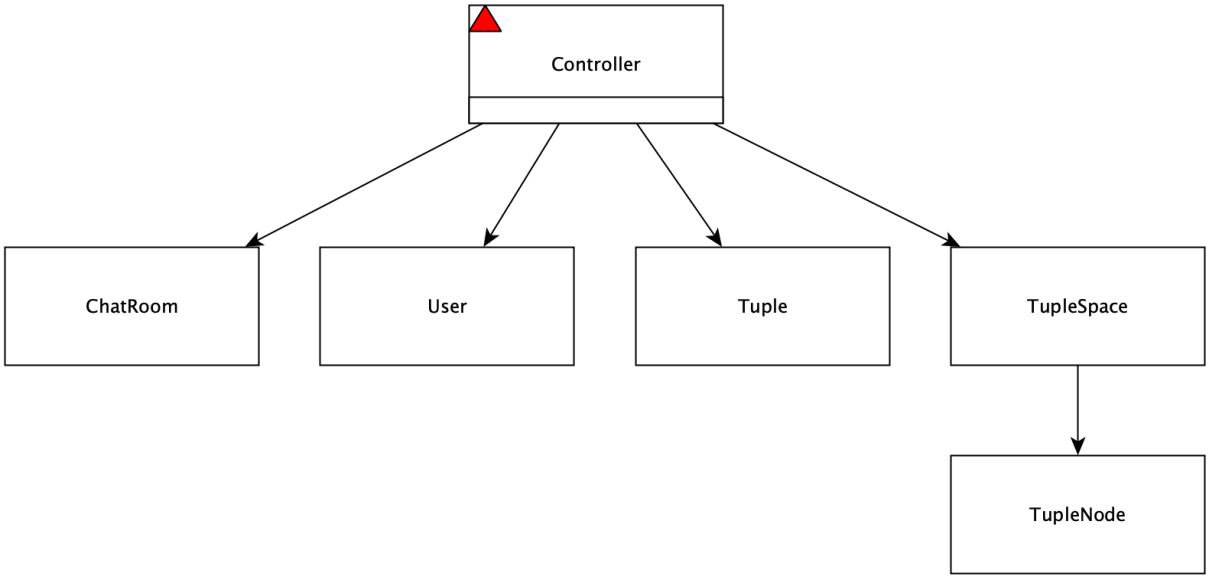
TupleSpace Design Document



ChatRoom

This class displays the chat room gui and manages the user's interactions in the chat room. A user can add users, make messages, see all users and see all active users.

Methods:

- void show(Stage primaryStage) throws Exception
    - this method shows and builds the primary stage that the gui is built on.

Controller

This class manages the chat room and the tuple space. The class is also the bridge between the tuple space and the chat room.

Methods:

- void start(Stage primaryStage) throws Exception
    - The method makes a beginning set of users in the tuple space and builds the builds the chat room.
- void addToTupleSpace(Object…objects)
    - The method takes in objects and adds them to the tuple space.
- void removeFromTupleSpace(Object…objects)
    - The method removes the specific objects from the tuple space.
- LinkedList<User> getMessageStack()
    - Returns the list of messages in the stack that contains the last 10 messages.
- LinkedList<User> getAllUsers()
    - Searches the tuple space for all users in the space regardless of their online status.
- LinkedList<User> getOnlineUsers()

    - Searches the tuple space for the online users in the space.
- User getCurrentUser()
    - Returns the current user.
- void setUserMessages(String message)
    - updates the message for the current user and adds it to the tuple space and the message list.
- void updateTurn()
    - Updates who the current user is, so that they can perform their turn.
- main(String[] args) throws Exception
    - Runs the main program.

TupleSpace

This class manages (adds, stores, removes and reads) the tuples that are created by the coordinator. The class can add in tuples, read tuples without removing and it can remove specific tuples from the space.

Methods:

- void add(Tuple tuple)
    - Method adds tuples to the space based on the individual objects that make up the individual tuple.
- void read(Object…objects)
    - Method grabs tuples from the space based upon the objects that are passed in. The method does not remove the tuples from the space that it grabs.
- remove(Object…objects)
    - Method grabs tuples from the space based upon the objects that are passed in and removes them from the tuple space repository.

User

This class stores the design of the user. The user has a name, an online status, a time stamp of when they are created and when they create a new message, and it stores the user's message.

Methods:

- String getName()
    - Returns the string name of the user.
- Boolean getOnline()
    - Returns the Boolean status of whether the user is online or not.
- Time getTime()
    - Returns the time stamp of the user.
- String getMessage()
    - Returns the message of the user.
- ArrayList<Object> getObjects()
    - Returns the parent set of the user.
- void setOnlineStatus()
    - Sets the online status of the user to the opposite value it is currently at.
- void setMessage(String newMessage)

    - Sets the message of the user to the new message.
- void setTimeStamp()
    - Sets the new time stamp for the user.
- @Override public String toString()
    - Returns the printed output of the user.

Tuple

This is the data structure for the values to be input into the space.

Methods:

- ArrayList<Object> getSet()
    - Returns the set of the objects that made up the constructor of the Tuple.
- int getSize()
    - Returns the size of the set of objects that make up the tuple.

TupleNode

This class is the structure that makes up the individual nodes of the trie that forms the tuple space. A node has an object for the data and a HashMap<Object, TupleNode> that make up the class.

Methods:

- HashMap<Object, TupleNode> getNodes()
    - Returns the nodes that branch off this specific node.
- Object getObject()
    - Returns the data object from this node.