Tinder Clone Design ocument

1.0 Introduction

Creating a clone of Tinder and creating with regards to the same usability and functionality as the original Tinder application

1.1. Goals and Objectives

This document describes important aspects of the implementation of how users will be able to match with other users and how user data will be tracked and stored.

1.2. Statement of Scope

Decisions in this document are made based on the following priorities (most important first): Reliability, Usability, Portability, Efficiency

1.3 Software Context

Blocking information will be maintained in the ConnectionToClient objects. The various commands will update and query the data using setValue and

1.4. Major Constraints

Issue 1: Where should we store the information regarding the Users username, password, and user ID?

Option 1.1: We can store the information in a User class, that class will then be uploaded to a User DB, which will then feed into a DataEntryList. This way we will be able to keep track of all user Logins and IDs

Decision: 1 . User information will be stored in a User database (text file), this will include the username, password, and a user ID (which will not be available to normal users). This userid is how the User DB will validate the username and password which is being entered and if it is present with a registered username/password, then the user will be able to log into their account. If not a error message will occur.

Issue 2: How shall matches appear in front of a user in the match screen

Option 2.1: A match queue will be present in which users with the closest location will appear first. We will need to manually enter information about how far each city is from each other. This will then get pulled from the Location DB, and get filtered according to the city which the current user is residing in. And potential matches will be shown accordingly.

Decision 2: Users will be shown a queue of potential matches based upon distance, this distance will be called upon from the Location DB, to see how far a user is from another. The user will then see other users which are closest within their region.

Issue 3: How will we keep track of user choices?

Option 3.1: Once a user has begun to swipe left or right on potential matches, each swipe will be stored in a Match DB. This will keep track of all of the swipes a specific user ID has swiped upon. In order for a match to occur, two user IDs must swipe on each other. When the Match DB is able to verify two user IDs both swiped right on each other, this will call the match pop up saying Congratulations. Only if two user IDs swipe right then a match will occur.

Decision 3: Every swipe which a user has given will be stored in the Match DB under their specific user ID. Only if two user IDs swipe right on each other, will a match be prompted for both users. If both users swipe left or if only one user swipes right, then this will be stored in the Match DB, under their specific user IDs. Matches will only occur if both user IDs swipe right.
Issue 4: Where will each Profile information get stored?
Option 4.1: Profile information will be stored in a Profile DB. This will be unique to each user ID, and will contain the user's location, age, display name, gender preference, and short description. Once logged out and relogged in, the Profile DB will then access the user ID which logged in and retrieve all of their data.
Decision 4: Profile information will be stored in a Profile DB, this will be called upon when prompted as a potential match. The profile information will include the users age, location, gender preference, picture, and bio. The rater user will only be able to view the ratee's profile information but will not be able to edit it. If a user is prompted to swipe right on the ratee, then the information will be passed to the Match DB.
Issue 5: How will all of the databases interact with each other?
Option 5.1: All databases will be linked to a datastore module, this module will include databases from the User DB, the Profile DB, the Match DB, and the Location DB.
Decision 5: The datastore module will be able to store the User DB, Profile DB, Match DB, and Location DB. This will allow the user to access specific data criteria when prompted by the user filter option.

2.0 Data Design

The classes will be separated into three main categories, which shall be referred to as modules.

2.1 Login Module

- the login module will store user account information in an instance of the DataStore class, named UserDB
- profile information will be stored in another instance of the DataStore class, named ProfileDB
- UserDB will include fields such as: user_id, user_name, user_password
- ProfileDB will include fields such as: profile_id, profile_uid, profile_fname, profile_lname, profile_gender, profile_bdate, profile_picture, profile_pref_agemin, profile_pref_agemax, profile_pref_locrange, profile_pref_gender
- ProfileDB will utilize the user_id to obtain the current user's profile details

2.2 Match Module

- the match module will store match information in an instance of the DataStore

class, named MatchDB

- the match module will store distance between locations in the LocationDB for filtering Profiles
- MatchDB will include fields such as: match_id, match_rater, match_ratee, match_option
- LocationDB will include fields such as: location_id, location_initial, location_final, location_distance
- the Filter class will be used to limit results obtained before they are stored in a ProfileList

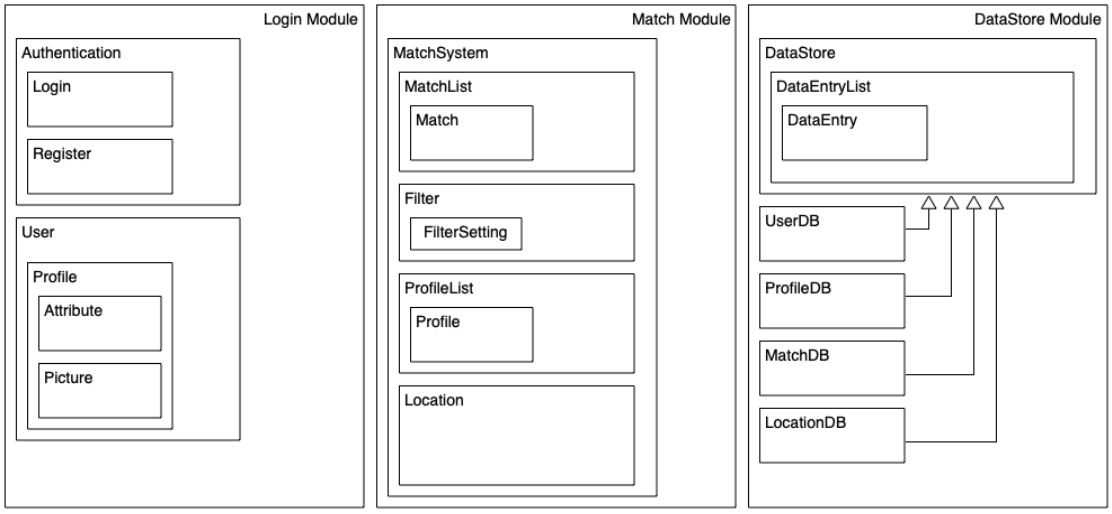
2.3 DataStore Module

- the datastore module will provide the class necessary for data storage, manipulation and retrieval: DataStore
- the datastore module will provide 4 instances of DataStore: UserDB, ProfileDB, MatchDB, and LocationDB
- information will be stored in row format with a series of columns describing each entity
- entries will be retrieved by specifying field value ranges to filter results into a DataEntryList

3.0 Architectural and Component-level Design

3.1 Program Structure

3.1.1 Architecture diagram



3.2 Description of Login Module

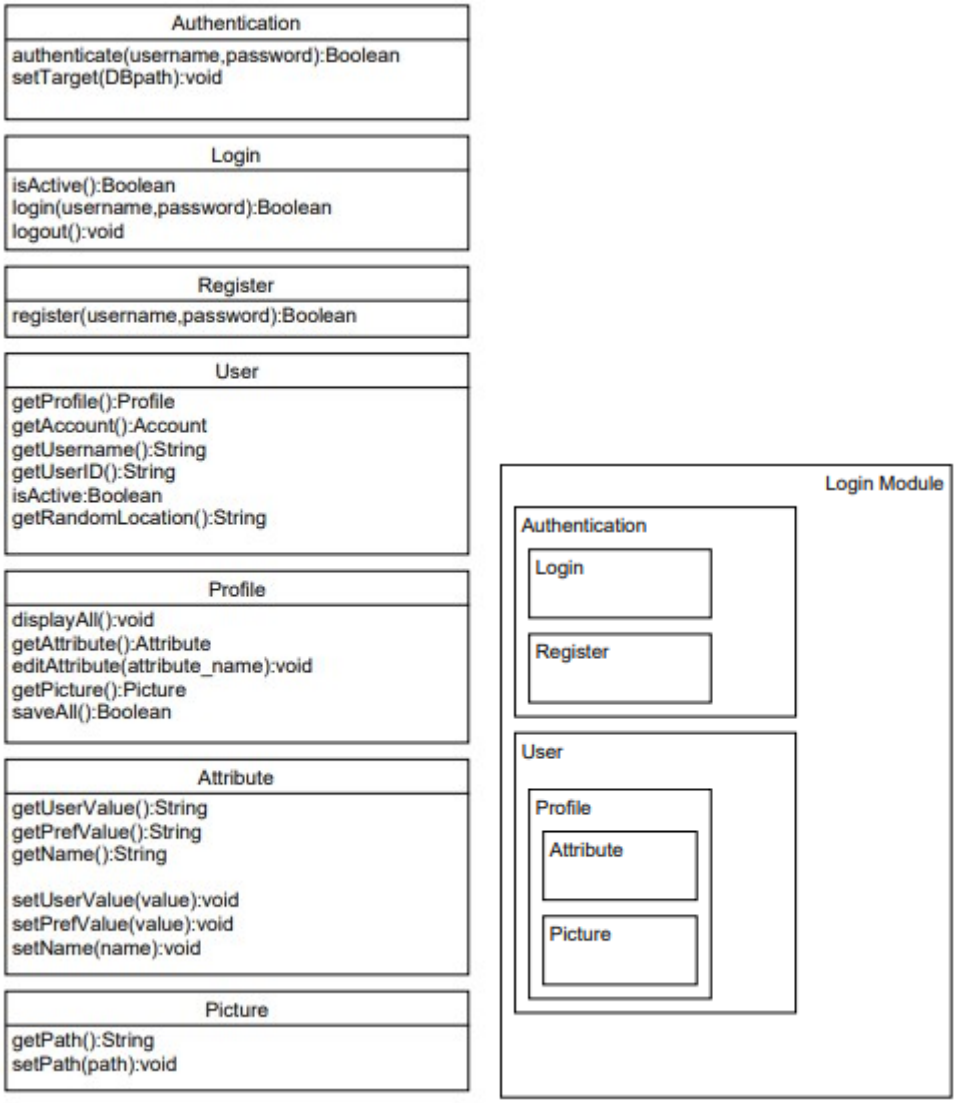
3.2.1 Login Module processing narrative

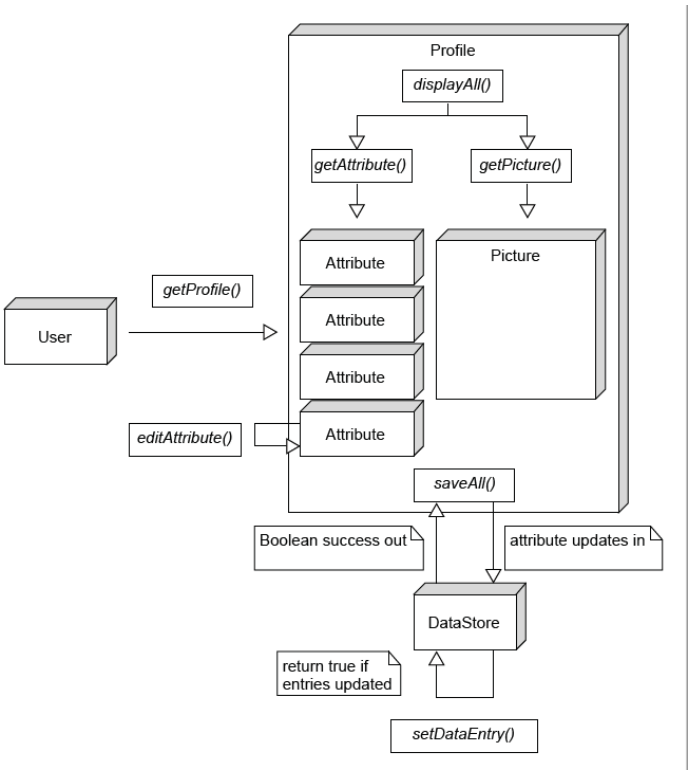
- Provides user login, registration, and profile management functionality.

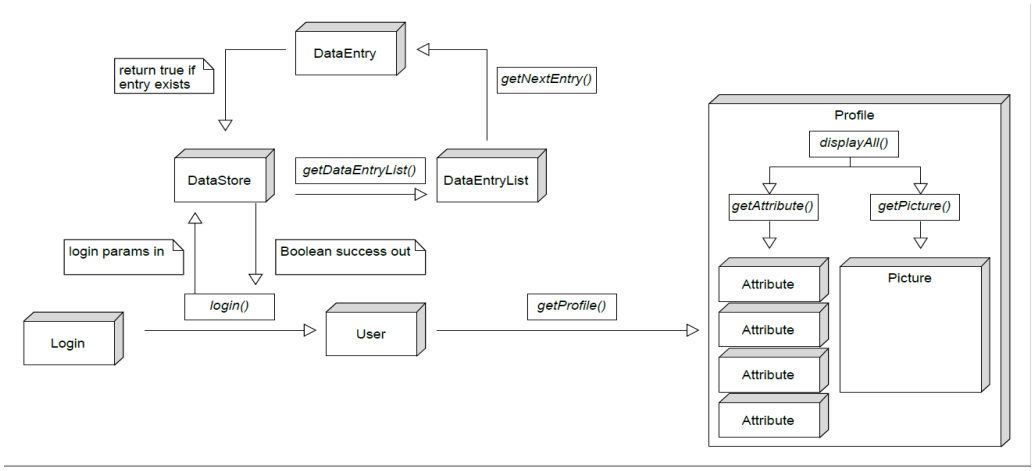
3.2.2 Login Module interface overview

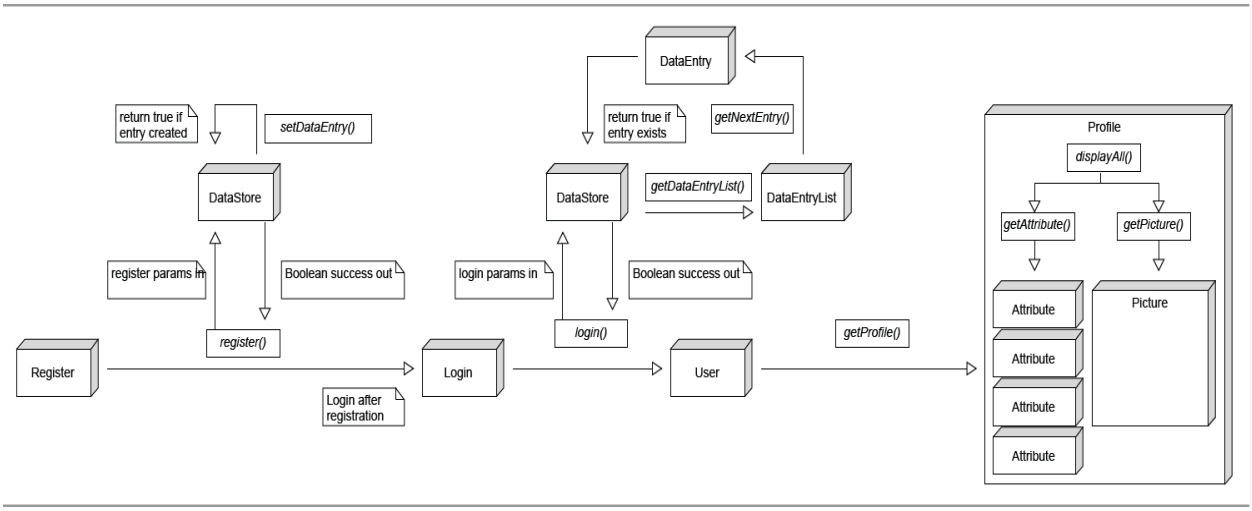
- **login** will take user's credentials
- **logout** will end a user's session
- **register** will take a new user's credentials and save them in user database.
- **isActive** returns if the user is currently logged in

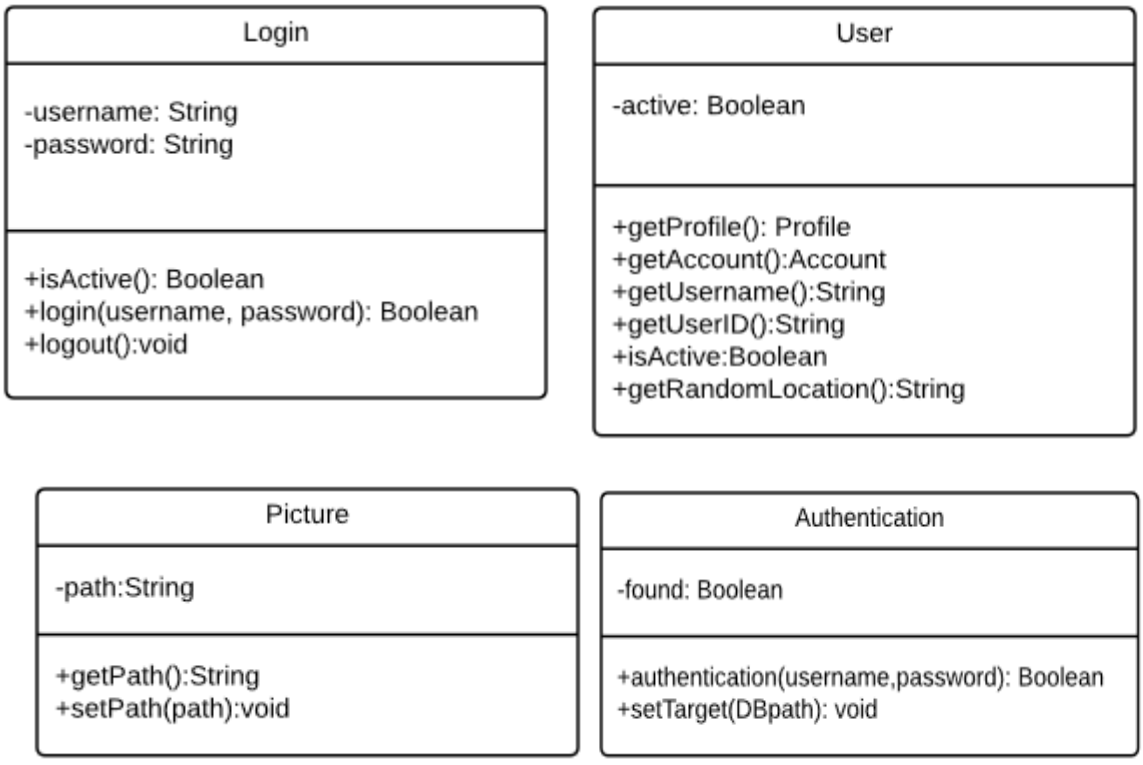
3.2.3 Login Module interface details

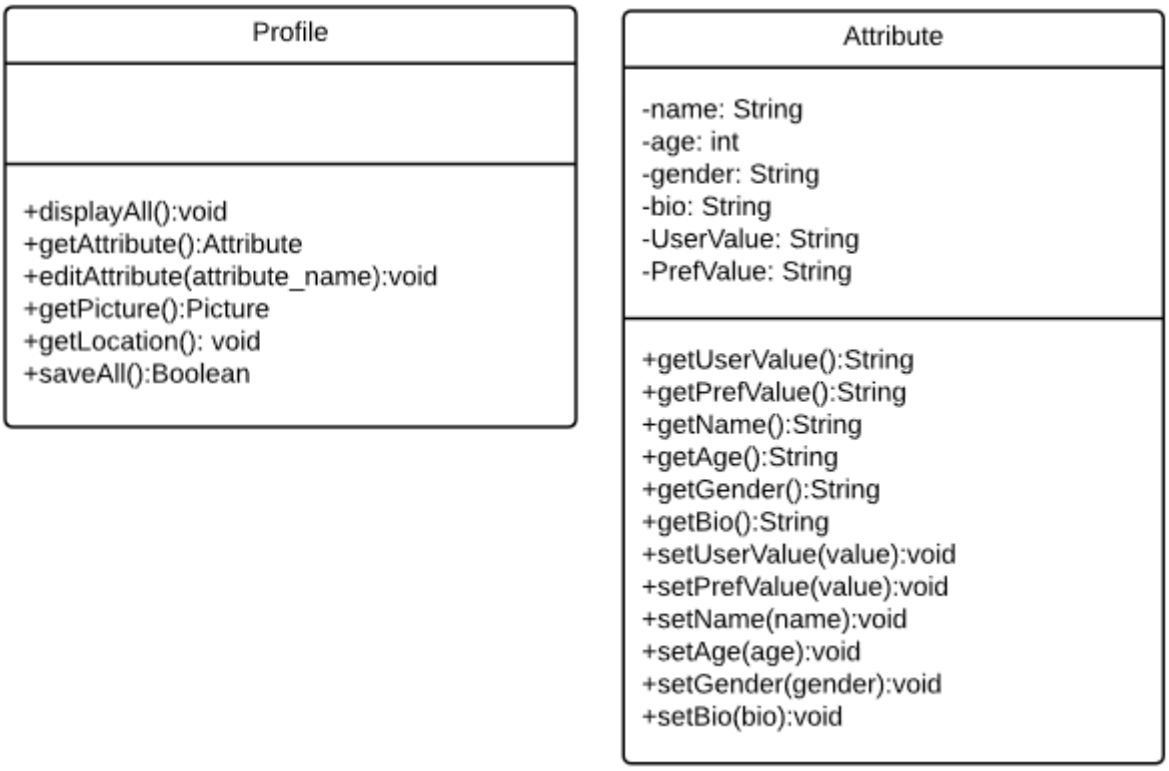



Profile
displayAll()
getAttribute()
getPicture()
Attribute
Attribute
Attribute
Attribute
Picture
User
getProfile()
editAttribute()
saveAll()
Boolean success out
attribute updates in
DataStore
return true if entries updated
setDataEntry()


DataEntry
return true if entry exists
getNextEntry()
DataStore
getDataEntryList()
DataEntryList
login params in
Boolean success out
login()
Login
User
getProfile()
Profile
displayAll()
getAttribute()
getPicture()
Attribute
Attribute
Attribute
Attribute
Picture


DataEntry
return true if entry created
setDataEntry()
return true if entry exists
getNextEntry()
DataStore
DataStore
getDataEntryList()
DataEntryList
Profile
displayAll()
getAttribute()
getPicture()
register params in
Boolean success out
login params in
Boolean success out
Attribute
Picture
Attribute
Attribute
Attribute
register()
login()
getProfile()
Register
Login
User
Login after registration


Login
-username: String
-password: String
+isActive(): Boolean
+login(username, password): Boolean
+logout():void
User
-active: Boolean
+getProfile(): Profile
+getAccount():Account
+getUsername():String
+getUserID():String
+isActive:Boolean
+getRandomLocation():String
Picture
-path:String
+getPath():String
+setPath(path):void
Authentication
-found: Boolean
+authentication(username,password): Boolean
+setTarget(DBpath): void



3.3 Description of Match Module

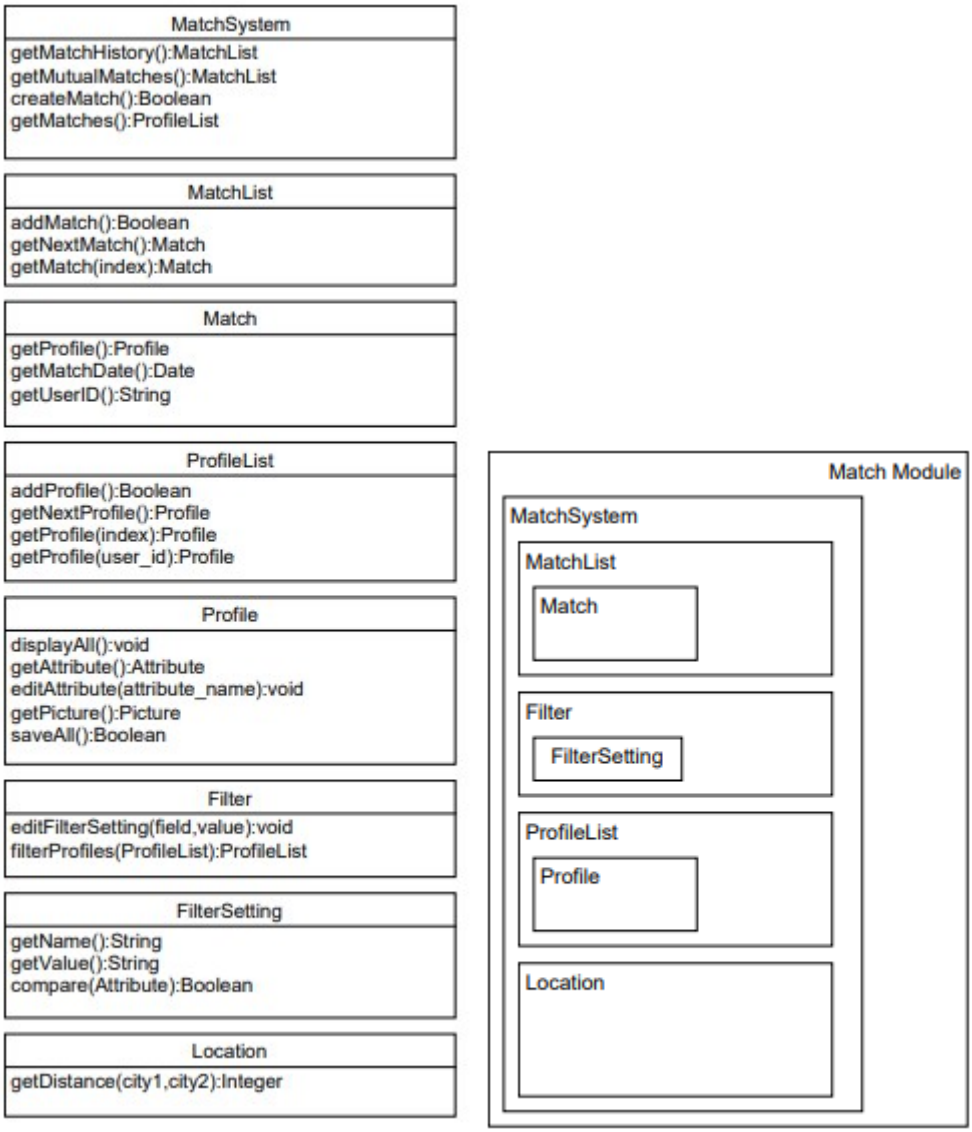
3.3.1 Match Module processing narrative

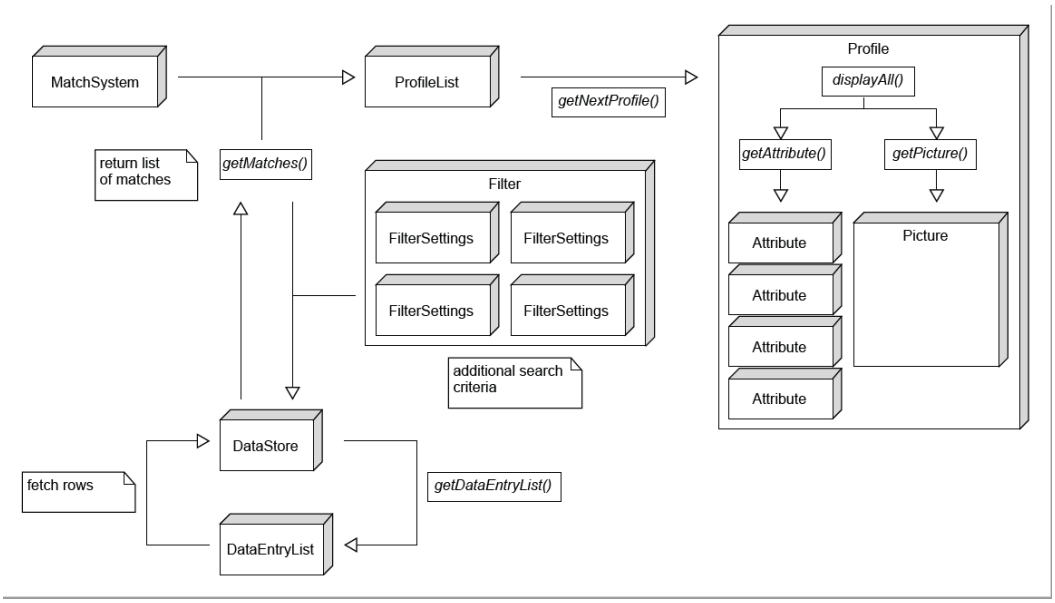
- Match system lets user find potential matches and view matches

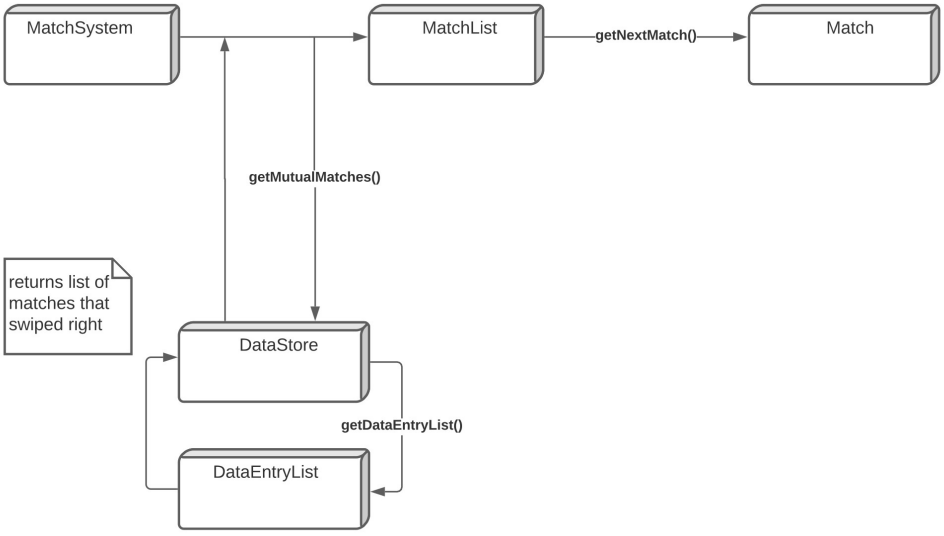
3.3.2 Match Module interface overview

- **addMatch** will add a match to the match list that will be displayed to the user
- **addProfile** will add a profile to the profile list of potential matches that are displayed to the user
- **getNextProfile** gets the next available Profile for rating
- **createMatch** adds a line entry to the MatchDB file
- **editFilterSettings** adjusts user preferences used to filter match results
- **getDistance** returns the distance between two cities retrieved from LocationDB

3.3.3 Match Module interface detail


MatchSystem
getMatchHistory():MatchList
getMutualMatches():MatchList
createMatch():Boolean
getMatches():ProfileList
MatchList
addMatch():Boolean
getNextMatch():Match
getMatch(index):Match
Match
getProfile():Profile
getMatchDate():Date
getUserID():String
ProfileList
addProfile():Boolean
getNextProfile():Profile
getProfile(index):Profile
getProfile(user_id):Profile
Profile
displayAll():void
getAttribute():Attribute
editAttribute(attribute_name):void
getPicture():Picture
saveAll():Boolean
Filter
editFilterSetting(field,value):void
filterProfiles(ProfileList):ProfileList
FilterSetting
getName():String
getValue():String
compare(Attribute):Boolean
Location
getDistance(city1,city2):Integer
Match Module
MatchSystem
MatchList
Match
Filter
FilterSetting
ProfileList
Profile
Location


MatchSystem
ProfileList
getNextProfile()
Profile
displayAll()
getAttribute()
getPicture()
Attribute
Attribute
Attribute
Attribute
Picture
return list of matches
getMatches()
Filter
FilterSettings
FilterSettings
FilterSettings
FilterSettings
additional search criteria
DataStore
fetch rows
getDataEntryList()
DataEntryList


MatchSystem
MatchList
getNextMatch()
Match
getMutualMatches()
returns list of matches that swiped right
DataStore
getDataEntryList()
DataEntryList

3.3.4 Match Module class detail

MatchSystem
-MatchHistory: arraylist <string>
-new_match: Boolean
-MutualMatches: string
-getMatch: string
-getMatchHistory(): MatchList
-getMutualMatches(): MatchList
-createMatch(): Boolean
-getMatches(): ProfileList
MatchList
-user_id: string
-getMatch: arraylist <string>
-addMatch(): Boolean
-getNextMatch(): Match
-getMatch(index): Match
Location
-City: string
-Distance: int
-getDistance(city1,city2): Int
ProfileList
-user_id: string
-profile: string
-index: string
-addProfile(): Boolean
-getNextProfile(): Profile
-getProfile(index): Profile
-getProfile(user_id):Profile
Filter
-Age: int
-Gender: string
-Distance: int
-editFilterSetting(field,value):void
-filterProfiles(ProfileList):ProfileList
-getName(): String
-getValue(): String
-compare(Attribute): Boolean

3.4 Description of DataStore Module

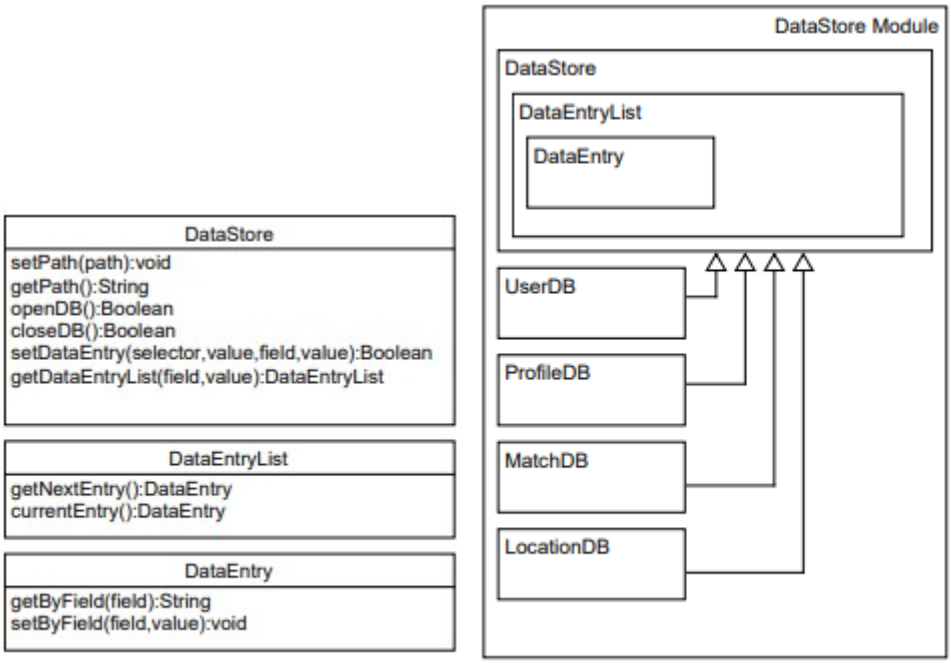
3.4.1 DataStore Module processing narrative

- Accesses and inserts data into databases

3.4.2 DataStore Module Interface overview

- **setDataEntry** will add the corresponding information needed to be stored in the databases
- **setPath** will set path to the corresponding database
- **openDB** will open the connection to the corresponding database
- **closeDB** will close the connection to the corresponding database
- **getDataEntryList** will return the relevant rows of information from the database in the form of a DataEntrylist.

3.4.3 DataStore Module interface detail



3.5 Description of Client and Server Side

3.5.1 Client-Side processing narrative

- Client requests data from the server

3.5.2 Client-Side Interface Overview

- **DataRequest** will allow Client to request information from primary class databases

- **DataValue** will define a value for the data point requested

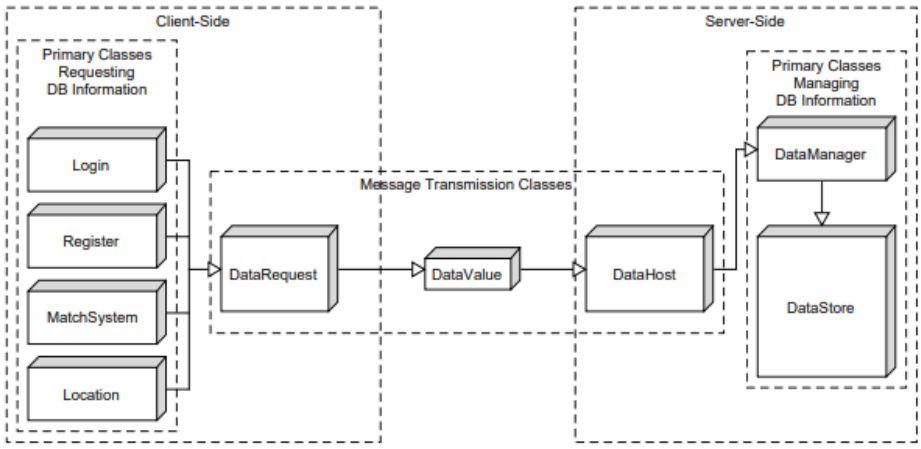
3.5.3 Server-Side processing narrative

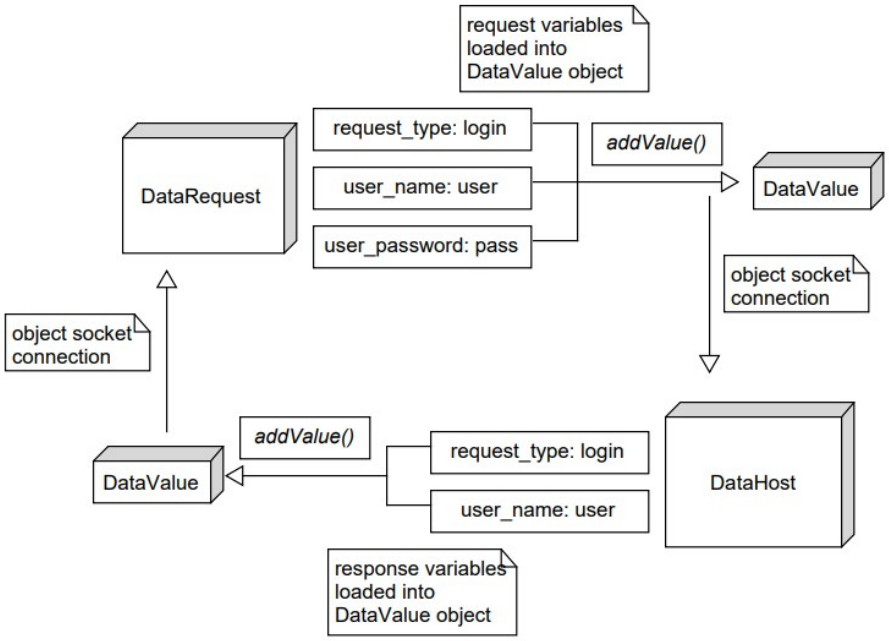
- Server stores requests and returns confirmation to Client

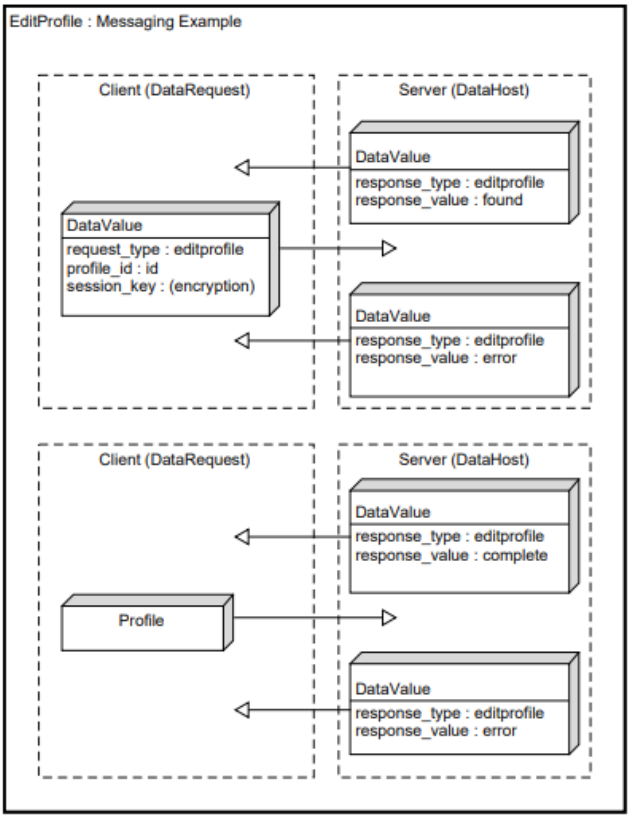
3.5.4 Server-Side Interface Overview

- **DataHost** receives request from Client
- **DataManager*** provides an intermediate layer between DataHost and DataStore
- **DataStore** processes database requests

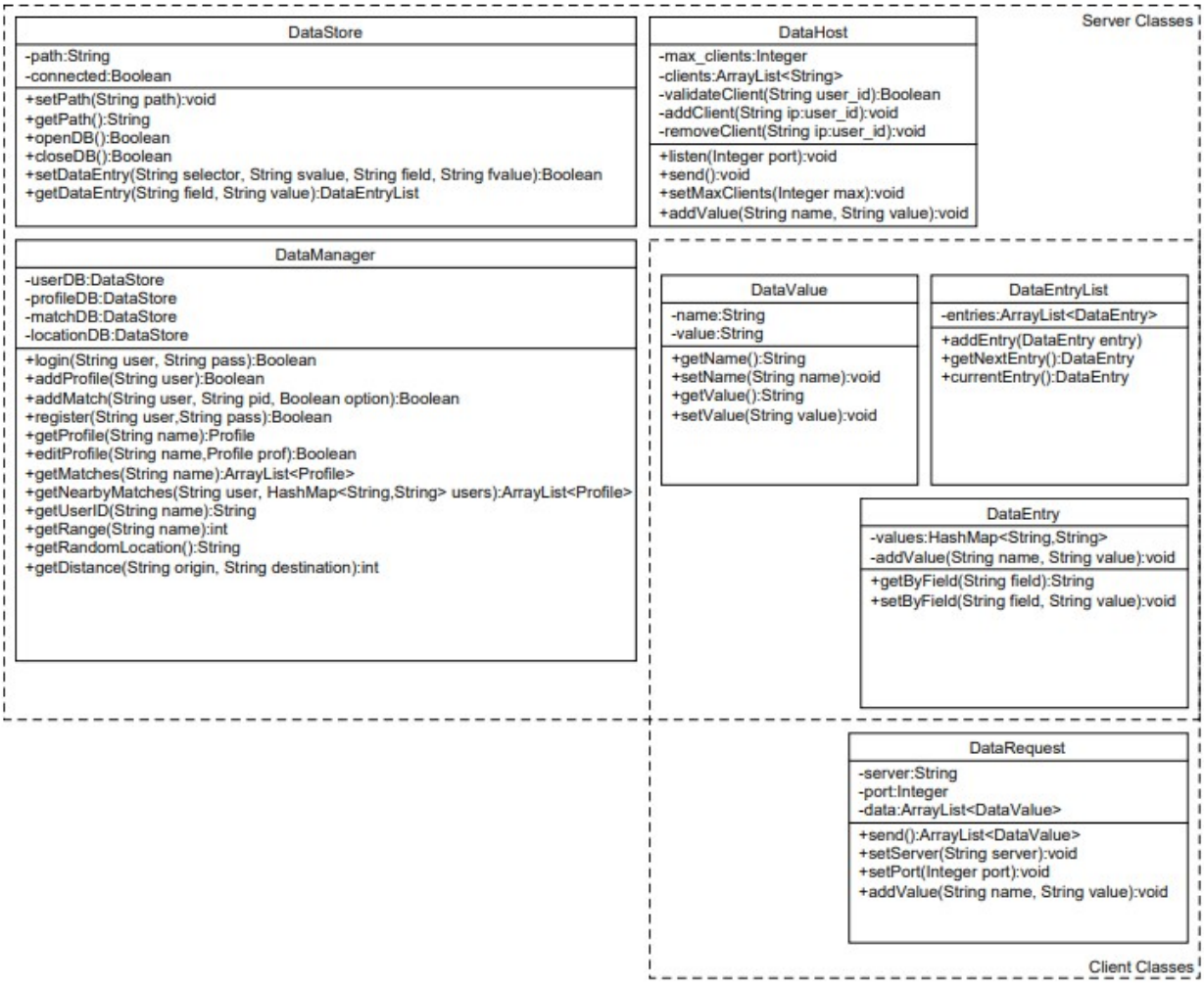
3.5.5 Client-Server Interface Detail




request variables
loaded into
DataValue object
request_type: login
user_name: user
user_password: pass
addValue()
DataRequest
DataValue
object socket
connection
object socket
connection
addValue()
request_type: login
user_name: user
DataValue
DataHost
response variables
loaded into
DataValue object


EditProfile : Messaging Example
Client (DataRequest)
Server (DataHost)
DataValue
response_type : editprofile
response_value : found
DataValue
request_type : editprofile
profile_id : id
session_key : (encryption)
DataValue
response_type : editprofile
response_value : error
Client (DataRequest)
Server (DataHost)
DataValue
response_type : editprofile
response_value : complete
Profile
DataValue
response_type : editprofile
response_value : error

3.5.6 Class Detail



3.5.7 Message Types**

Login	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	login	response_type	login	response_type	login
	user_name	user	response_value	valid	response_value	error
	user_password	pass	session_key	(encryption)		

Logout	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	logout	response_type	logout	response_type	logout
	user_name	user	response_value	valid	response_value	error
	session_key	(encryption)				

Register	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	register	response_type	register	response_type	register
	user_name	user	response_value	valid	response_value	error
	user_password	pass				

GetProfile	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	getprofile	response_type	getprofile	response_type	getprofile
	user_name	user	response_value	found	response_value	error
	session_key	(encryption)	Profile Object			

EditProfile	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	getprofile	response_type	editprofile	response_type	editprofile
	user_name	user	response_value	complete	response_value	error
	session_key	(encryption)				
	Profile Object					

FindMatch	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	findmatch	response_type	findmatch	response_type	findmatch
	[attributes]	[values]	response_value	found	response_value	error
	session_key	(encryption)				
	Filter Object		ProfileList Object			

GetDistance	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	getdistance	response_type	getdistance	response_type	getdistance
	origin	city1	response_value	(distance)	response_value	error
	destination	city2				
	session_key	(encryption)				

AddMatch	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	addmatch	response_type	addmatch	response_type	addmatch
	user_name	user	response_value	valid	response_value	error
	session_key	(encryption)				
	profile_id	id				

GetMatches	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	getmatches	response_type	getmatches	response_type	getmatches
	user_name	user	response_value	valid	response_value	error
	session_key	(encryption)				
	local	true/false	ProfileList Object			

Heartbeat	Request		Response Positive		Response Negative	
	key	value	key	value	key	value
	request_type	heartbeat	response_type	heartbeat	response_type	heartbeat
	user_name	user	response_value	valid	response_value	error
	session_key	(encryption)				

***DataManager was added in V5 to help simplify access calls to DataStore objects**

****AddMatch, GetMatches, and Heartbeat messages were added in V5 to accomodate client/server functionality**