

VIETNAM NATIONAL UNIVERSITY OF
HOCHIMINH CITY
THE INTERNATIONAL UNIVERSITY
SCHOOL OF COMPUTER SCIENCE
AND ENGINEERING



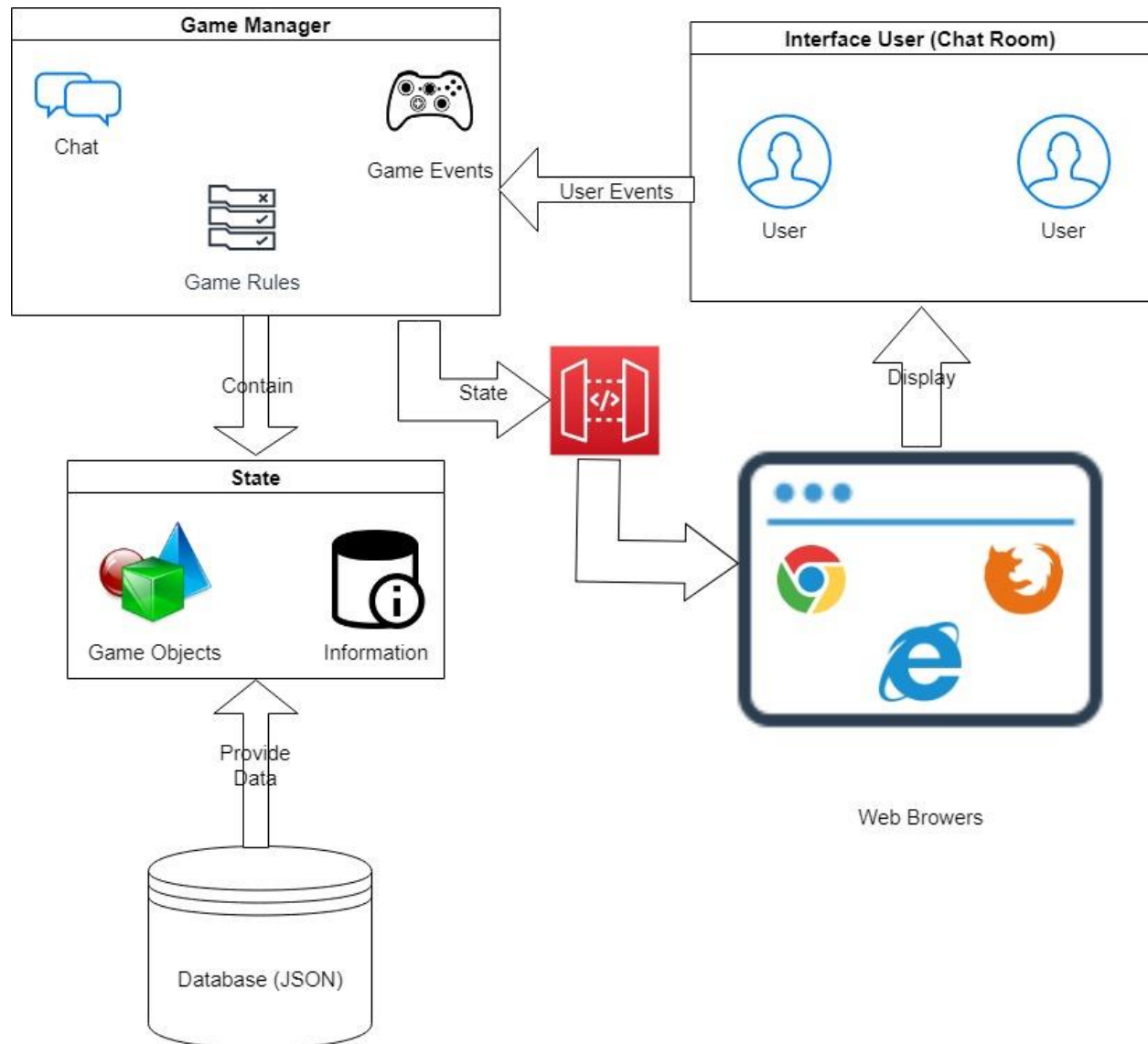
Clash Royale

By

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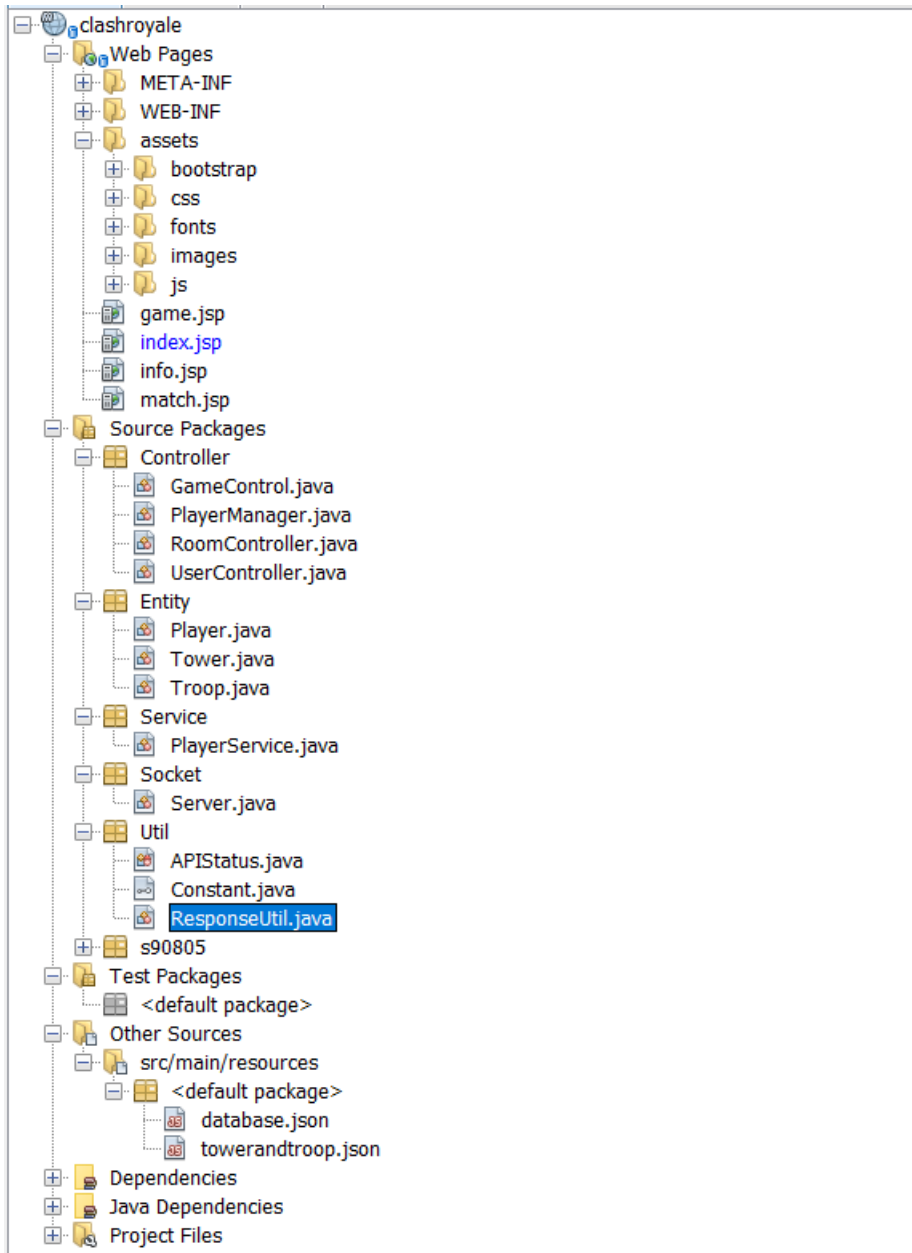
Trần Trọng Tiến ITITIU15084

I. Architecture



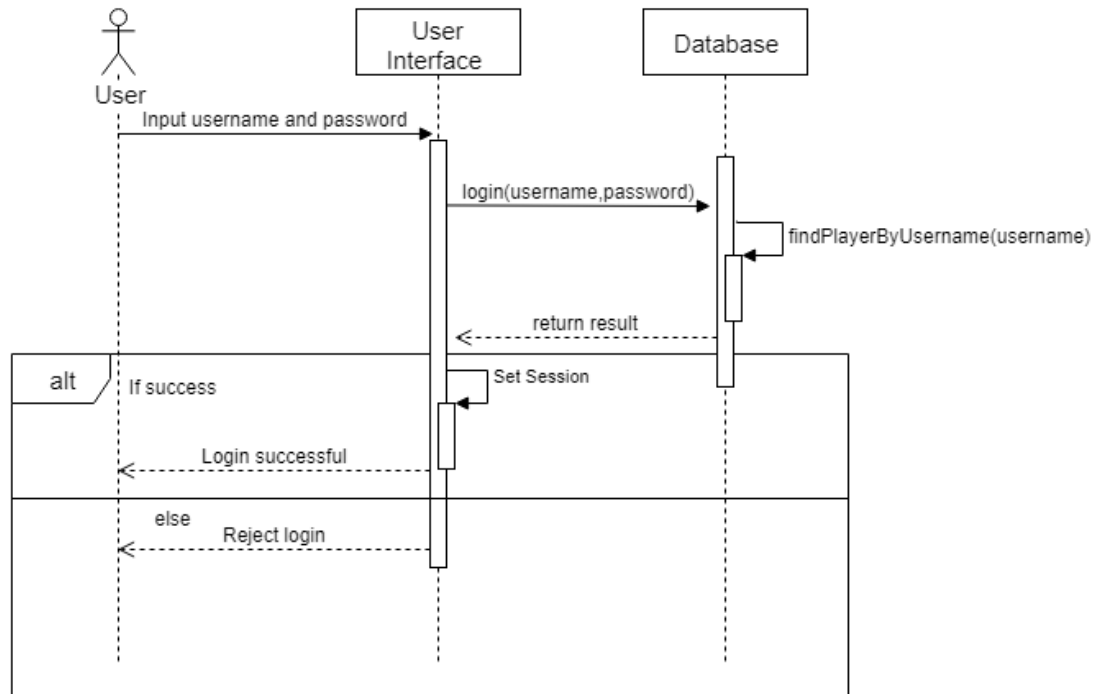
Data about game objects and users is stored as JSON file (Database).
User can login, logout, chat, play game.

Structure Folder



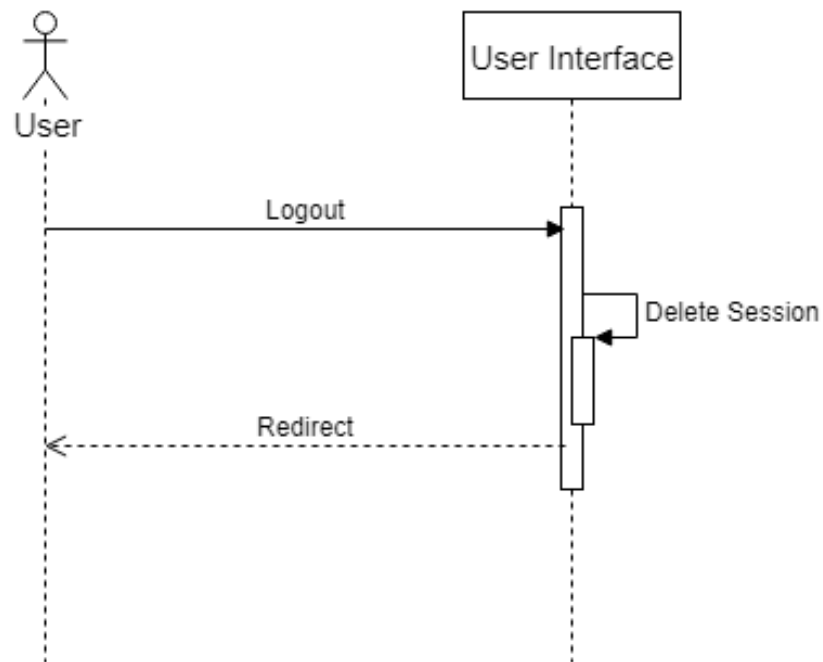
II. Sequence Diagram

Login Sequence Diagram



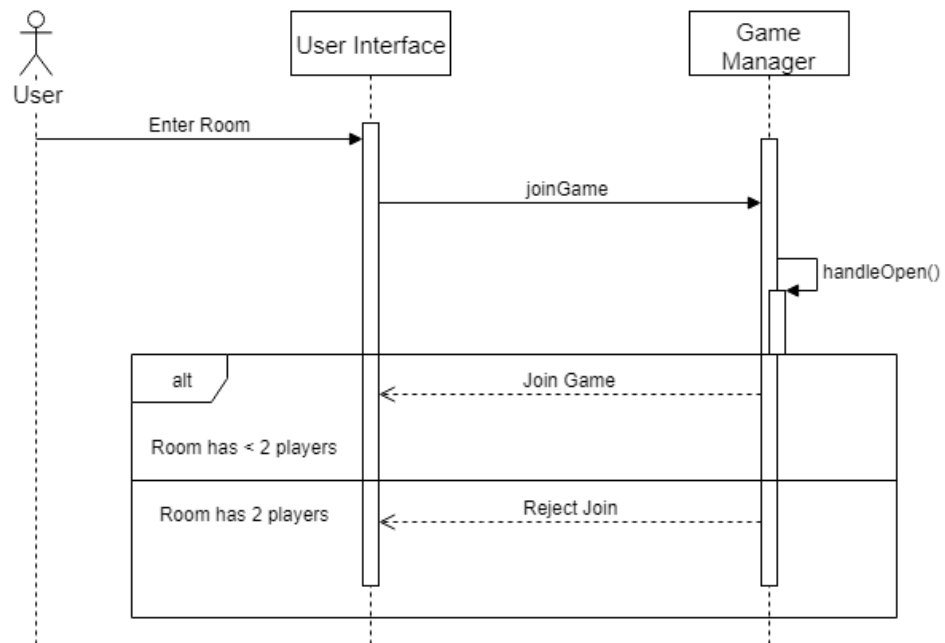
User input username and password, when hit log in button, system will find account in database by using username. If username is existed, system will check password to grant login and set session in web browser. If username is not existed or wrong password, system will reject login (redirect back to home page).

Logout Sequence Diagram



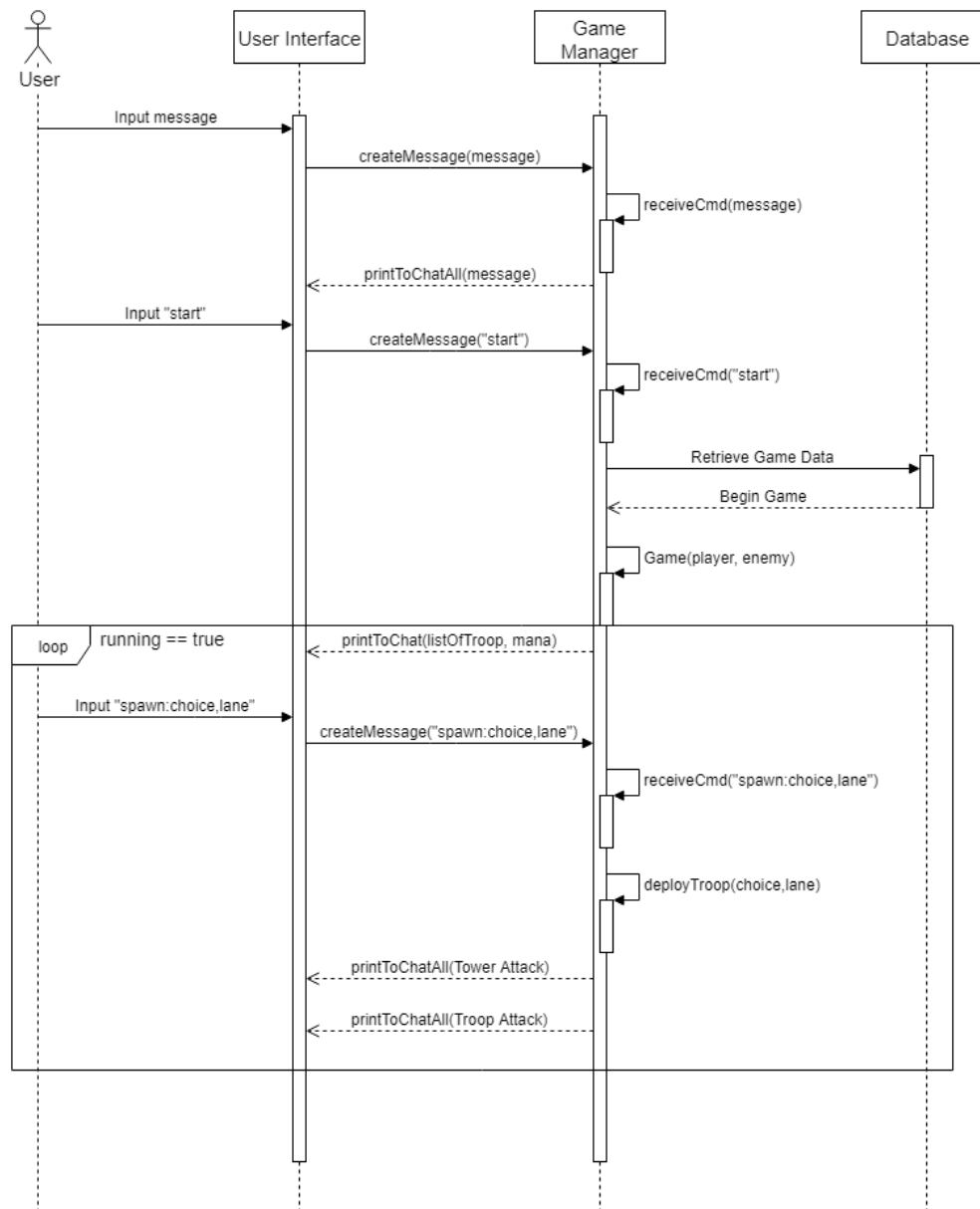
When logged in user click log out button, system will delete user's session from web browser and redirect to home page.

Enter Room Sequence Diagram



Every time user joins room, system will check room has enough users or not. If enough, system will reject enter room.

Game Sequence Diagram



Usually, user can enter message and send, the `printToChatAll` function will display message for everyone in chat room can see. When user enter command "start" game will start, and enter following formular:

spawn:<choice>,<lane> with choice is the troop user wants to spawn and lane is left (1) or right lane (2).
Game will stop when 3 minutes end.

III. Deployment Instruction

Requirement: JDK 8, Netbeans IDE

After importing project, edit the path to json files in PlayerService.java and GameControl.java

```
public Player findPlayerById(String id) {
    Player p = new Player();
    // Read database
    JSONObject jsonObject = null;
    try {
        //jsonObject = new JsonParser().parse(new FileReader("C:\\Users\\S410U\\Documents\\Projects\\ClashRoyale\\src\\main\\resources\\database.json"));
        jsonObject = new JsonParser().parse(new FileReader("D:\\WORK\\GitHub\\ClashRoyale\\src\\main\\resources\\database.json"));
    } catch (JsonIOException | JsonSyntaxException | FileNotFoundException e) {
        // TODO: Auto-generated catch block
        e.printStackTrace();
    }

    JSONArray arr = jsonObject.getAsJSONArray("Player");
    for (int i = 0; i < arr.size(); i++) {
        JSONObject player = arr.get(i).getAsJsonObject();
        if (player.get("id").getString().equals(id)) {
            p.setId(player.get("id").getString());
            p.setUsername(player.get("username").getString());
            p.setPassword(player.get("password").getString());
            p.setMana(5);
            break;
        }
    }
    return p;
}

public Player findPlayerByUsername(String username) {
    Player p = new Player();
    // Read database
    JSONObject jsonObject = null;
    try {
        //jsonObject = new JsonParser().parse(new FileReader("C:\\Users\\S410U\\Documents\\Projects\\ClashRoyale\\src\\main\\resources\\database.json"));
        jsonObject = new JsonParser().parse(new FileReader("D:\\WORK\\GitHub\\ClashRoyale\\src\\main\\resources\\database.json"));
    } catch (JsonIOException | JsonSyntaxException | FileNotFoundException e) {
        // TODO: Auto-generated catch block
        e.printStackTrace();
    }

    JSONArray arr = jsonObject.getAsJSONArray("Player");
    for (int i = 0; i < arr.size(); i++) {
        JSONObject player = arr.get(i).getAsJsonObject();
    }
}
```



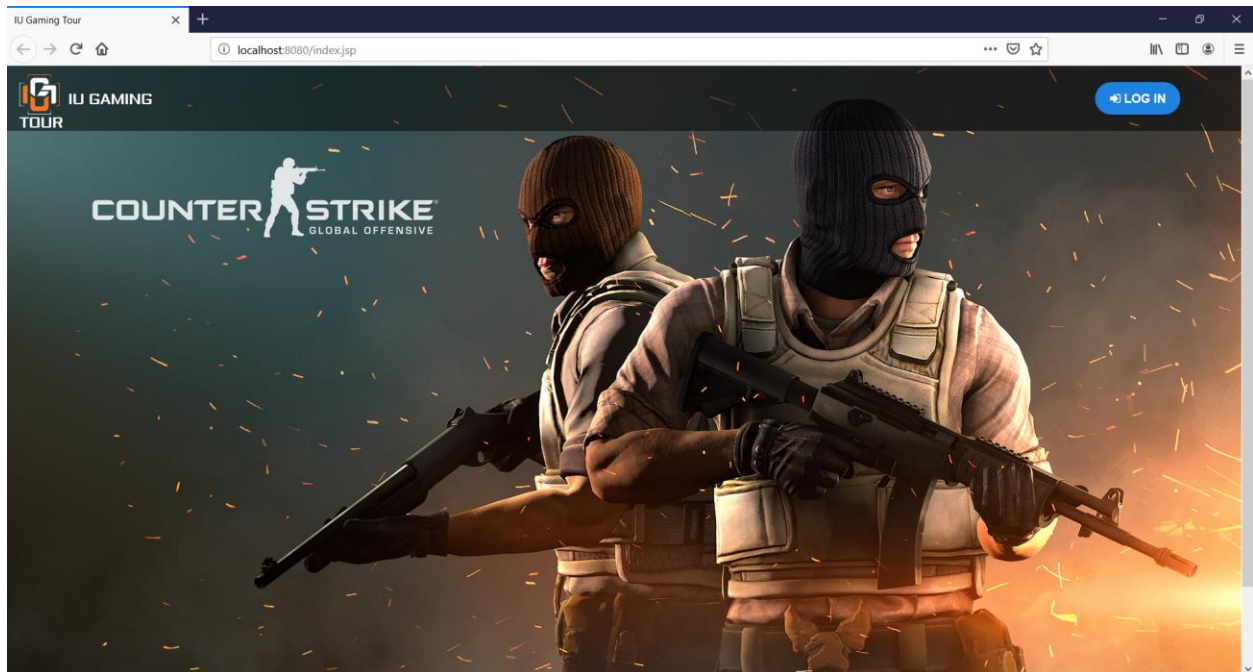
```

private List<Troop> listOfTroopsFromJson() {
    List<Troop> listOfTroop = new ArrayList<>();
    Gson gson = new Gson();
    JsonObject jsonObject = null;
    try {
        //jsonObject = new JsonParser().parse(new FileReader("C:\\Users\\S410U\\Documents\\Projects\\ClashRoyale\\src\\main\\resources\\towerandtroop.js
        jsonObject = new JsonParser().parse(new FileReader("D:\\WORK\\GitHub\\ClashRoyale\\src\\main\\resources\\towerandtroop.json")).getAsJsonObject();
    } catch (FileNotFoundException e) {
        e.printStackTrace();
    }
    JSONArray troopArray = jsonObject.getAsJsonArray("troops");
    for (int i = 0; i < troopArray.size(); i++) {
        JsonObject obj = troopArray.get(i).getAsJsonObject();
        Troop t = gson.fromJson(obj, Troop.class);
        listOfTroop.add(t);
    }
    return listOfTroop;
}

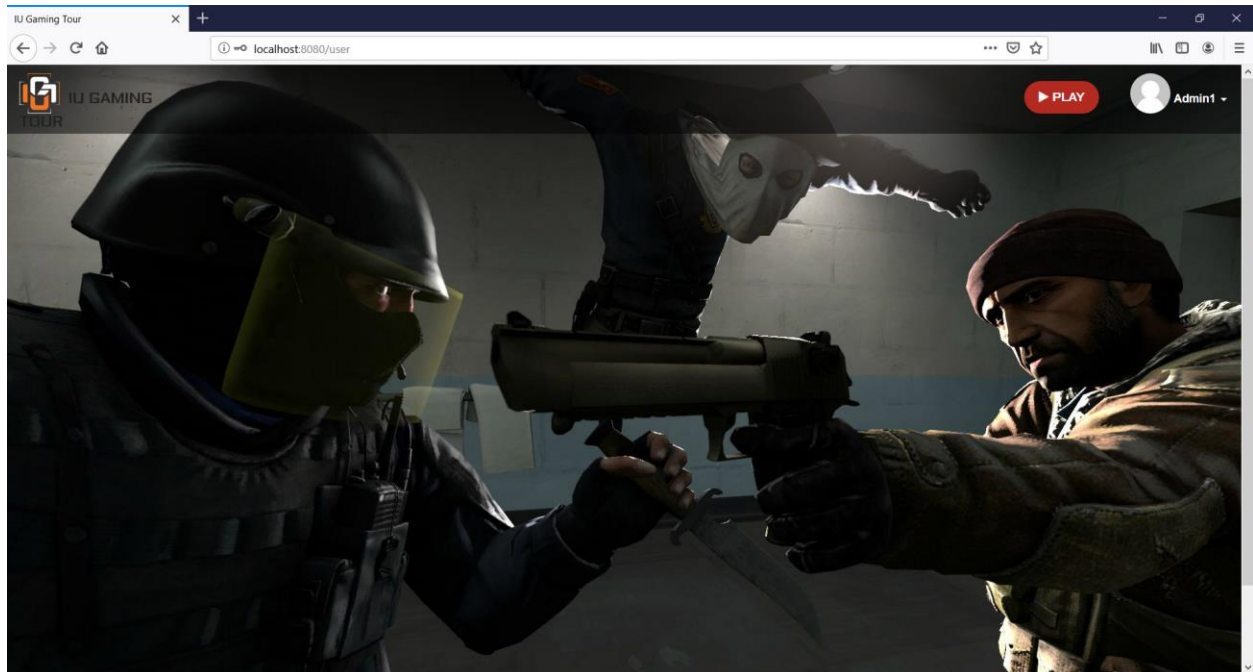
private List<Tower> listOfTowerFromJson(Player player) {
    List<Tower> listOfTower = new ArrayList<>();
    Gson gson = new Gson();
    JsonObject jsonObject = null;
    try {
        //jsonObject = new JsonParser().parse(new FileReader("C:\\Users\\S410U\\Documents\\Projects\\ClashRoyale\\src\\main\\resources\\towerandtroop.js
        jsonObject = new JsonParser().parse(new FileReader("D:\\WORK\\GitHub\\ClashRoyale\\src\\main\\resources\\towerandtroop.json")).getAsJsonObject();
    } catch (FileNotFoundException e) {
        e.printStackTrace();
    }
    JSONArray towerArray = jsonObject.getAsJsonArray("tower");
    for (int i = 0; i < towerArray.size(); i++) {
        JsonObject obj = towerArray.get(i).getAsJsonObject();
        Tower t = gson.fromJson(obj, Tower.class);
        t.setName(t.getName() + " " + player.getUsername());
    }
}

```

run index.jsp



Click LOG IN button to enter username and password



And click play to enter chatroom, and when other user enter chatroom will get notification, and game just start when have 2 user and one of them input start command.

