Table of Contents

1. Project Milestone 1 2

1.1 Application Description 2

1.2 Revised ER Diagram 3

2. Project Milestone 2 4

2.1 Relation Schema 4

2.2 Table Definitions 4

2.3 Dataset 8

2.4 Application 8

3. Project Milestone 3 9

3.1 Indexing and Querying Optimization 9

4. COMPX323-22A Project Checklist 13

# Project Milestone 1

## Application Description

The sport platform wants to have a new database to store information about sport events. The platform stores. Sport events can be hosted in-person, virtual or both. The platform wants to store information about the players, organizers, viewers, the team the players are in and the sport. The team only records the current roster and players can only be assigned to at most 1 team at any given time. Details about the Organization are stored in the organizers. The Sport Event is created when it is organized by an organizer.

Explanation of relationships:

Team - Plays - Sport: 1 team can play 1 and only 1 sport; A sport will have at least 1 team, to many teams that play it.

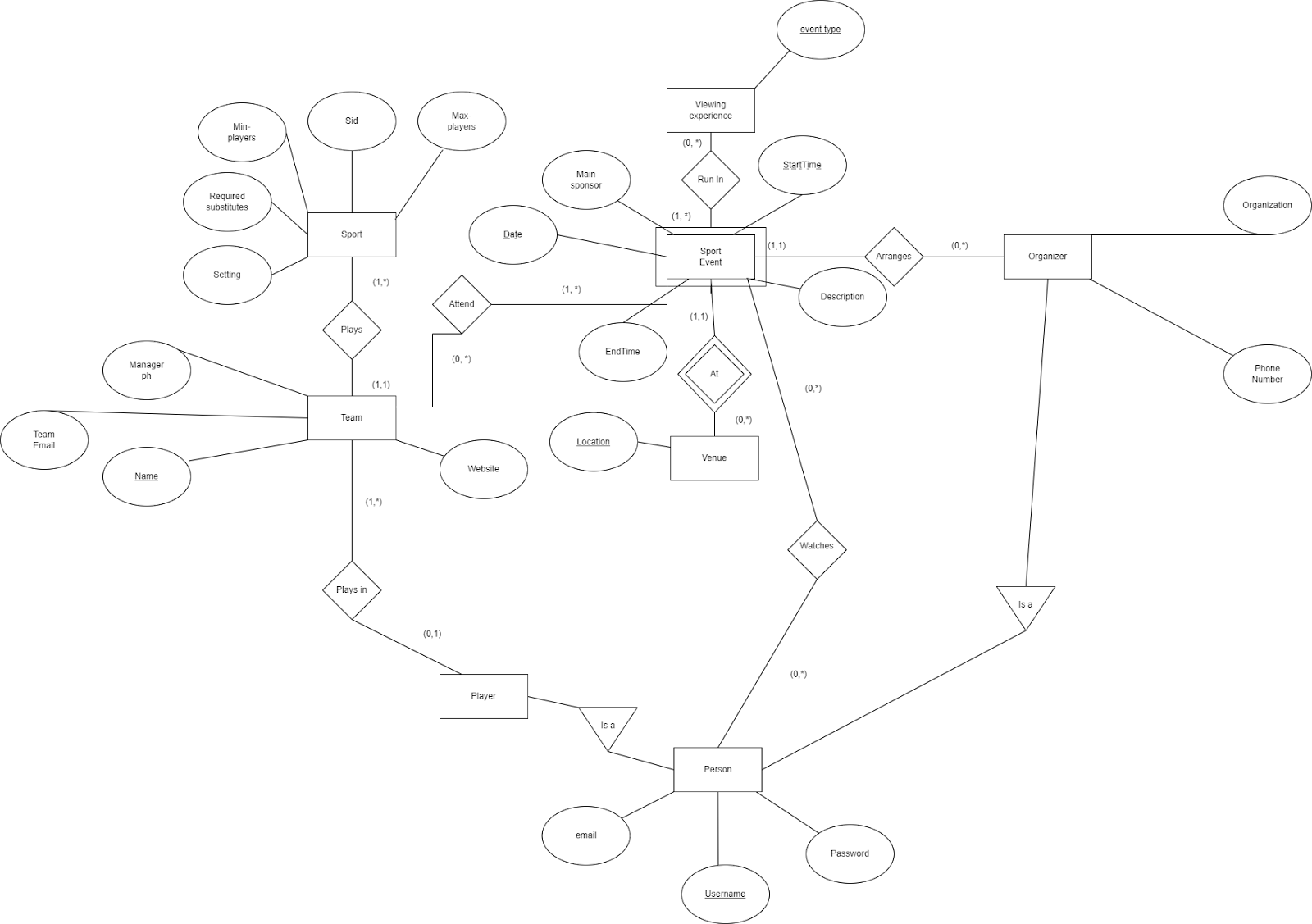
Sport - Sport - Event: A sport can take place at no events, to many events; A sport event can hold one to many sports

Viewer - Attends - Sport Event: 1 viewer can attend 0 events or many events; A sport event can have 0 to many members in attendance

Sport-event - arranges - Organizer: A sport event is organized by one organizer and only 1, An organizer can organize 0 to many events.

A sporting event is a generalization between virtual esports and other forms of sports that do not have to be played from a shared location.

## Revised ER Diagram



# Project Milestone 2

## Relation Schema

**Person**

Username, Email, Password, First Name, Last Name

**Player (Inherit from Person)**

Username, TeamID

**Organizer (Inherit from Person)**

Username, Organization, Phone Number

**Team**

TeamID, Name, TeamEmail, Phone Number, Website, Sport

**Sport**

Name, MinPlayer, MaxPlayer, Required Substitute, Setting

**Setting**

Setting

**Sport Event**

Date, Start Time, Location, End Time, Main Sponsor, Description, Organizer

**Venue**

Location

**Viewing experience**

Event-type

**Run In**

Date, Start Time, Organizer, Event-type

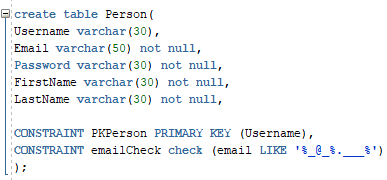
**Attends**

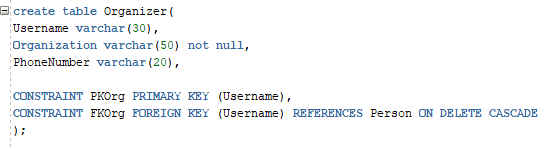
TeamID, Date, Start Time, Location

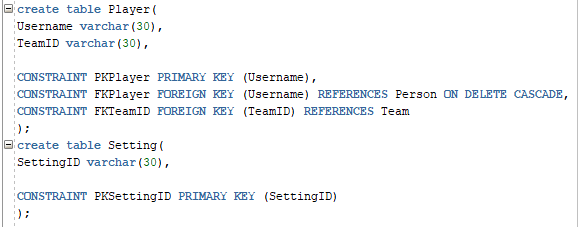
**Watches**

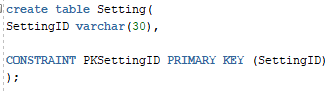
Person, Date, Start Time, Location

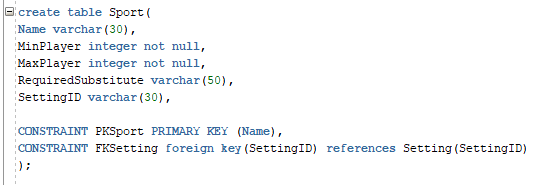
## Table Definitions





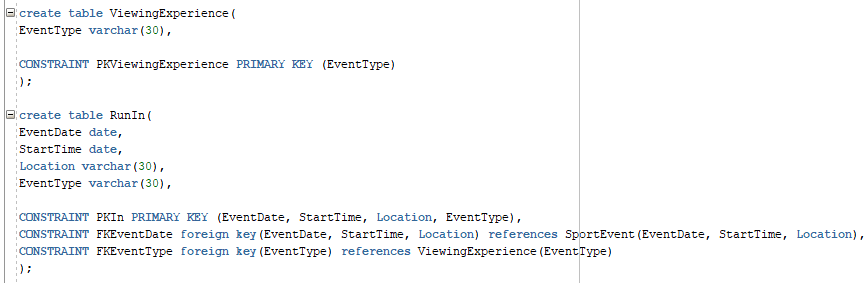


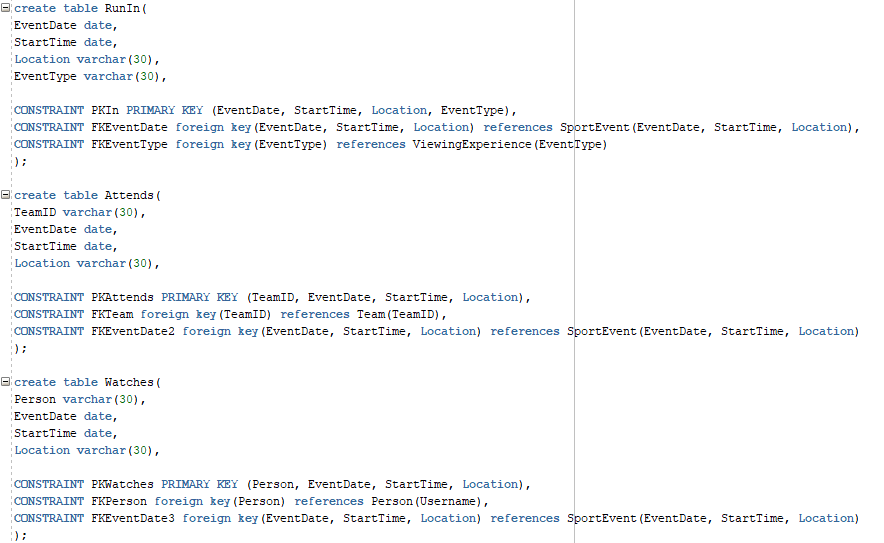






s



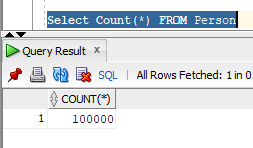


## Dataset

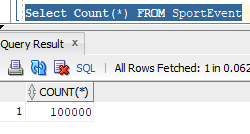
### Small

### Large

Person Table



Sport Event Tables



The screenshot above are the two main table.

s

The dataset is randomly generated using a java program generating random string of chars/integer.

## Application

# Project Milestone 3

## Indexing and Querying Optimization

### Text Description automatically generatedQueries and SQL script to create index

### Why was it chosen?

### Performance Measurement

B-Tree Index Before Implement

Text, table, email

Description automatically generated

Table

Description automatically generated

B-Tree Index After Implement

Table

Description automatically generated

Hash-Cluster Index Before Implement

Text, table

Description automatically generated

Hash-Cluster Index After Implement

Text, application, table, email

Description automatically generated

### Discussion of Performance Measurement

# COMPX323-22A Project Checklist

Kevin Han: (Contributions %)

Bedir Asici: (Contributions %)

Tetsusaburo Kato: (Contributions %)

|  |  |  |
| --- | --- | --- |
| Project Milestone 1 | |  |
| 1 | 1a. Clear structure of milestone material, including headings, sections, readable screenshots with captions. This checklist should be included and filled in. |  |
| 2 | 1b. Database application description. |  |
| 6 | 1c. Revised ER Diagram. | ✔ |
| Project Milestone 2 | |  |
| 4 | 2. Relational schema for your ER Diagram. |  |
| 6 | 3. Table definitions in Oracle, include SQL script which creates relevant tables etc. |  |
| 3 | 4a. Dataset: small (screenshots of dataset successfully loaded). |  |
| 4 | 4b. Dataset: large.  Description of how data was created (incl code if relevant)  Screenshot of large dataset successfully loaded (use count). |  |
|  | 5. Application:  Functionality to display and modify the database.  System should be error proof with appropriate user messages.  Screenshots showing functionality, with appropriate descriptions. |  |
| Project Milestone 3 | |  |
|  | 6. Indexing and Query Optimization:  Show queries used and SQL script that creates the indexes.  Discussion of why these indexes were chosen to optimize the queries.  Performance measurements with and without indexes (with query plan).  Discussion of performance measurements. |  |
|  | 7. Application: extend with MongoDB.  MongoDB version of database (show structure) + small dataset (screenshot).  Explanation of the data structures you have chosen and comparison to your SQL version.  Core functionality of application in second tab/area, using MongoDB (screenshots). |  |