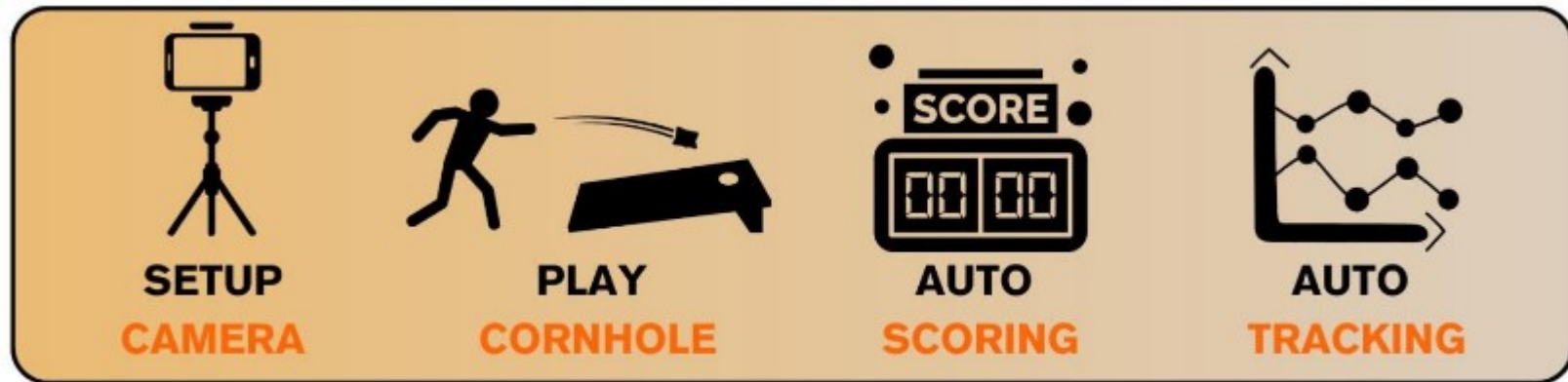# **def** CornholePlus(**5080**, **Project_3**)

Author: Thomas Kidd
Date: 12/01/2024

Project Goals

- **def** CornholePlus

- Track statistics for cornhole players using their phone

- (**5080**, **Project_3**)

- Label cornhole data using SAM2 model in Label Studio

The need for data

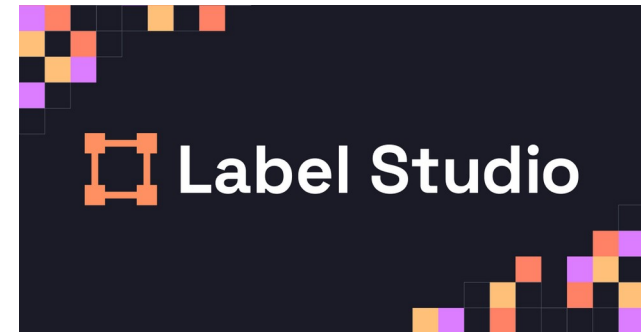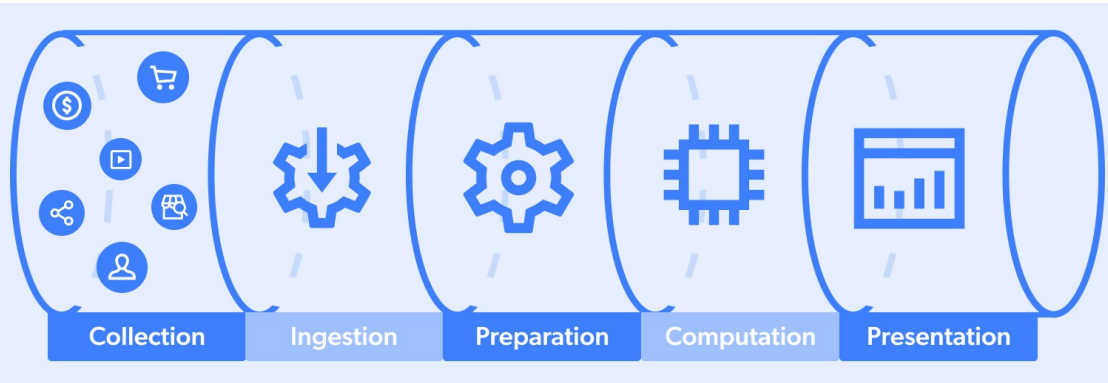- Our software revolves around the data

- Need to **collect data**
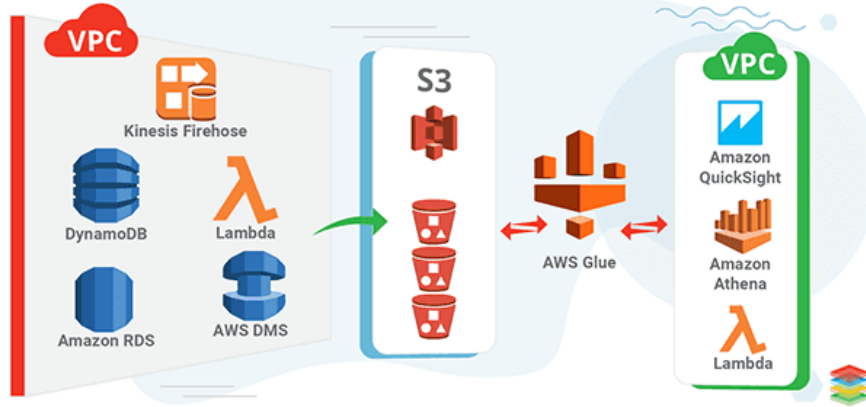
Smartphone

360 Cam

- Need to **label data**

LabelStudio

Expectations VS Reality
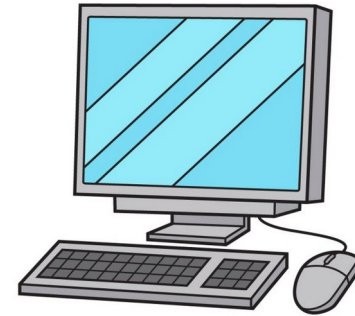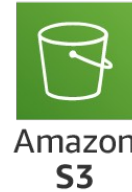
- What I expect

- What happens

Big Data Pipeline on AWS

has exceeded 85%

Insert old PC

Video Labeling

- Current methods
  - Manual
  - Tracking of keypoints
  - Crowd sourcing

- One keypoint auto segmentation tracking with built in memory?

- Zero shot object tracking?

Motivation for video labeling

Statistics???

- What is the cornhole player doing?

- How is information stores

Speed

- One long video has thousands of images

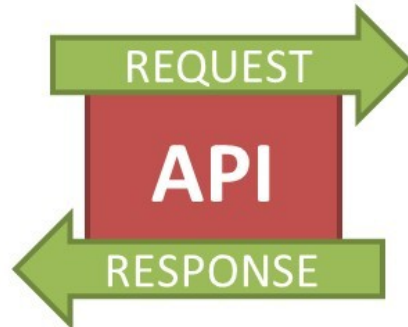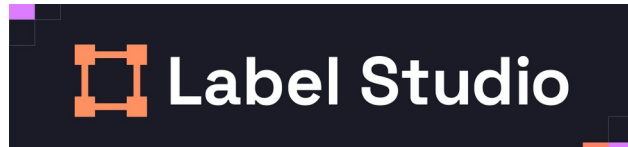- We need 10k-100k images to test training accuracy

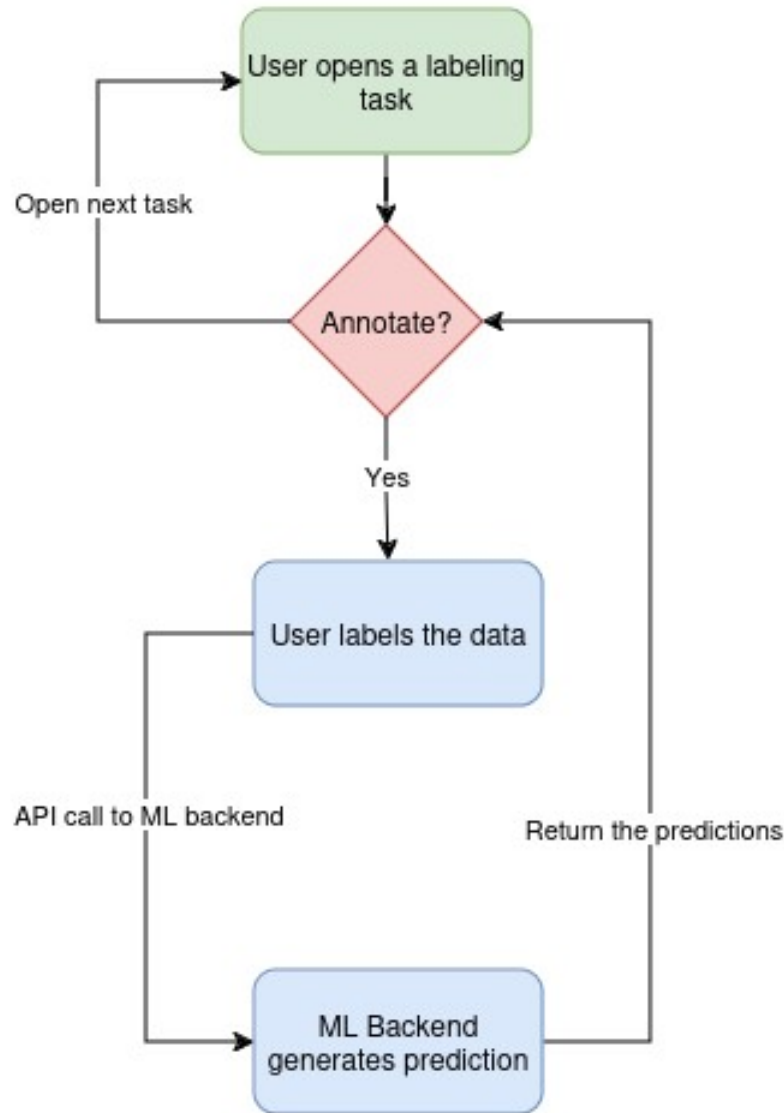# Label Studio Video Labeling

Front end

- Users can label images, videos, text

- Set up the server on AWS

ML Backend

- Listens to the front end
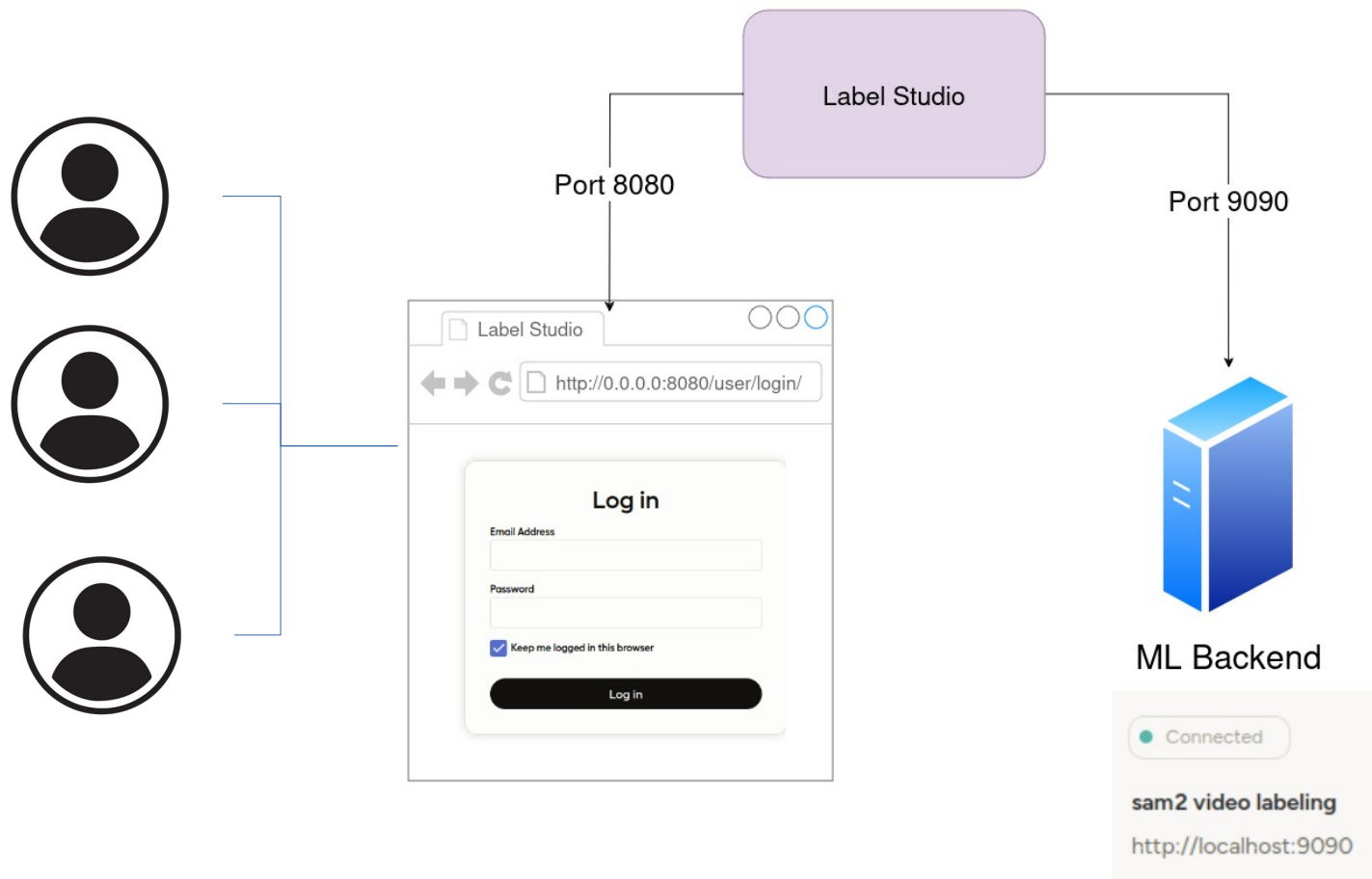
- Executes predictions on data
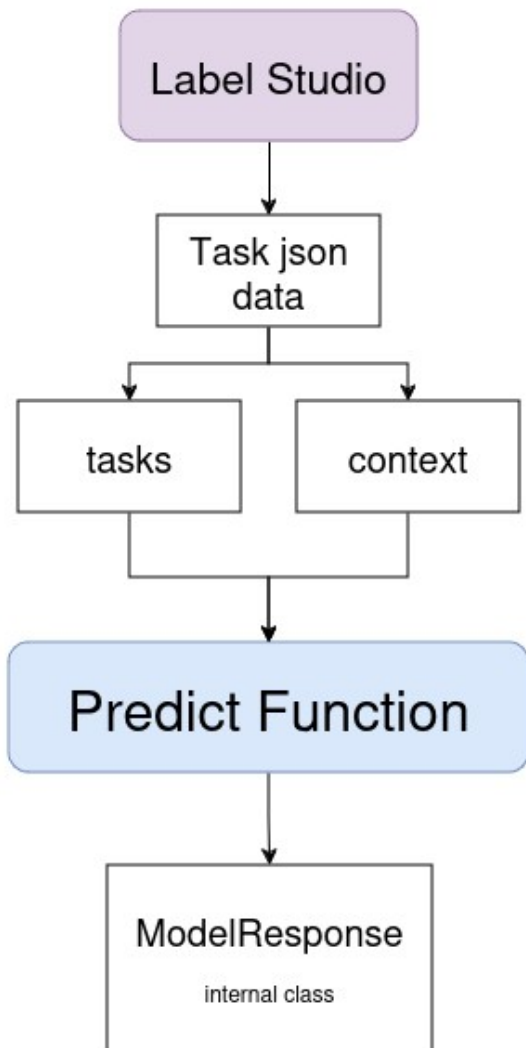
Software Steps

- **Given:** we are developing a new feature for an open source tool

- **Purpose:** end goal in mind means having the user experience in mind

- **Action needed:** understand the current mechanisms of the software

Label Studio ML communication
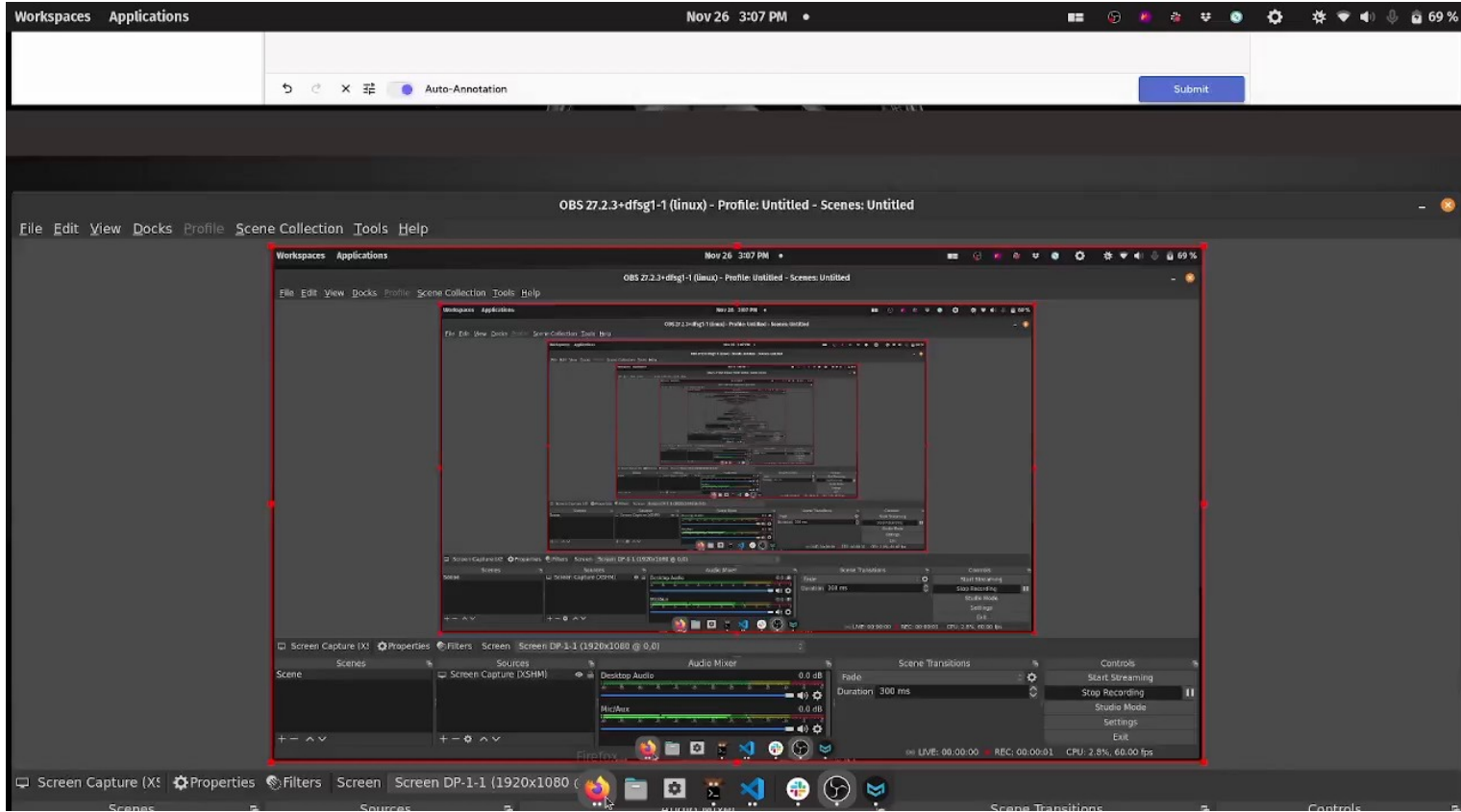
ML predict function

- **Extract data and prompts:** Retrieves video metadata, from tasks and drafts. Analyzes annotations or context to identify model prompts for object tracking.

- **Track objects across frames:** Splits the video into individual frames, initializes inference states, and uses the model to predict masks for objects.

- **Refine and output annotations:** Generates detailed annotation sequences by combining new predictions with existing data. Updates Label Studio with refined object masks, bounding boxes, and associated labels to maintain a coherent annotation workflow.

Some Results

Demo

Fix Label Studio Front end bugs

- There are 2 main bugs preventing from the displaying of multi object tracking

- Issue #664 and #6593