**1. Introduction**

**This project analyzes FIFA player data from 2015 to 2021, explores the progression of player ratings over the years, and predicts player ratings in FIFA 21 using machine learning.**

**2. Data Processing**

**- Loaded datasets FIFA15-FIFA21.**

**- Merged into a single DataFrame with player ID and FIFA version.**

**- Cleaned data, removed unnecessary columns, handled missing values.**

**- Calculated BMI and Potential Increase features.**

**3. Exploratory Data Analysis (EDA)**

**- Average Overall Rating over the years.**

**- Progression of selected players (Messi, Ronaldo).**

**- Distribution of ratings per FIFA edition.**

**- Top clubs' average rating trends.**

**- Potential increase of players over years.**

**4. Machine Learning Model**

**- Algorithm: Random Forest Regressor.**

**- Separate field players and goalkeepers.**

**- Scale features, split data into train/test (80/20).**

**- Train model with 200 trees, evaluate with R2 and RMSE.**

**5. Results**

**- Field Players: R2=0.85, RMSE ~2.64**

**- Goalkeepers: R2=0.89, RMSE ~2.42**

**- All Players: R2 ~0.95, RMSE ~1.45**

**6. Conclusions**

**- Ratings evolve gradually; top players are stable.**

**- Leading clubs maintain performance.**

**- Random Forest accurately predicts FIFA21 ratings.**

**- Analysis can support recruitment and talent scouting.**