Player Re-Identification in a Single Feed 🎯

# 📌 Objective

Detect and track football players in a 15-second video using YOLOv11 for detection and Deep SORT for maintaining consistent player IDs — even when players leave and re-enter the frame.

# 🧠 Approach

- YOLOv11 was used to detect players frame-by-frame.

- Deep SORT was used to assign consistent IDs using spatial and appearance-based tracking.

- OpenCV handled reading the input video and writing the output.

- The final result is a video (output.mp4) where each player has a unique ID that stays the same even if they disappear and reappear.

# 📁 Files Included

|  |  |
| --- | --- |
| File Name | Description |
| player\_tracking.ipynb | Main Jupyter Notebook with full code |
| output.mp4 | Output video showing tracked players |
| requirements.txt | Python libraries used in the project |
| report.pdf | Report describing the approach used |

# ⚙️ How to Run

1. Clone or download the project folder.

2. Install required packages using:

pip install -r requirements.txt

3. Open the Jupyter Notebook: player\_tracking.ipynb

4. Run all cells sequentially.

5. output.mp4 will be generated in the same directory.

# 🛠️ Libraries Used

- ultralytics (YOLOv11)

- deep\_sort\_realtime

- filterpy

- opencv-python-headless

- numpy