

## About

The CSCI1660 and CSCI1620 capstone project involves building a file storage service similar to Dropbox. The service uses a command line interface written in python. I implemented both the client and server side functionality of this service. The overall goal of the file system service is to allow users to easily upload, download, and share files of any kind, while providing a secure server side service that is resilient to attacks. The course staff attacks the service to test its defenses.

## Base Specifications

The file sharing service is able to support an arbitrary number of users within the bounds of practical limits (such as disk space). Users are able to sign up and delete accounts. Users can login, maintain a session while logged in, and logout securely. Authentication information is securely stored on the server so that, if it were to be stolen by an attacker, the attacker would not be able to immediately impersonate a legitimate user. Users can upload new files, access the contents of their files, modify their files, and delete their files from the service. Users are able to choose what to name files, but are bound to file name restrictions. While there is a storage limit per user, there is no a limit on the number of files. Users can also create and delete directories on the service.

## Additional Capstone Specifications

Users can securely share files with other users. All users that have a files shared with them have access to a live version of the file. When sharing a file, the owner can specify the permissions that shared users have. Owners can also modify these permissions and unshare files.

The server also supports file deduplication. If multiple copies of the same file are uploaded, even if by different users, the server only stores one copy to save space. This does not effect user experience, but allows the server to save storage space.