**CSE 5306: Distributed Systems-Lab 2: Distributed File Service with consistency**

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1. **Mugutrao\_hxm7263.zip Folder contains:**

* Source Code for Lab 2
* Jar needed to run program
* Lab2 ReadMe file

1. **What to change in the code?**
   * In Assignment1\src, there will be two folders:
     1. Client
     2. Server

These folders contain source code for client and server side processing.

1. To run code successfully, we need to put Client and Server paths in the java files. **The changes are as follows:**
   * **In Client.java file**
     1. For User folder creation path:

Replace the path C:/Users/harsh/Desktop/ with location of your choice. The folder for user will be created automatically in this location.

Where to replace? : In Client.java find comments-

* create a new dynamic directory at specified location with directory name same as user name
* path for user directory to be monitored
* path of client directory
  + 1. For Server folder path:

Replace this part of path C:/Users/harsh/Desktop/ with location of your choice. The folder for Server will be referenced here. It should match with location in Server.java file. Server Directory will be created automatically. Just provide location.

Where to replace? : In Client.java find comment

* path of server directory
  + **In Server.java file**
    1. For Server folder creation path:

Replace the path C:/Users/harsh/Desktop/ with location of your choice. The folder for Server will be referenced here. It should match with location in ServerThread.java and Client.java files. Server Directory will be created automatically. Just provide location.

Where to replace? :

In Server.java find comments-

* Static path for Server directory

In ServerThread.java find comments-

* Static path for Server directory to be watched

1. **How to run the code?**
   * In Assignment2 folder, extract orgs.apache.java.commons.io.jar.zip file.
   * In Eclipse IDE, go to File > Import> General> Existing Projects into Workspace (click next)> for select root directory option, browse your Assignment1folder> Finish
   * You can see project Assignment1 on Left side. Right click and select properties. Go to Java Build Path menu on Left, on Libraries tab, select Add external jars. Select the extracted orgs.apache.java.commons.io.jar jar file. Press Apply, Apply and close buttons.
   * You must be able to see this jar in Referenced Libraries folder on Left side of screen
   * Now run ServerWindow.java file. Press Start server button.
   * Now run ClientWindow file. Client window will be started. You can start as many Client windows by running the file.
   * Now enter a username and press Set. If no validation is fired, a folder with given username will be created in the location specified by you. This is Directory for the specific client.
   * Also a Directory for Server with folder name Server will be created at location specified by you.
   * A designated text file is present at every client.
   * If a client modifies the text file, remaining users will be notifies about it and they will update the file from server.
   * Corresponding outputs will be seen on respective GUIs/command prompt.
2. **Limitations**

* We are not able to get invalidation notices and to download files if same user updates in text file for second time.
* We are not able to explicitly kill the client processes and display list of remaining users in network.

1. **Bugs**
   * Client and Server windows do not close by pressing X button of the window
2. **Sites Used in the project:**
   * **For Client:**
     1. [**https://alvinalexander.com/java/java-create-directory-directories-file-mkdirs**](https://alvinalexander.com/java/java-create-directory-directories-file-mkdirs)
     2. [**https://www.baeldung.com/java-nio2-watchservice**](https://www.baeldung.com/java-nio2-watchservice)
     3. [**https://www.java67.com/2016/09/how-to-copy-file-from-one-location-to-another-in-java.html**](https://www.java67.com/2016/09/how-to-copy-file-from-one-location-to-another-in-java.html)
     4. [**https://stackoverflow.com/questions/5107629/how-to-redirect-console-content-to-a-textarea-in-java**](https://stackoverflow.com/questions/5107629/how-to-redirect-console-content-to-a-textarea-in-java)
     5. [**https://stackoverflow.com/questions/35094602/java-app-cant-be-closed-even-close-on-exit-tcp-server**](https://stackoverflow.com/questions/35094602/java-app-cant-be-closed-even-close-on-exit-tcp-server)
     6. <https://stackoverflow.com/questions/8484668/java-does-not-equal-not-working>
     7. <https://stackoverflow.com/questions/18628023/to-create-a-new-directory-and-a-file-within-it-using-java>
     8. <https://www.baeldung.com/java-nio2-watchservice>
     9. <https://www.techiedelight.com/read-file-contents-with-apache-commons-io-library-java/>
     10. https://stackoverflow.com/questions/1053467/how-do-i-save-a-string-to-a-text-file-using-java
   * **For Server:**
     1. [**https://www.tutorialspoint.com/java/java\_networking.htm#**](https://www.tutorialspoint.com/java/java_networking.htm)
     2. [**https://www.programcreek.com/java-api-examples/?class=org.apache.commons.io.FileUtils&method=deleteDirectory**](https://www.programcreek.com/java-api-examples/?class=org.apache.commons.io.FileUtils&method=deleteDirectory)
     3. [**https://gist.github.com/chatton/14110d2550126b12c0254501dde73616**](https://gist.github.com/chatton/14110d2550126b12c0254501dde73616)
     4. [**https://stackoverflow.com/questions/8936141/java-how-to-compare-strings-with-string-arrays**](https://stackoverflow.com/questions/8936141/java-how-to-compare-strings-with-string-arrays)
     5. [**https://www.baeldung.com/java-nio2-watchservice**](https://www.baeldung.com/java-nio2-watchservice)
     6. [**https://stackoverflow.com/questions/5107629/how-to-redirect-console-content-to-a-textarea-in-java**](https://stackoverflow.com/questions/5107629/how-to-redirect-console-content-to-a-textarea-in-java)
     7. [**https://stackoverflow.com/questions/35094602/java-app-cant-be-closed-even-close-on-exit-tcp-server**](https://stackoverflow.com/questions/35094602/java-app-cant-be-closed-even-close-on-exit-tcp-server)
     8. [**https://stackoverflow.com/questions/35094602/java-app-cant-be-closed-even-close-on-exit-tcp-server**](https://stackoverflow.com/questions/35094602/java-app-cant-be-closed-even-close-on-exit-tcp-server)
     9. [**https://stackoverflow.com/questions/5107629/how-to-redirect-console-content-to-a-textarea-in-java**](https://stackoverflow.com/questions/5107629/how-to-redirect-console-content-to-a-textarea-in-java)
     10. <https://stackoverflow.com/questions/36849197/send-message-to-specific-clients-using-java>
     11. https://www.geeksforgeeks.org/iterate-map-java/