

## CS3560 Mini Twitter

### Assumptions:

- The UID for the users and groups is the same as their display names
- There can only be 1 user with the same UID and 1 group with the same UID
- Instructions say “output the total number of Tweet messages in all the users’ news feed.”  
I assumed the count of messages for the news feed should contain duplicates
  - o Ex. If user 1 follows user 2 and user 2 tweets, it will appear in both users’ news feeds.  
This will be counted as 2 messages. Same with the positive message ratio.
- The news feed should show messages with the most recent being top and least recent on bottom
- Group count starts at 1 because since the root group is counted

### Design Patterns:

#### Composite:

I used the composite pattern to create a hierarchy of userComponents. The two subtypes I created were userGroups and userNames.

#### Observer:

I used the observer pattern to do 2 things: update follower news feed and to automatically update the user news feed UI when a new tweet was added.

For updating follower news feed:

I made the user(userName.java) Observable and the news feed (newsFeed.java) the Observer. When the follow button was pressed, the userName being followed would attach the user that is trying to follow it. When a tweet is made, it will notify all observers and add it to their news feed.

For automatically updating the UI:

I made the userPanel the Observer with the newsFeed being the Observable. The panel would subscribe to the newsFeed of the user object that it is associated with. When the newsFeed of the user changes (ex. New tweet added), it will notify the observers(userPanel) to call a function to update the UI.

#### Visitor:

I created a Tree data structure which can house user components. I made the Tree Visitable which means it can accept visitors. Then I made a findUserComponent visitor which searches the Tree for a specific node. This visitor traverses the whole tree until a matching userComponent is found (when the UID and class of the object (either group or user) are the same).

#### Singleton:

I made the admin control panel (adminCPanel.java) a singleton so it can only be instantiated once.