

```
* *
*   *
* *
*   *
* *
```

After submitting enrollment information, each agent is required to sign. All signatures of all agents for the corresponding district are stored in the file with the enrollment details. The signature may be B NOT the stars.. Every 5 minutes, a scheduled job runs in the background, checking the files for each district for completeness and validity. A **complete** file is the one that has all signatures for members attached to the bottom of the file. In case an agent logs into the system via the C client, they should see status of the file, indicating who has and who has not signed.

In case the file for a specific district is **complete and valid**, the contents are cleared and a copy saved to the database. A **valid** file is one, where all signatures are correct. The signature in the file should match the user's signature in the database. If one or more signatures are incorrect, the records are not inserted into the database. Instead, a message is written to the file, indicating, whose signatures are wrong. This information is seen by the agents who entered the wrong signature and the agent head. Other agents whose signatures passed the test will see a message indicating a failure of the file to pass the validity test and how many signatures failed ONLY. Once the concerned agents submit the correct signatures, the wrong ones are replaced such that the file passes the next validity check if all signatures are corrected.

The administrator can use the web application to view the following:-

i. List of members enrolled in a given period of time, organized by district, agent, month etc as selected by the administrator
ii. The graphical displays of hierarchy. At the top of each is an agent head, displayed by district
iii. The distribution of money to each of the agents in the different districts
iv. Graphs of variation of funding per month and per period
v. Graph showing donations by month, well-wisher as selected by the administrator
vi. Total number of members
vii. Graph, showing variation in Percentage change in enrollment figures. Ie, if March=30, April = 40, May=20 percentage change in March = 40 – 30 /30, percentage change in May = 20- 40/ 40

Instructions

1) Use ONLY laravel, a PHP framework to develop a web interface
2) You may use free web templates if you like.
3) Use C programming to develop a client and server application. The client takes the commands ONLY. the server is the one that performs all the processing such as inserting into and reading from the file
4) It is recommended that you use Linux operating system
5) You may use IDEs like dreamweaver for editing the web application.

6) Get a github account if you do not have any. Site is github.com. Create a repository for your project and commit all your code on a daily basis. The supervisor shall check the number of commits and the ability of every member to commit the code to the repository as a means of awarding individual marks
7) Get a free hosting service and set up your web project there. Indicate both your github and site URL on the design document