Data Structures Lab (IT206)

Project

"Quora: The Discussion Forum"

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OVERVIEW

The project “Quora – The Discussion Forum” provides an easy interface for registered users to post the topics and can invite other registered users to post the comments for the topic. This may be useful for many organizations like schools, small offices and universities to organize the discussion for anything in an efficient manner. The project provides facilities to post new topics, add comments to a particular topic, delete existing threads for topics, read a topic and comments on it, get a full overview of all topics of the discussion forum.

How the project will be helpful:

- Some organizations or any group may like to share their ideas or problems through a system. The group may like to have many topics and some discussion about the topics. It will be very helpful for them if the whole discussion is arranged in an efficient manner.
- Our focus is to provide a system i.e., discussion forum which will keep all the discussion in an arranged way and users can keep track of topics discussed in an easy manner and they can also post their ideas to the forum.
- The project provides facilities to post new topics, add comments to a particular topic, delete existing threads for topics, read a topic and comments on it, get a full overview of all topics of the discussion forum.

Our Approach towards the problem:

- We wanted to create a system in which we can get a container which can store the data for discussion as strings and it should also be helpful to access the data efficiently so we can edit or delete any data easily.
- Also, the comments on any particular topic must be linked together as they are under same topic.
- With help of appropriate data structures, we were able to fulfill the requirements.

Data-Structures used:

- We have created **an array of linked-lists** which entails details of particular discussion thread corresponding to its topic.
- The index of the array will represent the topic numbers and for each topic there will be a linked-list to add the comments on it.
- The reason for choosing array is to get the ease of access of particular topic and the reason for choosing linked-list to maintain topic and comments is to get the ease in insertion and deletion operations.
- We have also used **File** named as “userdata.txt”, which contains necessary user-credential data for all the registered users.

How the project works:

- First of all, an array of a fixed size will be created with pointers to the node of topic of discussion threads stored at each index and topic will be declared as an empty node.
- Each node in the linked-list of particular discussion thread will have 3 attributes: Content, User and Time.
- To post a discussion thread, system will ask user to enter the topic that will be stored as Content of Head node at first empty discussion thread and it will set User attribute of that node to the currently logged in user`s username and the Time attribute to the time when discussion thread is created.
- When users try to add a comment to a particular topic, a new node will be inserted with comment data into corresponding discussion thread`s linked-list.
- To display the discussion threads created by user, we will iterate over each index in array and print all the linked list in which the head node contains User attribute with value same us currently logged in user`s username.

- For displaying the whole forum, we will iterate the whole array and print all the linked list where head node does contain some content.
- To delete a discussion thread created by user from the forum, we will delete the whole linked-list (except the head node) of discussion thread and set head node`s attributes to their default values.

User-Interface:

- In order to provide, an easy-to-use interface, this system provides Arrow Key Selection feature to select appropriate option. Moreover, it also provides a beautiful color theme in the system using “windows.h” library in C++.

Learnings from the project:

- We learned to implement and define our own data-structure as per our requirements by this project. Also, we learned to use new libraries in C++ and tried to adapt to the project-management environment as quickly as possible.
- Moreover, we got introduced to the other aspects of the project management like team-work, solving technical and non-technical issues of the project within available deadlines.

Limitation of the project:

- The major limitation of the project is that we have used a static array of predefined size, which limits the total number of discussion threads that can be created by the system. So, it is not a good example of memory-efficient program.

----------THANK YOU----------