**Object Tracking in Video**

**Description**:  
Object tracking is about identifying and following a specific object across frames in a video. It’s useful in scenarios like surveillance, robotics, and sports analysis. The goal is to track the object across multiple frames, even when it moves or gets occluded briefly.

**How it works**:

* **Tracking Algorithms**: There are different object tracking algorithms that work well in various situations:
  + **KLT Tracker (Kanade-Lucas-Tomasi)**: Good for tracking features (e.g., corners) in an image.
  + **CSRT (Channel and Spatial Reliability Tracking)**: Handles scale variation, rotation, and occlusion better.
  + **MedianFlow**: Works well for objects that don’t change drastically in appearance.
* **Libraries to Use**:
  + **OpenCV**: It provides many tracking algorithms that are easy to implement, such as KLT, CSRT, and MOSSE.
  + **dlib**: Another library that offers tracking methods with higher accuracy.

**Steps to Implement**:

1. Capture video or load a video file.
2. Manually select an object to track in the first frame.
3. Use a tracking algorithm like CSRT to track the object across subsequent frames.
4. Display the tracking result (usually a bounding box around the object).

**Skills Gained**:

* Object tracking in videos.
* Real-time video processing.
* Computer Vision techniques for optical flow or feature tracking.

**Potential Extensions**:

* Track multiple objects at once.
* Integrate object detection for automatic object tracking.
* Implement the tracker to work in challenging conditions (occlusion, illumination changes).