

WTF (Where's The File)

Setup

- Clone the source code and run `make` in the resulting directory.
- New binaries named `WTF` and `WTFserver` should have been created.

Usage

Server Program: `WTFserver`

- Run with `./WTFserver <port>`
- Running this binary with a port will bind the server to that port. Ensure this runs in the background of some machine you want to host the version control server on.
- **Multithreading Design**
 - When the server is launched, it will also initialize an array of process IDs in preparation for multithreading.
 - There is a maximum of 60 threads that can be handled at once.
 - Whenever a new WTF client connects, it is passed to the `clientThread()` method, in which it responds to all the demands of the client. After the client sends a signal that it is finished, the server closes the thread and deals with the next thread, if there was one waiting for a mutex unlock.
 - If the `WTFserver` closes unexpectedly, the server is to close all threads that may be running and free all allocated memory upon exiting.
 - Each server utilizes mutexes in order to make sure any simultaneously running threads cannot both modify a repository at the same time.
 - When dealing with a repository's contents, the mutex is locked. Once the WTF client signals that it is done, the mutex is unlocked.

Client Program: `WTF`

- `./WTF configure <IP> <port>`
 - Configure the client to connect to the IP (this is the remote IP of the machine the server is running on)
 - You can also run the server locally and connect to `localhost`
 - Enter the port that the server binded to.
- `./WTF checkout <project name>`
 - Download the full project from the server locally.
- `./WTF update <project name>`
 - Check for differences between server version of project and local version.
- `./WTF upgrade <project name>`
 - Upgrade project to server version if local version is behind.
- `./WTF commit <project name>`
 - Check for differences between local and server version of project and send differences to server.
- `./WTF push <project name>`
 - Upgrade server version of project to local version.

- `./WTF create <project name>`
 - Initialize the project on the server.
- `./WTF destroy <project name>`
 - Delete all project files on the server.
- `./WTF add <project name> <filename>`
 - Add file to the manifest to be tracked.
- `./WTF remove <project name> <filename>`
 - Remove file from the manifest to untrack it.
- `./WTF currentversion <project name>`
 - Gets the state of the project from the server.
- `./WTF history <project name>`
 - Get a history of all operations performed on all successful pushes since project creation.
- `./WTF rollback <project name> <version>`
 - Delete all versions after the specified version on the server. Rollback project version to version of the project specified.