## a) Fixes based on Feedback from Step 1:

- As suggested by multiple groups, we decided to remove the Concessions entity, as it was scarcely populated, and we already had a satisfactory number of entities for our database.
- Originally, our Overview had an inconsistent flow, and was jumping around too much, and using feedback from a peer, we arranged the overview to make more sense, and methodically describe the purpose of our database's function by including the specifics of our prospective business at the end, after already describing the purpose and background of our company.
- Updated all attribute names to camelcase for naming conventions consistency.
- Feedback on our diagram, not including all of our entities listed in the outline, so we went ahead and added the missing *Players* and *PlayerEvents* tables to the ERD.
- Removed the equipment entity as it was also scarcely populated and was unnecessary for the goal of our project.
- Further elaborated the relationships section for Players and PlayerEvents to describe their connection more plainly.
- Provided more detailed information about how we implemented our feedback based on our TA's recommendation to be more thorough.

## b) Project Overview and Database Outline - Updated Version:

### a) Overview

We propose a database-backed website for the General Manager (GM) of a sports team to efficiently track *Tickets* sold to *TicketHolders* for sporting *Events*, subtracting *Players'* salaries. This will allow for detailed financial tracking, identifying large cost sinks, and seamless budget calculation, driving future decision-making concerning fund allocation. Our hypothetical sports team operates as an average MLB baseball team where ticket revenue is ~150 million a year, concessions account for ~20million of

revenue, player salaries average ~175million, and annual equipment costs are roughly ~3million dollars.

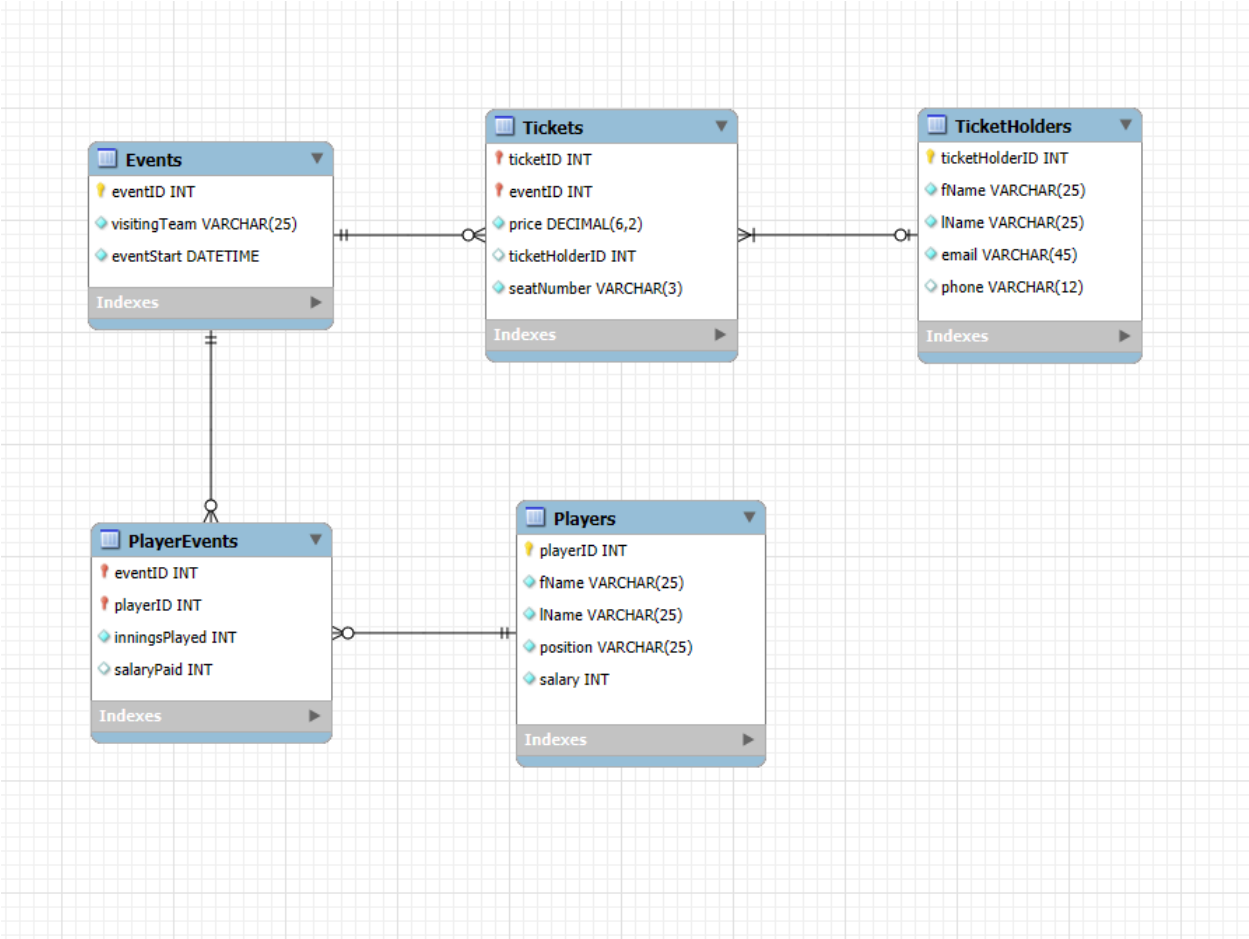
## b) Database Outline, in Words

- **Events:** details about each home sporting Event hosted by organization
    - eventID: int, auto_increment, unique, not NULL, PK
    - visitingTeam: varchar, not NULL
    - eventStart: datetime, not NULL
    - Relationship(s):
        - a 1:M relationship between Events and Tickets is implemented with eventID as a FK inside of Tickets
- **Tickets:** tracks all Tickets issued for each Event
    - ticketID: int, auto_increment, unique, not NULL, PK
    - eventID: int, not NULL, FK
    - price: dec(6,2), not NULL
    - ticketHolderID: int, NULL, FK
    - seatNumber: varchar, unique, not NULL
    - Relationship(s):
        - a M:1 relationship between Tickets and Events is implemented with eventID as a FK inside of Tickets
        - A M:1 relationship between Tickets and TicketHolders is implemented with ticketHolderID as a FK inside of Tickets
- **TicketHolders:** details about the customers who purchase tickets
    - ticketHolderID: int, auto_increment, unique, not NULL, PK
    - fName: varchar, not NULL
    - lName: varchar, not NULL
    - email: varchar, unique, not NULL
    - phone: varchar, NULL
    - Relationship(s):
        - a 1:M relationship between TicketHolders and Tickets is implemented with ticketHolderID as a FK inside of Tickets
- **Players**: Tracks player salaries and costs associated with each player on the team
    - playerID: int, auto_increment, unique, not NULL, PK
    - fName: varchar, not NULL
    - lName: varchar, not NULL
    - position: varchar, not NULL

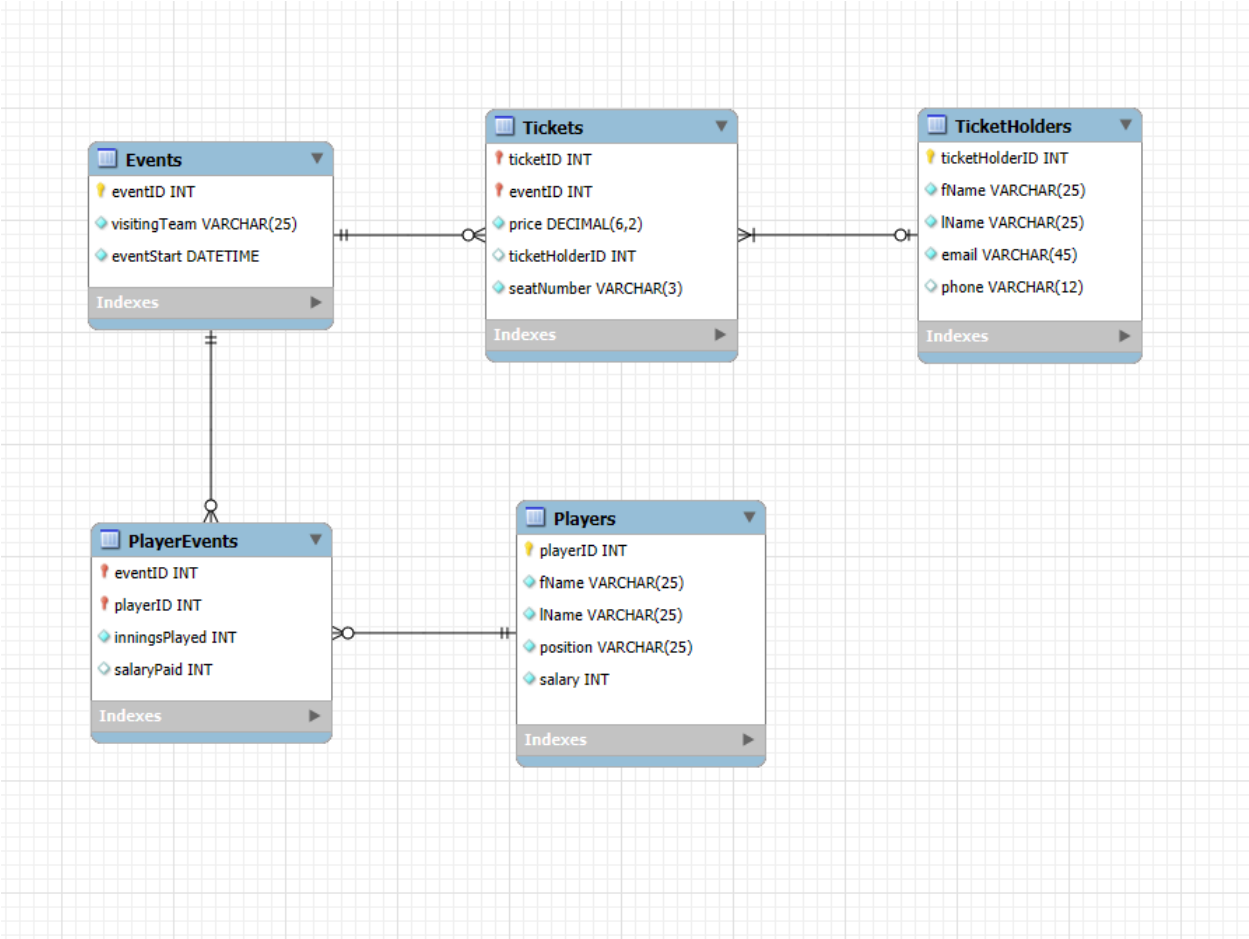
    - salary: int, not NULL
    - Relationship(s): A 1:M relationship between players and equipment implemented with playerID as a FK inside equipment. Each player can have multiple pieces of equipment.
- **PlayerEvents:** connects players who are participating in certain team-based events
    - eventID: int, not NULL, FK
    - playerID: int, not NULL, FK
    - inningsPlayed: int, NULL
    - salaryPaid: int, NULL
    - Relationship(s): A M:M relationship between events and players implemented with eventID and playerID as FK's inside of PlayerEvents. A specific event can include multiple players and a player can also participate in multiple events.

Updated based on our feedback from our TA, and fellow classmates, also passed the normalization process, and contains atomic attributes, non-key attributes depend on the table's primary keys, and no partial or transitive dependencies.

## c) Entity-Relationship Diagram:



## d) Schema Diagram:




Confirmed that the schema is normalized based on example data, and it passed all the 1NF, 2NF, and 3NF requirements.

## e) Example Data:

Table: **Events**

| eventID | visitingTeam | eventStart |
|---|---|---|
| 1 | Seattle Mariners | 2024-05-12 19:00:00 |
| 2 | San Diego Padres | 2024-06-19 19:10:00 |

| | | |
|---|---|---|
| 3 | Chicago Cubs | 2024-09-04 18:00:00 |
| 4 | New York Mets | 2025-03-30 19:30:00 |
| 5 | Toronto Blue Jays | 2025-05-15 19:00:00 |
| | | |
| | | |

Table: **Tickets**

| **ticketID** | **eventID** | **price** | **ticketHolderID** | **seatNumber** |
|---|---|---|---|---|
| 1 | 1 | 120.00 | 1 | A12 |
| 2 | 1 | 95.00 | 2 | A13 |
| 3 | 2 | 150.00 | 1 | B27 |
| 4 | 3 | 110.00 | 3 | C9 |
| 5 | 3 | 110.00 | 4 | C10 |
| | | | | |
| | | | | |

Table: **TicketHolders**

| **ticketHolderID** | **fName** | **lName** | **email** | **phone** |
|---|---|---|---|---|
| 1 | John | Doe | johnDoe@gmail.com | 555-555-5555 |
| 2 | Alice | Carter | aliceCarter@gmail.com | 555-555-5556 |
| 3 | Matt | Johnson | mattJohnson@gmail.com | 555-555-5557 |

| | | | | |
|---|---|---|---|---|
| 4 | Amanda | James | amandaJames@gmail.com | 555-555-5558 |
| | | | | |
| | | | | |
| | | | | |

Table: **Players**

| playerID | fName | lName | position | salary |
|---|---|---|---|---|
| 1 | Marcus | Jones | Pitcher | 1250000 |
| 2 | Julio | Romero | First Base | 800000 |
| 3 | Jordan | Lee | Catcher | 750000 |
| 4 | Caleb | Michaelson | Pitcher | 1000000 |
| 5 | Ryan | Howard | Shortstop | 900000 |
| | | | | |
| | | | | |

Table: **PlayerEvents**

| eventID | playerID | inningsPlayed | salaryPaid |
|---|---|---|---|
| 1 | 1 | 6 | 50000 |
| 1 | 2 | 6 | 55000 |
| 2 | 3 | 7 | 70000 |
| 3 | 4 | 8 | 80000 |
| 3 | 5 | 8 | 85000 |

| | | | |
|---|---|---|---|
| | | | |