SHENKAR — שנקר
ENGINEERING. DESIGN. ART . הנדסה. עיצוב. אמנות
The Pernick Faculty of Engineering . הפקולטה להנדסה ע"ש פרניק
המחלקה להנדסת תוכנה
Software Engineering Dept.

Sportify

System for efficient management of tournaments in the tennis industry

Software Design Document

Authors:

Racheli Dekel 200864957

Roni Naor 316350479

01/07/2022

Table of Contents

1. Introduction

This section will introduce the system, and the problem it intends to solve.

1.1. System Overview

Managing a tournament in the tennis industry requires many logistical arrangements such as booking courts, registering
players and divide them according to ranking, build the natches every day, allocating referees, verify attendance, update changes and more.
today, tennis tournaments in Israel are conducted in an old-fashioned and cumbersome manner, which reflected in the registration on paper, long wait to get the details of the match, setting a contest without consider the number of players compared to the number of courts, climatic conditions and more.
In addition, the judge's angle of view sometimes makes it difficult for him to discern the exact location.
We will develop a system that will streamline the tournament management, in a way that will save time, manpower, travel, paper and unnecessary preoccupation with logistical and bureaucratic matters, for the participants, for the tournament administrators and the judges of the tournaments.

1.2. Problem Description

- The tournaments in the tennis industry are conducted in an outdated and cumbersome manner, starting from the stage of determining the tournament, during it until the results are entered after it.
- The referee in a tennis game does not have a sufficient angle of view to determine the position of the ball in relation to the field lines.

1.3. Goals

- The system will enable the management of tournaments in the tennis industry digitally and efficiently.
- The system will ensure accurate and reliable judgment that does not rely on human judgment, thereby reducing disagreements between actor and referee

1.4. Scope

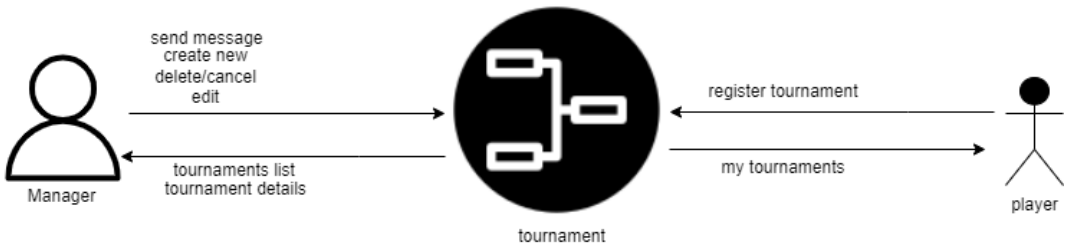
Tennis.

1.5. Glossary

- Out - A determination made by the referee, signifies that the ball hit off the court.
- In - a determination that is not actively made by the judge. Hitting the ball on the court lines is considered "in".
- ITA - Israel Tennis Association.
- ATP - the official organization responsible for holding international men's competitions.
- WTA - the official body responsible for holding international women's competitions.
- Masters - A graduate competition with cash prizes.
- White badge - international course.
- Green Tag - Judge Begins.
- Match Point- A situation in which one of the players can win the game if he wins the next point that will be played.
- Match - a tennis game in professional language.
- Serve - The first hit at any point played in a match.
- Game - sub-game within a set; In order to win the battle, a player must win at least 6 games, when there is a difference of at least 2 games between him and the opponent.

2. System Architecture – System Context Diagram

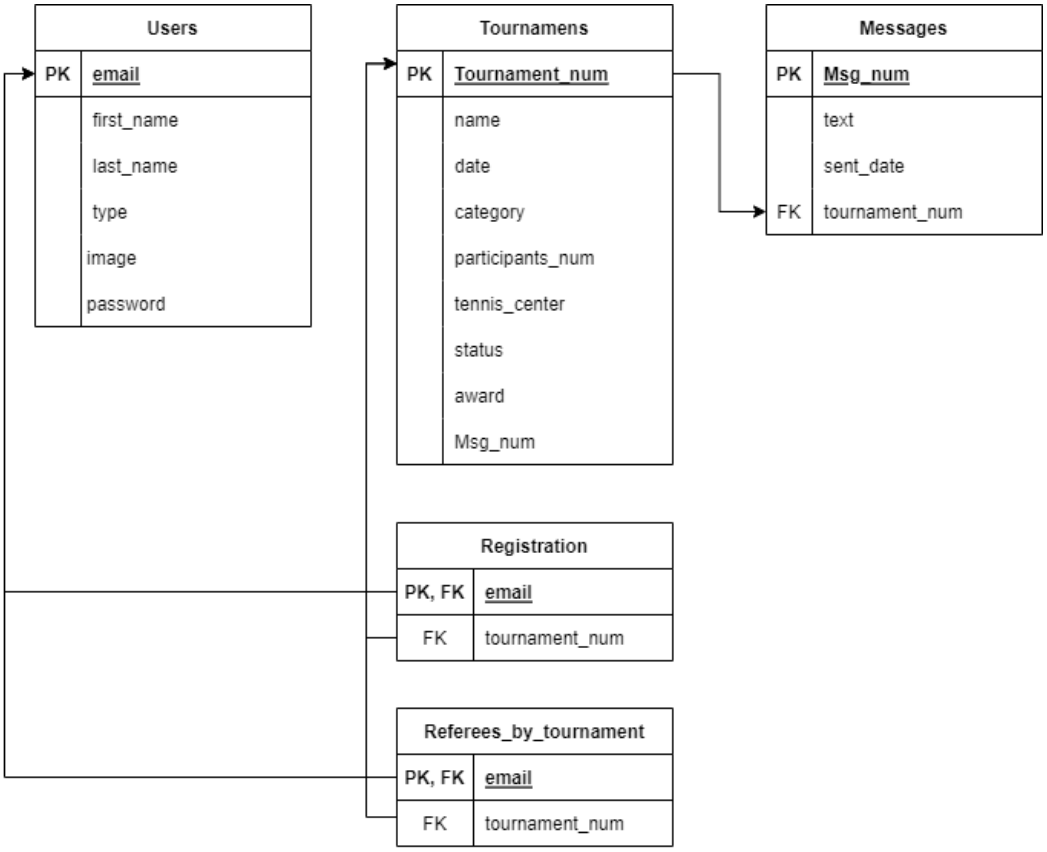
This section will describe the flow of tournament manager, which is admin and player with emphasis on the admin user type. Our system will focus on the admin flow.
Admin can edit, delete exist tournaments and create new tournaments.
The main object is tournament.



3. System Design

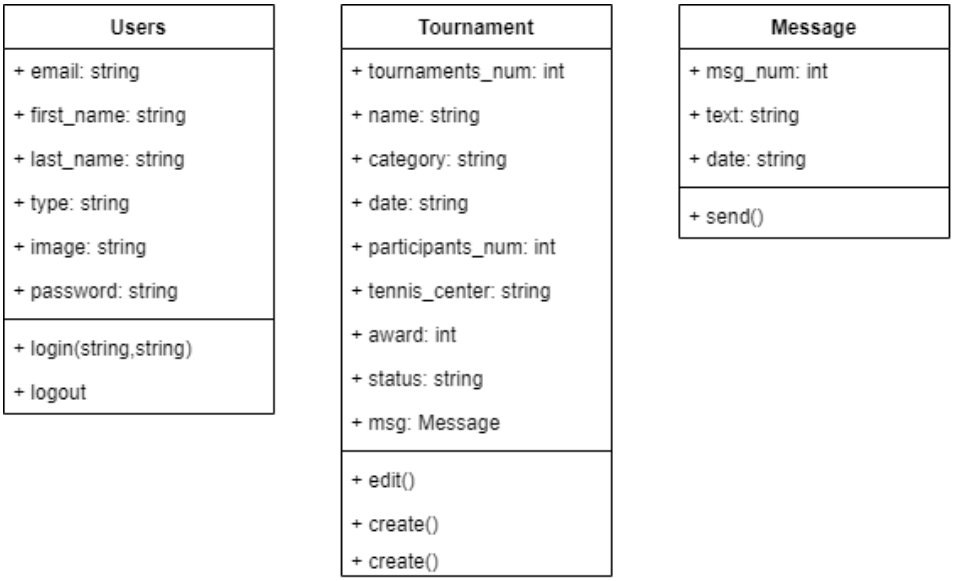
This section will describe database tables, system diagrams and the system functionality.

3.1. Data Design

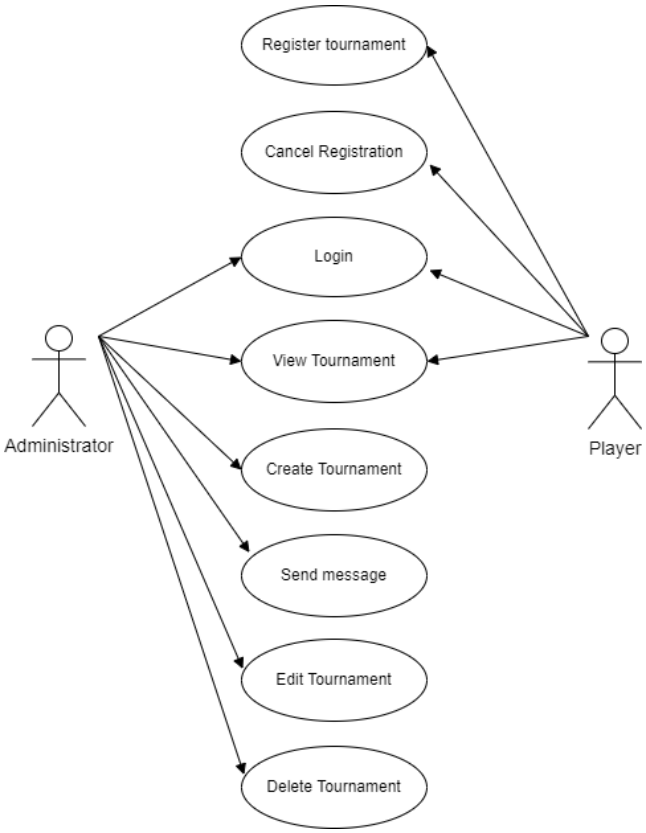



```
"Tennis centers": [
    {
        "id" : "string",
        "name" : "string",
        "city" : "string",
        "courts_num" : int
    },
    {
        "id" : "1",
        "name" : "Misgav Club",
        "city" : "Misgav",
        "courts_num" : 8
    },
    {
        "id" : "2",
        "name" : "Top Club",
        "city" : "Carmiel",
        "courts_num" : 4
    },
    {
        "id" : "3",
        "name" : "Rokah",
        "city" : "Tel-Aviv",
        "courts_num" : 12
    }
]
```

3.2. Structural Design

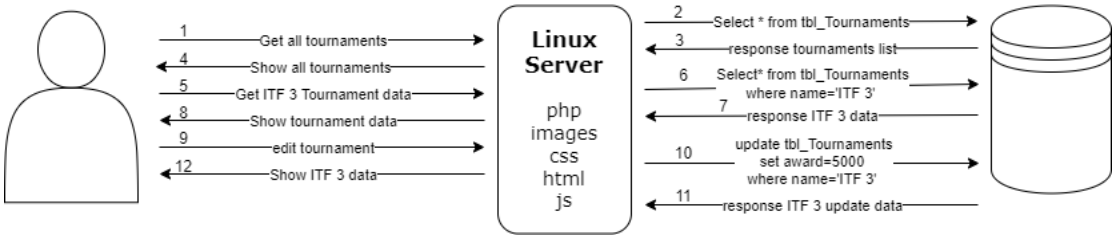


3.3. Interaction Design



4. Software Architecture

This section will display the flow between the client, the server, and the database.



5. Verification and Validation

This section will describe the tests and the verifications that require to insure the system reliability.

Database information-based tests:

- Only user type admin can delete\edit\create tournament.
- Create new tournament will insert new row with new tournament_num into tbl_tournaments.
- Delete tournament will delete its row from tbl_tournaments.
- Edit tournament will update its row in tbl_tournaments.
- User can login only if inserts right email and password.
- User can logout from the system.
- All user types can view the tournaments.

Functionality tests:

- Create new tournament will redirect to new tournament page.
- Delete tournament will display an alert message.
- Click on tournament will redirect to the tournament's info page.
- Click on edit will enable field.