



Violence prevention and control system in football stadiums

Software Design Document

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1. Introduction

In this section we will present the introduction to the system.

1.1. System Overview

Physical activity is prevalent among football stadiums and undermines the safety of the fans.

The SafeGame system is designed to address this problem by providing sophisticated security, monitoring fan locations and constant control of the stadium to provide a sporty and safe atmosphere without violence.

1.2. Problem Description

Football games can be seen today in many cases of violence that take place in the various stands.

Some cases of violence escalate between the fans and are even directed towards the players themselves.

Stadium security companies are unable to optimally prevent and control what happens in the stands, thus creating a negative and dangerous experience for most fans who want to get to the game in a pleasant and safe atmosphere.

1.3. Goals

In this section we will present project's goals.

- System will provide full control of the stadium.
- System will prevent violent and unusual incidents in the stadium.

1.4. Scope

Security in football stadiums.

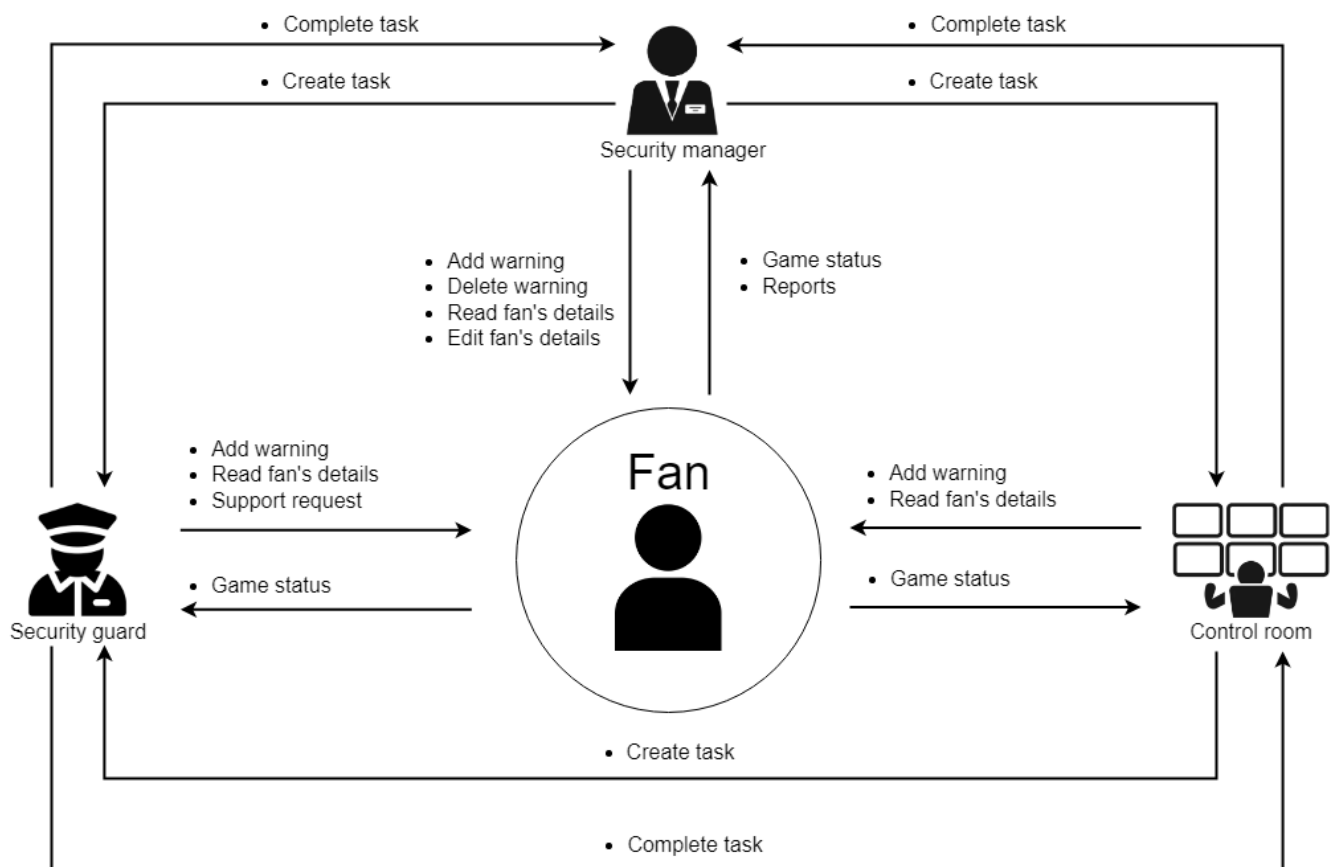
1.5. Glossary

In this section we will describe project's glossary.

- Security Guard - A person who deals with security, his job is to prevent unauthorized people from entering a certain area, to prevent prohibited behavior in order to ensure the safety of the people in the game.
- Control Room – A room which gathers all the information and data that happens in the game.
Snapshots of all the security cameras and skimmers are displayed in this room. This room provides full control over everything that happens in the game.
- Security Manager – A person who is responsible of the entire security system, including the training of the security guards, their equipment and their action plans in all the various cases.
The security manager is the highest authority in decision making among all security agencies.

2. System Architecture – System Context Diagram

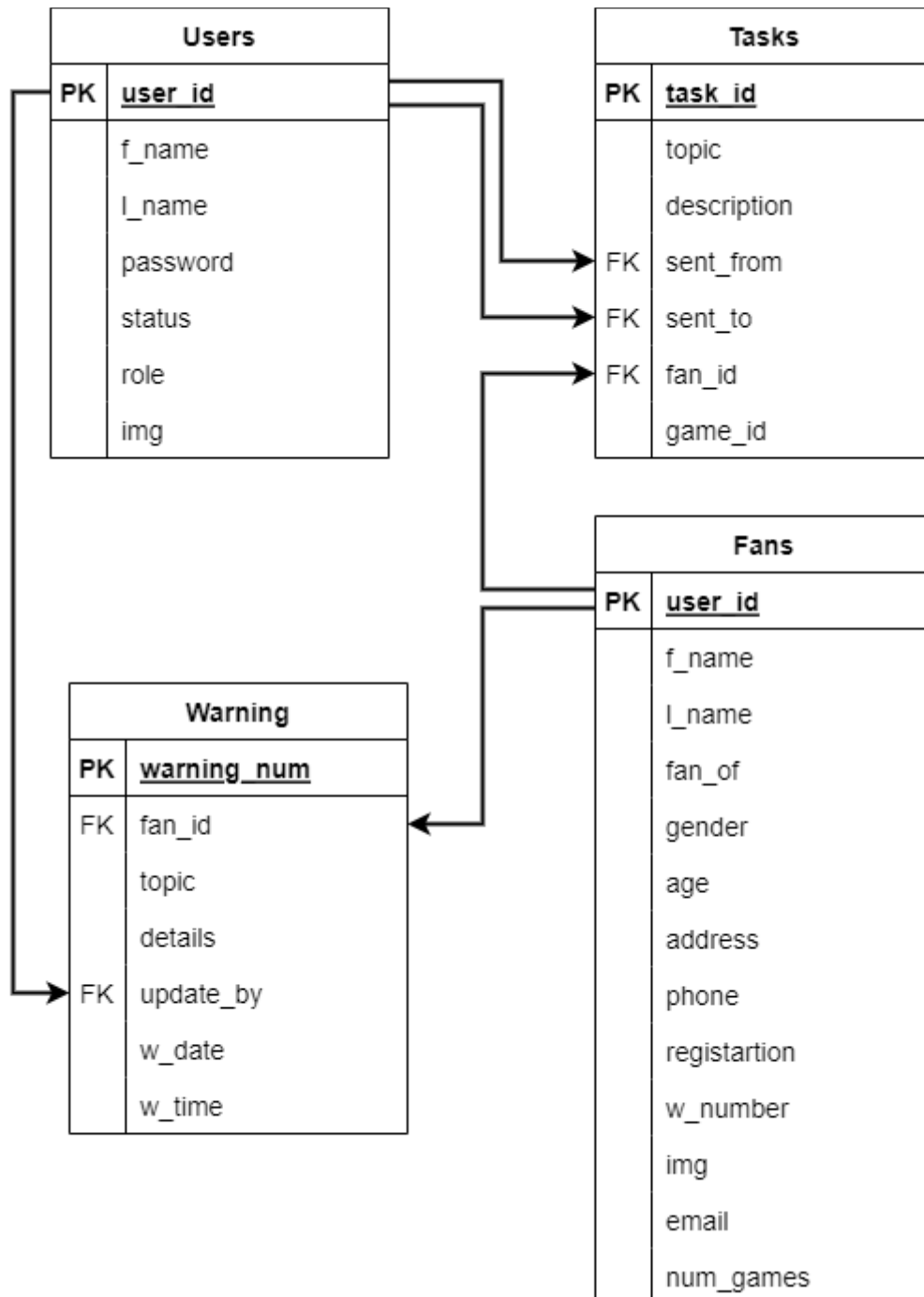
SafeGame contains three types of users, together they manage to provide a sporty and safe atmosphere without violence. Security guard gets tasks from the manager and the control room, he is sent to unusual incidents and physical situations in order to prevent them and warn the fans who are included. Control room is able to create tasks to the security guard, warn a fan and receive tasks from the manager. The manager oversees the stadium and able to edit fan's details and delete fan's warning.



3. System Design

In this section we will present system design – the DB tables and their relationships, the format of the data, structural and interaction design.

3.1. Data Design



JSON structure:

```

{
  "Games": [
    {
      "game_id": "4196",
      "team_one": "Maccabi Tel Aviv",
      "team_one_img": "images/mctlv.png",
      "team_two": "Hapoel Beer Sheva",
      "team_two_img": "images/hapbs.png",
      "date": [
        {
          "day": "19",
          "month": "12",
          "year": "2021"
        }
      ],
      "time": [
        {
          "hour": "19",
          "minute": "00"
        }
      ],
      "stadium": "Bloomfield"
    },
    {
      "game_id": "4197",
      "team_one": "Maccabi Netanya",
      "team_one_img": "images/macnet.png",
      "team_two": "Hapoel Tel Aviv",
      "team_two_img": "images/hap.png",

      "date": [
        {
          "day": "19",
          "month": "12",
          "year": "2021"
        }
      ],
      "time": [
        {
          "hour": "22",
          "minute": "00"
        }
      ],
      "stadium": "Diamond"
    },
    {
      "game_id": "4198",

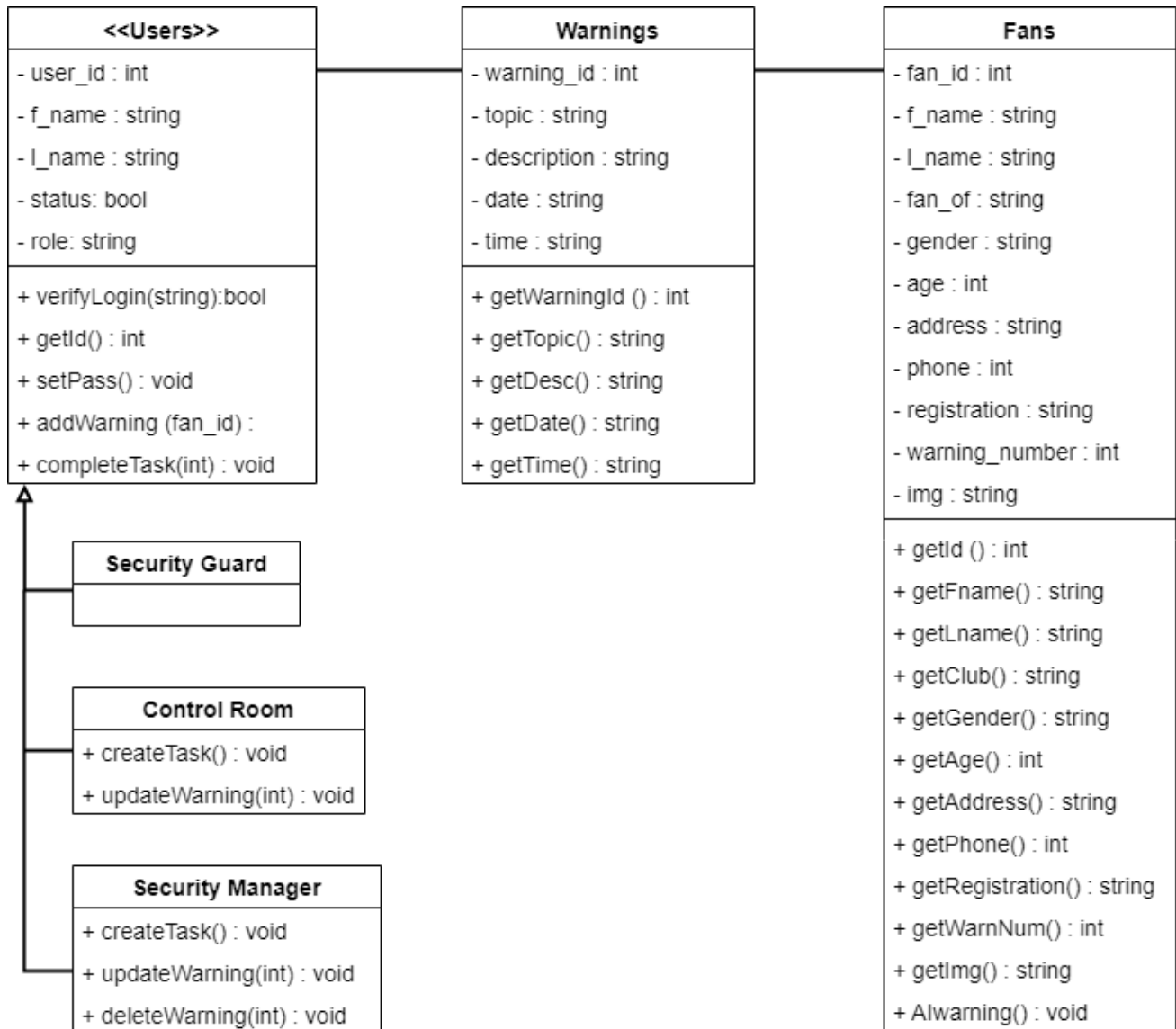
```



```
"team_one": "Hapoel Haifa",
"team_one_img": "images/haphif.png",
"team_two": "Maccabi Haifa",
"team_two_img": "images/mchif.png",
"date": [
  {
    "day": "20",
    "month": "12",
    "year": "2021"
  }
],
"time": [
  {
    "hour": "20",
    "minute": "30"
  }
],
"stadium": "Sammy Ofer"
}
```

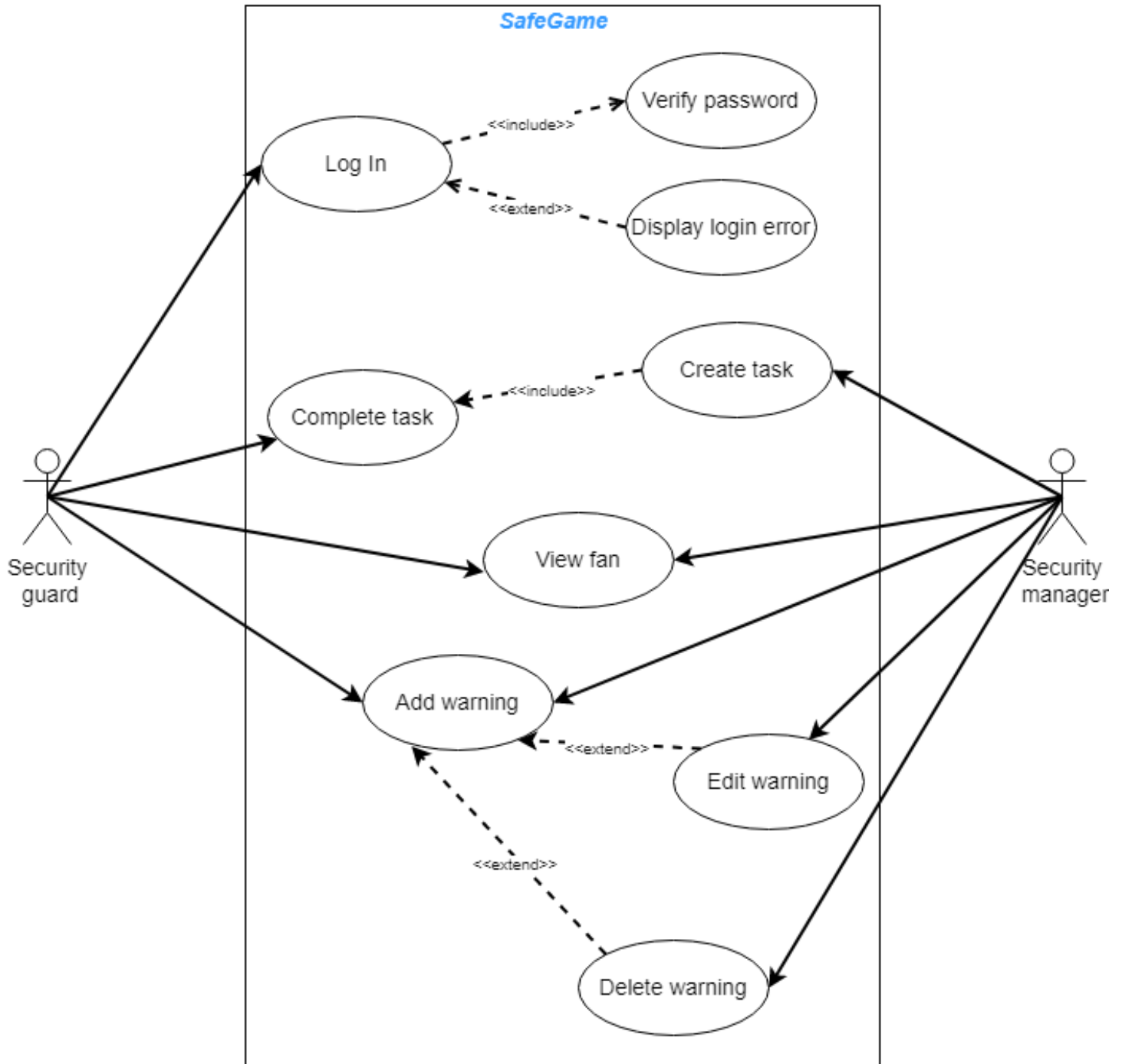
3.2. Structural Design

Class Diagram:



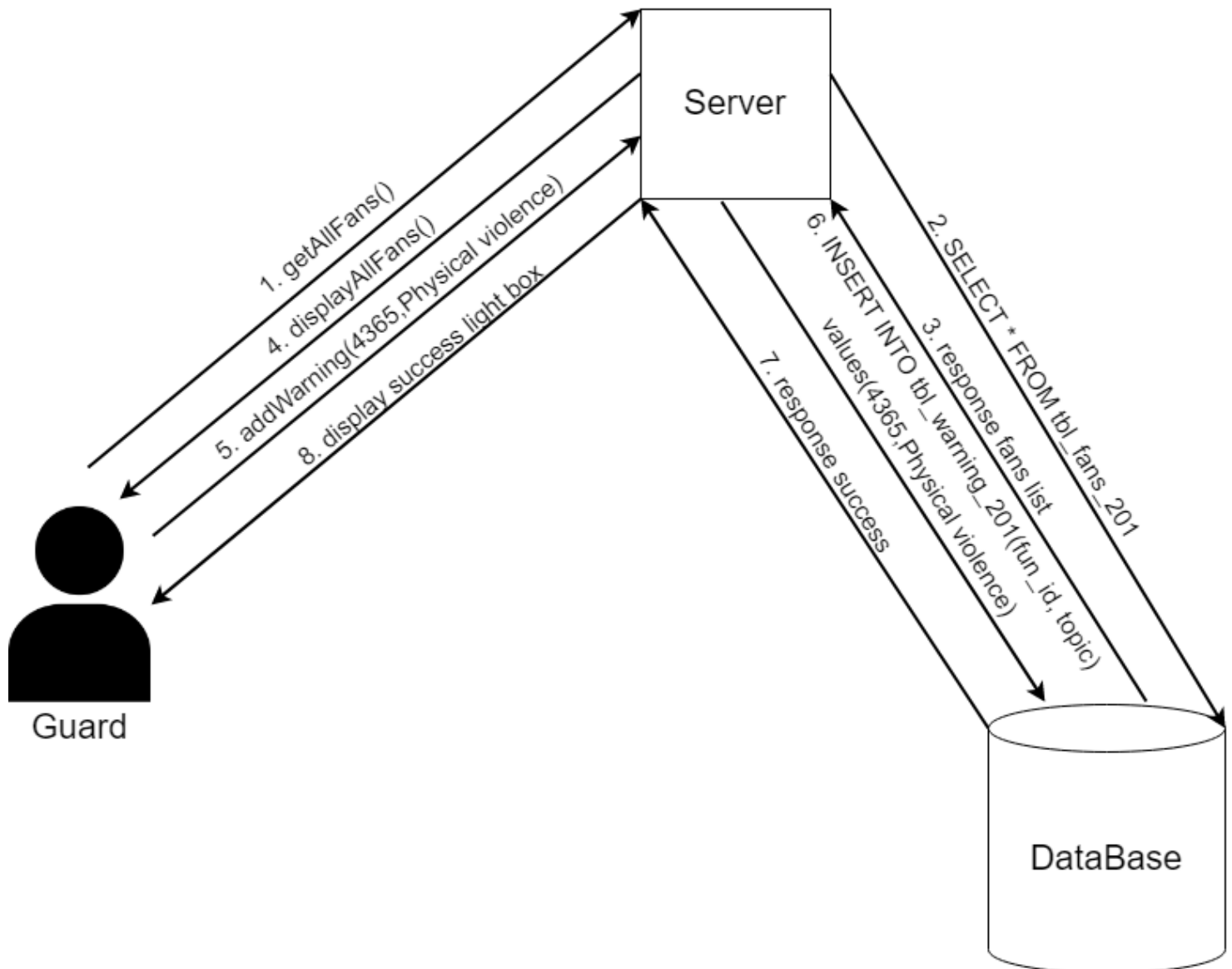
3.3. Interaction Design

Class Diagram:



4. Software Architecture

In this section we will describe client's instructions and their effect on the server and database.





5. Verification and Validation

In this section we will point out the tests and verification that should be completed and passed.

- All users can log in and out the system.
- System will identify the user by it's username and password.
- All users will be able to add a warning.
- Security manager will be able to edit fan's details.
- Security manager will be able to delete fan's warning.
- Control room and security manager will be able to create tasks to the security guard.
- Security manager will be able to create task to the control room.
- Security guard and control room will be able to complete tasks.
- System updates the warning table in the SQL and creates/deletes/edits a warning.