CS102	**Spring 2020/21**	Project Group	G3J
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~ HabiNet : Social Media for Productivity ~

Criteria	TA/Grader	Instructor
Overall		

G3J

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Project Detailed Design Report

(Version 1.0)

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1. Introduction

The idea of our app is, as described in all of the previous reports, to aid people who would want to either take on a new skill or learn a new habit or simply just fix their schedules and become more disciplined.

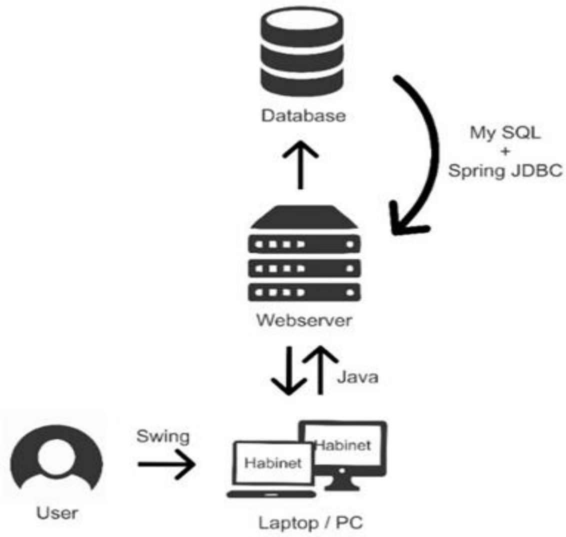
The app would utilize the human tendency of being better than others by promoting a sense of competition between different members, usually of the same group, or different friends that belong in the same group. Giving different rewards and incentives after completing simple or huge amounts of tasks would motivate the user to keep on going in improving his way of living and eventually become a better version of himself. Ensuring on-time completion of tasks and meeting deadlines is taken to be the highest priority of the app and measures have been taken to enforce this by using different ways of punishing the user if a deadline is missed.

However, this app is more user-dependent as it is the user's wish if he/she would want to improve with all honesty and use the app to ensure on-time completion of tasks and deadlines.

2. Systems Overview

The app would be a client-server desktop application that will be in direct communication with the server when in use by the user.

The user, after getting the app from a specified source, will be able to interact with the app using his/her Windows PC. The app will communicate with a local webserver through JAVA and then the database will also be modified and updated using the JDBC framework combining MySQL.



The following is a list of technologies that we have planned of using in the implementation process of our application.

2.1 JDBC (Java Database Connectivity)

This API will be used to communicate with the database

2.2 Spring Framework JDBC

To be utilized as an easier method of communicating with databases.

2.3 MySQL

A database management system to be utilized in storing all the data required to be stored.

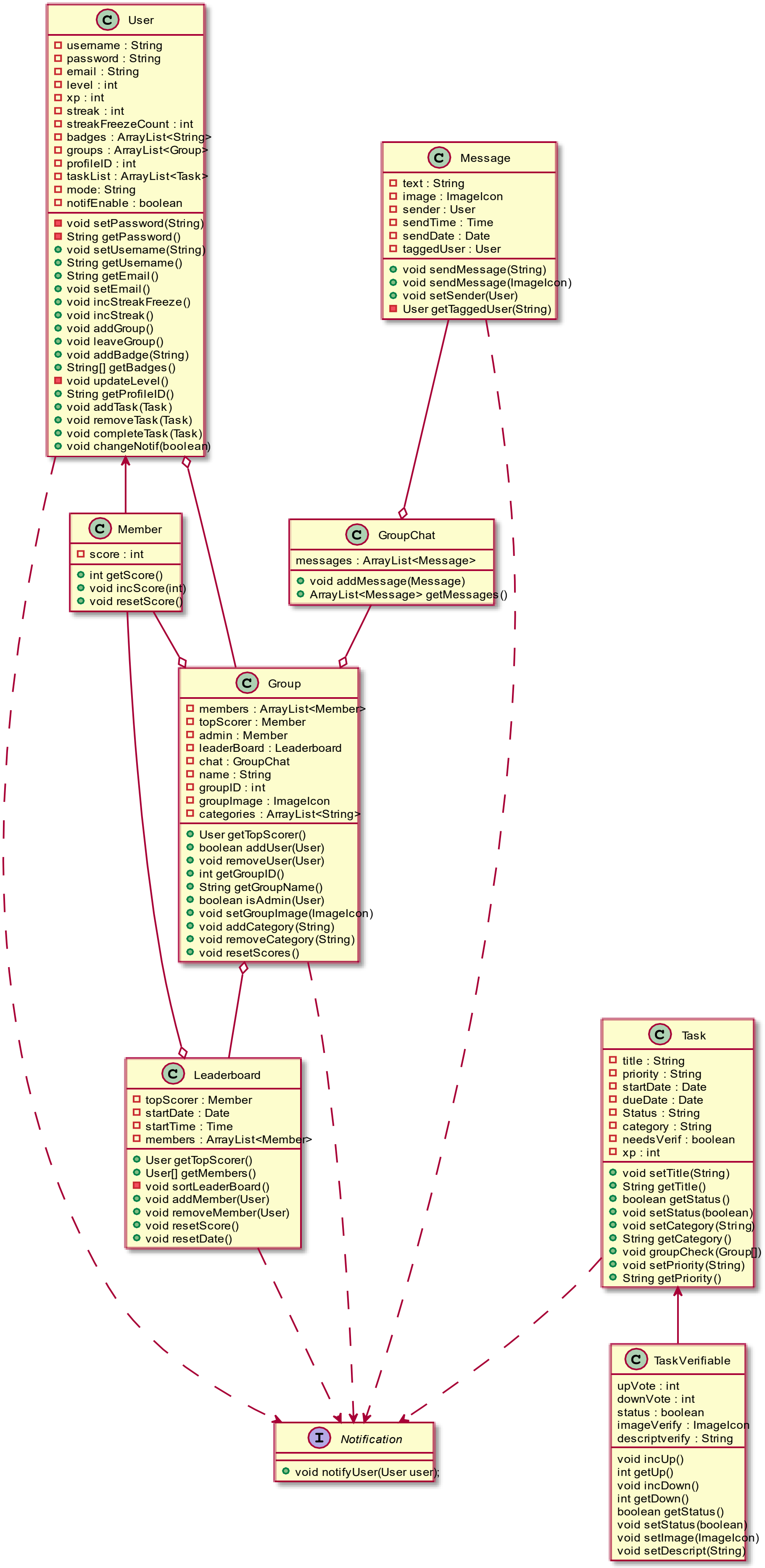
2.4 Java

Main programming language to be used in the implementation of the whole program idea.

2.5 Swing

GUI widget toolkit to be used in designing the program’s user interface.

3. UML Diagram



3.1 User Class

This class is the main class of the app that will handle all the details associated with the user. Such details include authenticators like the username and the password and even the email. The user object will also store all of the other data that is associated with the user such as his/her level, XP, tasks, groups the user is in, and/or the badges the user has.

The class would also have relevant methods for updating the user-related properties and carrying out user-related tasks.

This class will share a ‘has-a’ relationship with the following class:

- Group

And will implement the following interfaces:

- Notification

3.2 Member Class

This class would extend the User Class and will be a direct child to the user class having not only the user’s properties and methods but also the following:

- Score
- Accessor and modifier methods for the score

The need for this class is to maintain the user’s score while he/she is in a group and this score will be unique for every group. A score from one group must remain the property of that group with respect to the user, hence, the member class will maintain the individual scores.

3.3 Group Class

This is the second main class of the program. It will be composed of the properties required to make a group such as its members, leader boards, controls for the admin of the group, and similar group identification properties such as image, name, etc.

Its methods will include accessors and modifiers for each of its properties.

This class would share a ‘has-a’ relationship with the following classes:

- Leaderboard
- Group Chat
- Member
- User

This class will also implement the following interfaces:

- Notification

3.4 Leaderboard Class

This class would be used to maintain the leaderboard section of the Group. It will have a list of the members in the group arranged in decreasing order of the score with the top scorer at the top (or the first member in the array).

It will implement the following interfaces:

- Notify

3.5 Group Chat Class

This class will contain all the properties and methods related to communication between the group members.

It will aggregate the following class:

- Message

3.6 Message Class

An object of this class will be created whenever a member sends a message. It will contain all the details related to the message being sent eg. Sender/receiver info.

It will implement the following interfaces:

- Date and Time
- Notification

3.7 Task Class

This is prominently the 3rd most important class in the program. It will contain all the relevant information about a certain task such as the due date, priority, and the XP reward it will give if this task is completed, etc. It will have a verification property that will be set to true if the task being completed is from a group where the user is a top scorer.

It will implement the following interface:

- Notification

3.8 Task Verifiable Class

This class would contain the properties needed to verify a task in the group and will extend the Task Class. Each Task will now have an upvote and a downvote property after it becomes TaskVerifiable.

It will also implement the accessor and modifier methods for its properties.

3.9 Notification Interface

This will be implemented by all those classes that need to notify the user of any important event that took place in the app.

4. Task Division

The classes are divided between group members in the following order,

- **Muhammad Ali Waris :** Task, TaskVerifiable, Admin Controls GUI, ImageUpload GUI, ScoreVerifier, SoloTaskPanel, and related methods in the DB Class.
- **Amirreza Khoshbakht :** User, Profile GUI, Home GUI, Upcoming Task GUI, Group Profile GUI, and related methods in the DB Class.

- **Arshia Bakhshayesh:** Group, Member, Group GUI, Group Profile GUI.
- **Maher Athar Ilyas** : Message, GroupChat GUI, LeaderBoard, Notification, Register GUI, Login GUI, Forgot Password GUI, Menu GUI, Message GUI, Launcher, App GUI, Overview GUI, Setting GUI, Help GUI, and related methods in the DB Class.

5. References

1. Rosques, Arnaud. “Open-Source Tool That Uses Simple Textual Descriptions to Draw Beautiful UML Diagrams.” PlantUML.com, 2009, plantuml.com/.