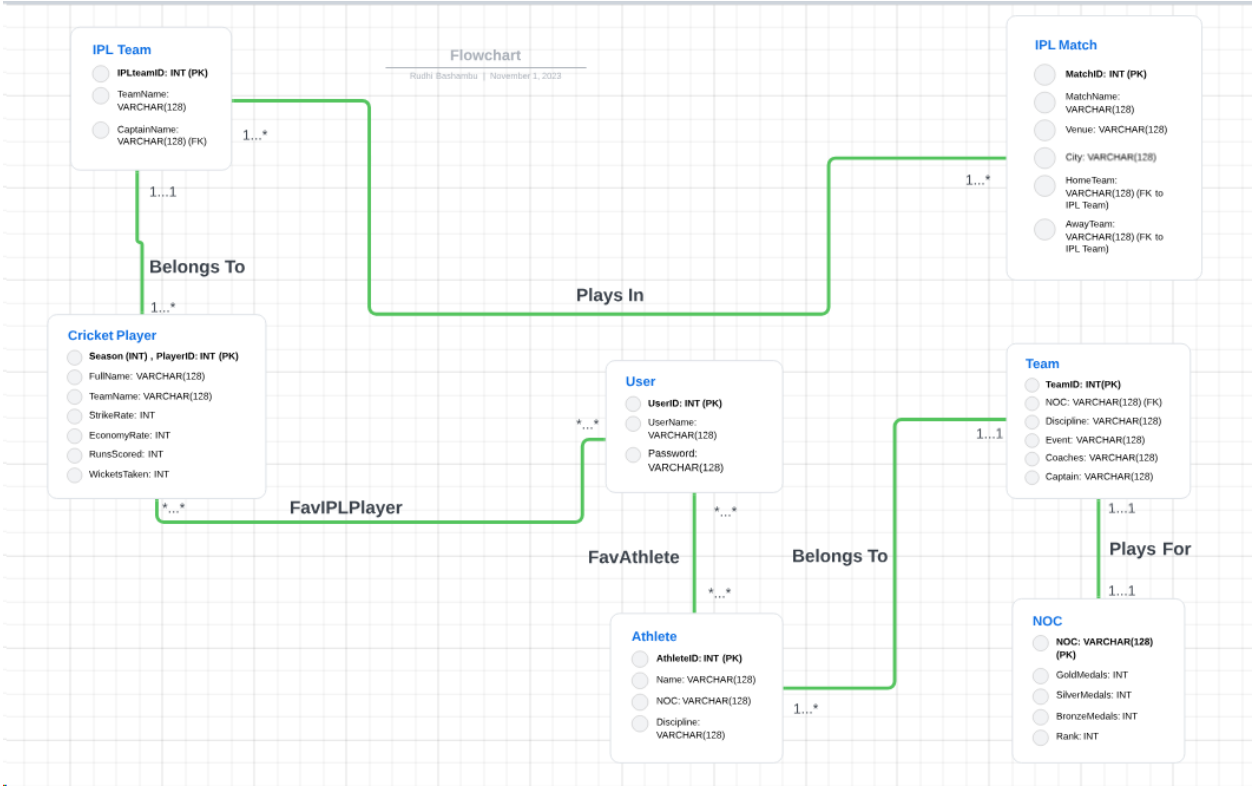
STAGE 2 - SportsUniverse

Data Sets:

1) Tokyo Olympics: https://www.kaggle.com/datasets/arjunprasadsarkhel/2021-olympics-in-tokyo

2) IPL Dataset https://www.kaggle.com/datasets/rajsengo/indian-premier-league-ipl-all-seasons

UML DIAGRAM



LINK: https://lucid.app/lucidchart/0c7a8435-1370-408a-9999-ca89ce59eeb3/edit?viewport_loc=-164%2C-27%2C2968%2C1412%2C0_0&invitationId=inv_c8e82880-433b-4a6b-9590-cc124cae6f64

ASSUMPTIONS:

1. User
    a. Description: Represents a user of the SportsUniverse application.

    b. Assumption:Each user has a unique username and password for authentication, which would help the users to personalize the website so they can see the statistics of the countries/players they want to see.
2. Athlete
    a. Description:Represents athletes participating in the Tokyo Olympics.
    b. Assumption:Each athlete is associated with a specific discipline and NOC.
3. NOC
    a. Description:Represents Name of the countries participating in the TOKYO Olympic.
    b. Assumption:Each NOC has its own set of gold, silver, and bronze medals and is ranked based on medal counts.
4. Team
    a. Description: Represents teams participating in the Tokyo Olympics.
    b. Assumption: Each team is associated with a specific discipline, event, and may have multiple coaches.
5. CricketPlayer
    a. Description: Represents cricket players participating in the IPL. They could be batsmen or bowlers.
    b. Assumption: Each cricket player is associated with a specific team and has statistics related to their performance in both batting and bowling.
6. IPLMatch
    a. Description: Represents matches in the Indian Premier League (IPL).
    b. Assumption: Each IPL match has a name, venue, and involves two teams (HomeTeam and AwayTeam).
7. IPLTeam
    a. Description: Represents teams in the Indian Premier League (IPL).
    b. Assumption: Each IPL team has a captain who is a cricket player, and each player is associated with one team.

SCHEMA

User(
UserID: INT,
UserName: VARCHAR(128),
Password: VARCHAR(128),
PRIMARY KEY (UserID)
)

Athlete(
AthleteID: INT,
Name: VARCHAR(128),
NOC (National Olympic Committee): VARCHAR(128),
Discipline: VARCHAR(128),

PRIMARY KEY (AthleteID),
FOREIGN KEY (NOC) REFERENCES NOC(NOC)
)

NOC(
NOC (Name of Country): VARCHAR(128),
GoldMedals: INT,
SilverMedals: INT,
BronzeMedals: INT,
Rank: INT,
PRIMARY KEY (NOC)
)

Team(
TeamID: INT,
NOC (Name of Country): VARCHAR(128),
Discipline: VARCHAR(128),
Event: VARCHAR(128),
Coaches: VARCHAR(128),
Captain: VARCHAR(128),
PRIMARY KEY (TeamID),
FOREIGN KEY (NOC) REFERENCES NOC (NOC),
FOREIGN KEY (Captain) REFERENCES Athlete (AthleteID)
ON DELETE SET NULL
ON UPDATE CASCADE
)

Entities related to the IPL:

CricketPlayer (
PlayerID: INT,
Season: INT,
FullName: VARCHAR(128),
TeamName: VARCHAR(128),
StrikeRate: INT,
EconomyRate: INT,
RunsScored: INT,
WicketsTaken: INT,
PRIMARY KEY (Season, PlayerID)
)

IPLMatch (
MatchID: INT,
MatchName: VARCHAR(128),

Venue: VARCHAR(128),
City: VARCHAR(128),
HomeTeam: VARCHAR(128),
AwayTeam: VARCHAR(128),
PRIMARY KEY (MatchID),
FOREIGN KEY (HomeTeam) REFERENCES IPLTeam (IPLTeamID),
FOREIGN KEY (AwayTeam) REFERENCES IPLTeam (IPLTeamID)
)

PlaysIn(
IPLTeamID: INT,
MatchID: INT,
PRIMARY KEY (PlayerID, MatchID),
FOREIGN KEY (IPLTeamID) REFERENCES IPLTeam (IPLTeamID),
FOREIGN KEY (MatchID) REFERENCES IPLMatch(MatchID),
)

IPLTeam(
IPLTeamID: INT,
TeamName: VARCHAR(128),
CaptainName: VARCHAR(128),
PRIMARY KEY (IPLTeamID),
FOREIGN KEY (CaptainName) REFERENCES (PlayerID)
ON DELETE SET NULL
ON UPDATE CASCADE
)

FavIPLPlayer (
PlayerID: INT,
UserID: INT,
FOREIGN KEY (PlayerID) REFERENCES CricketPlayer(PlayerID),
FOREIGN KEY (UserID) REFERENCES User(UserID) ON DELETE CASCADE
)

FavAthlete (
AthleteID: INT,
UserID: INT,
FOREIGN KEY (AthleteID) REFERENCES Athlete(AthleteID),
FOREIGN KEY (UserID) REFERENCES User(UserID) ON DELETE CASCADE
)

RELATIONSHIPS

User-Athlete (Many-to-Many)

Each User can have multiple Medals.
Each Athlete can be owned by multiple users.

User-IPLPlayer (Many-to-Many)

Each User can have multiple Medals.
Each IPLPlayer can be owned by multiple users.

CricketPlayer-IPLTeam (Many-to-One)

Each CricketPlayer belongs to one IPLTeam.
Each IPLTeam can have multiple CricketPlayers.

IPLMatch-IPLTeam (Many-to-Many)

Each IPLMatch can have multiple IPLTeams (two competing teams).
Each IPLTeam can participate in multiple IPLMatches.

IPLTeam-Captain (One-to-One)

Each IPLTeam has one Captain (CricketPlayer).
Each CricketPlayer can captain one IPLTeam.

Athlete-NOC (One-to-Many)

Each athlete has one NOC
Each NOC can have multiple athletes

NORMALIZATION (BCNF vs 3NF)

We use the Boyce Codd Normal Form (BCNF) because:

1) Each of our tables only has 1 primary key
2) There are no partial dependencies and therefore we can use BCNF since its non dependency preserving.
3) BCNF form is stricter as compared to 3NF and because we want no redundancies in our database for example we don't want one country to be displayed twice or one country to be displayed having different numbers of medals etc.

Feedback from Stage 1:

Based on feedback given in Stage 1, we decided to add some more stat visualizations showing stats of the country and the players. Further, we will also try to find a way to rank the players/countries based on their performance using factors such as number of medals, strike rate, number of wins vs losses etc.