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Software Requirements

1) Basic java software(jdk&jre) version 1.8. For installation, download the software, run and install it as usually. After installation, set the system's environment variables, i.e set the "path" variable to java software directory.
2) Data Base---Microsoft Access 2016 (free download or trial version)
3) Necessary jar files and gif files are included in lib and resources folder. So no need to download them separately.

Procedure to Compile, Run/ Start

Go to command prompt navigate to your project location and then navigate to "releases".

Starting server

Give the below command over the command prompt.

start java -cp Server.jar;commons-lang-2.6.jar;commons-logging-1.1.1.jar;hsqldb.jar;jackcess-2.0.4.jar;ucanaccess-2.0.8.jar;%classpath%; com.mclient.Server -x

Starting Client

Give the below command over the command prompt.

set classpath=commons-lang-2.6.jar;commons-logging-1.1.1.jar;hsqldb.jar;jackcess-2.0.4.jar;ucanaccess-2.0.8.jar;org.apache.commons.io.jar;%classpath%;

To run either one or multiple client instances (MultiThreading)

Give the below command that many times you want client instance to run over the command prompt.

start javaw -cp Client.jar com.mclient.Client 127.0.0.1

ASSUMPTIONS

1. Code is built using lab-1 code. New users couldn't register for transactions. Pre-registered user in lab-1 can participate in two phase-commit on the transactions.

2. The co-ordinator is pre-selected i.e., the first client who logs in will serve as co-ordinator and the remaining as participants.

3. Participant cannot either "post" or ask for "vote", similarly coordinator cannot use "commit" or "abort" buttons as we can see in the UI of the project.

4. When the co-ordinator posts a query to the clients,

    i. it is in creation state of thread which is communicated to all the participants of the system, and when he goes for Voting phase, we are checking for time-interval (difference when he posted and when he starts to vote) which is handled by TIMEOUT factor which becomes global abort for the transaction, if not done within some timespan.

    ii. if co-ordinator successfully asks votes, then it enters 'Ready state' which means it is waiting for the participants to reply.

    iii. If all the participants send their votes to the coordinator then he receives the messages and checks for all the votes of the participants.
    iv. If all votes are COMMIT then global commit is done, if any one of the participants sends ABORT then it becomes global abort. If clients doesn't send the votes within some timespan, then it is considered as global abort.

5. Multiple log-files are created for client and co-ordinator.
6. Due to multi-threading, the resources get blocked. Therefore, as in real-time, we need to refresh our transactions i.e., we need to "exit" all the clients and server (shut down) after every transaction and restart. It makes the resources to nullify internally.

References

1) https://itiansweb.blogspot.com/2016/12/write-program-to-implement-two-phase.html
2) http://www.rocktheit.com/two-phase-commit-protocol/
3) http://www.w3.org/Protocols/