DOCUMENTATION OF SOCIAL NETWORK PROJECT

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Contents

1 Introduction

This project aims to build a social network with JSP and MySQL.

1.1 Main Features

- *Compulsory*:
  - Sign up & in
  - Search for contacts & Post status and reply
  - 30 secs refreshment
- *Optional*:
  - Email address regex check
  - Ajax
  - Add Google's reCaptcha[1] validation
  - Two-step friends

1.2 Components

- Apache, Tomcat, Apache-Tomcat-Connector
- MySQL, MySQL Connector/J (JDBC)

Visit our project site at Database Course Project.

2 Environment

This project is hosted on Amazon Linux AMI server provided by AWS. To build the environment for running our website, we took steps as below.

1. install OpenJDK-1.8.0
2. install and configure Apache (httpd) & Tomcat

[1] Completely Automated Public Turing test to tell Computers and Humans Apart

3. link Apache and Tomcat with Apache Tomcat Connector [2]

4. install MySQL[3] and prepare MySQL connector/J in WEB-INF/lib

Note: Our project has been hosted at GitHub. Visit our project at https://github.com/PKU-2017-Database/Social-Network.

3 Data Structure

3.1 Entity-Relationship Diagram

Here is an English version of ER Diagram redrawn by LaTeX.

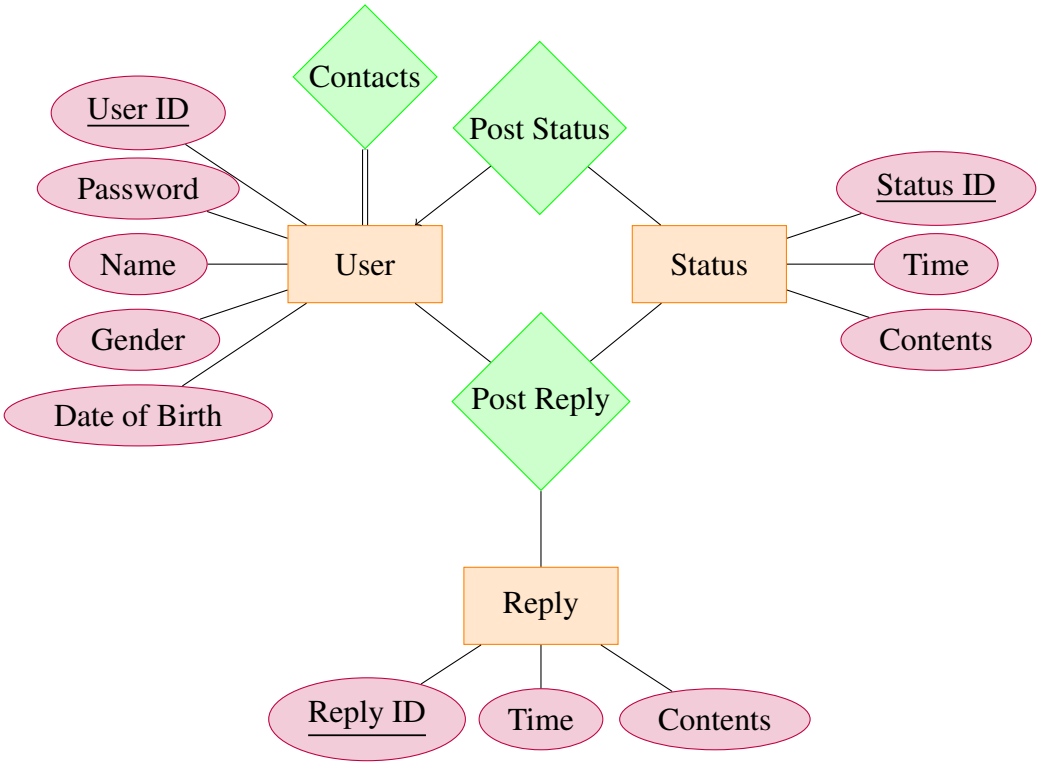

Figure 1: Entity-Relationship Diagram

3.2 MySQL Table

According to the above ER Diagram, we've designed MySQL tables as below.

[2]This makes it possible to run static web pages on Apache and dynamic ones on Tomcat.
[3]MySQL is case insensitive for Windows and MacOS, but that's not true for Linux.

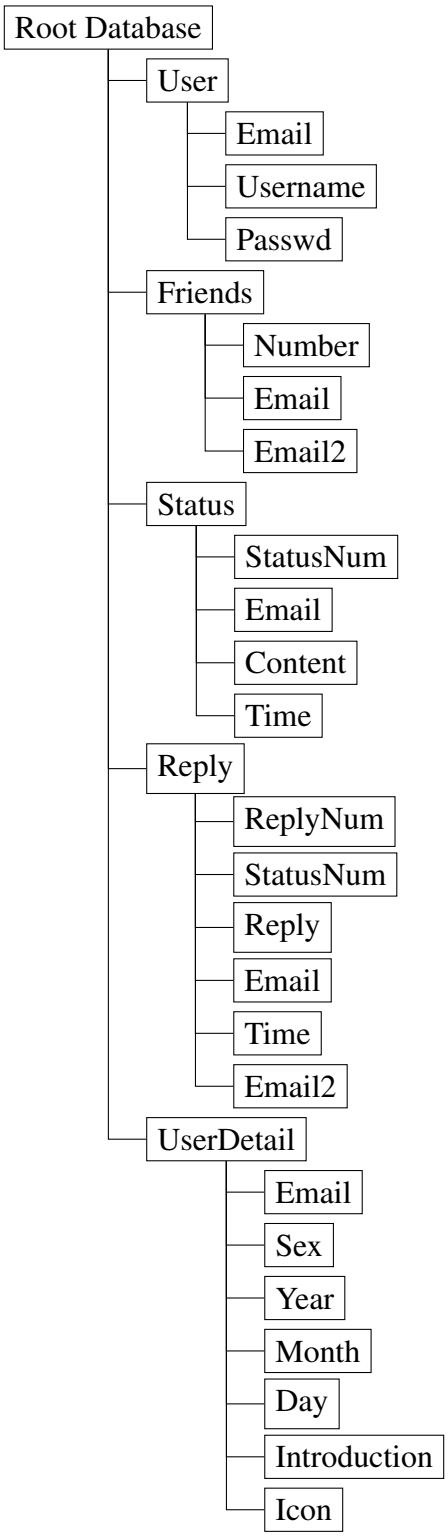

Figure 2: MySQL Table Structure

Details about tables and attributes:

- User - deal with signing up & in
  - Email: primary key to identify users in registration and log-in
  - Username: nickname, which can be edited after registration
  - Passwd: password to validate a user
- Friends - record friend relationships
  - Number: auto-increment primary key for identification
  - Email: follower's email
  - Email2: followee's email
- Status - store posted statuses
  - StatusNum: auto-increment primary key for identification
  - Email: poster's email
  - Content: posted contents
  - Time: posting time
- Reply - store posted replies to status
  - ReplyNum: auto-increment primary key for identification
  - StatusNum: replied status number
  - Reply: reply contents
  - Email: replier's email
  - Time: replying time
  - Email2: repliee's email
- UserDetail - store user details
  - Email: primary & foreign key pointing to User.Email
  - Sex: user's sex
  - Year: user's year of birth
  - Month: user's month of birth

- Day: user's day of birth
- Introduction: simple introduction to the user
- Icon: user's avatar

4 Division of Labor

Our group members:

Name	Student ID	Mobile	Email
He Yan	1400015464	15910670278	heyan@pku.edu.cn
Sun Meng	1500012867	15010189739	1400017665@pku.edu.cn
Wu Chuchuan	1500062802	18811788416	wuchuchuan@pku.edu.cn

Table 1: Group Members

Division of labor:

- He Yan: write documentation & add reCaptcha to website
- Sun Meng: design of website appearance
- Wu Chuchuan: logical framework & database implementation

5 Kernel Codes

5.1 Google reCaptcha

```
/* Client Side */
<div class="g-recaptcha" data-sitekey="6
    LdDNiMUAAAAAHDPfsdqqPKAPFEy5Xi3EoGwJIXi"></div>

/* Server Side */
String gRecaptchaResponse = request.getParameter("g-recaptcha-response");
String url = "https://www.google.com/recaptcha/api/siteverify";
String secret = "6LdDNiMUAAAAACVxX9eQOV4ITsc9YApSRpb80Lle";
boolean check = true;
if (!(gRecaptchaResponse == null || "".equals(gRecaptchaResponse))) {
    try{
```

```
        URL obj = new URL(url);
        HttpsURLConnection con =
            (HttpsURLConnection) obj.openConnection();
        con.setRequestMethod("POST");
        con.setDoOutput(true);

        String postParams
            = "secret=" + secret + "&response=" + gRecaptchaResponse;

        DataOutputStream wr =
            new DataOutputStream(con.getOutputStream());
        wr.writeBytes(postParams);
        wr.flush();
        wr.close();

        BufferedReader in =
            new BufferedReader(
                new InputStreamReader(
                    con.getInputStream()));
        String inputLine;
        StringBuffer rsps = new StringBuffer();
        while ((inputLine = in.readLine()) != null) {
            rsps.append(inputLine);
        }
        in.close();

        JsonReader jsonReader =
            Json.createReader(
                new StringReader(rsps.toString()));
        JsonObject jsonObject = jsonReader.readObject();
        jsonReader.close();
        check=jsonObject.getBoolean("success");
    } catch(Exception e) {
        e.printStackTrace();
    }
}
...
if (check) {
    ...
}
```

5.2 Two-step friends

6 Website Preview

7 References

- Guidebook, installers and demo provided at course.pku.edu.cn
- LaTeX template provided by Overleaf
- mysql-connector-java-5.1.42-bin.jar
- javax.json-api-1.1.jar