AI/ML assignment approach

Initial Steps

After reading the doc's, the first thing I gave the pdf to chatgpt and told it to give the overview of the project and give me the further steps to act on.

I knew about yolo model's earlier as I am part of drone team, where we are building an Fire Detection Model for our drone. So, then I started to explore yolov5 model as suggested by gpt. At that time of point I didn't think of using any other models but after training the model I explored all the other models and found out that chatgpt's response was a good one😅. As v5 was very efficient compared to other models and was best for my use case.

Voyage of finding a good dataset

Then I started to find dataset, as usual I asked chatgpt for few good resources to find a dataset. As expected it gave me the kaggle, roboflow, etc. It also stated the way of making a dataset through scraping. I started exploring of scraping the photos and watched few youtube video's on the same and got to know about it's rigorous process. As I had a time constraint so thought to drop the plan. Then, I went on kaggle to find the dataset, I found only one related to that with almost couple hundred images so I thought to find them on other sites. Then I found few different different datasets of both coca cola and pepsi. So I downloaded two-three datasets each of pepsi and coca - cola. I couldn't use the dataset directly as the both were different and had same labelling of class name as 0. Then I first merged both images and labels then renamed them and changed the labels. I have attached the final dataset zip which also includes the above scripts to change labels and names.

Training the model

The initial dataset was not accurate as their was error in labelling the dataset and I trained the model without relaizing the issue, but found it in the output. Then I have iterated 5-6 times to prepare the final dataset. Everytime I iterated the dataset, I trained the model and found flaws in output file. With the final dataset I have trained the model and have also attached the collab notebook below. [In this process I ran out free credits of gpu on all my gmail accounts(inc. parents), so I could not make a live running of the model video]. I have also attached the screenshot where I ran out of credits in middle of training.

Creating the pipeline and generating the output

As the main tasks was over, creating a pipeline was doable. Then I learnt about av package through gpt then wrote the code with a lot of errors and solved them using gpt and understood my mistakes and ran my model using the given input video. The output json was produced.

Links -:

- Collab notebook → https://colab.research.google.com/drive/1d7MdwJGcxyc92dMDIrhusiFe6ERIbqmg?usp=sharing
- Dataset → https://drive.google.com/file/d/1DhVu9SlimMbjhXxgJi_vktUaQ7NqTLol/view?usp=sharing
- Trained model → https://drive.google.com/drive/folders/1k20DBm_nJ-PlHv2g2oWHcXSJjctrSExk?usp=sharing
- Github Link → https://github.com/Sam-wiz/cocacola-pepsi-detection-yolo
- Screenshot → https://drive.google.com/file/d/1SfRfF_YUOjfG4KnKoZIB-itho6iXvDDF/view?usp=sharing
- Demo Video → https://www.loom.com/share/afea7b150c8a4a3ebf4b17e55f0e09b8?sid=bb748278-3d02-4891-9945-e76a6fd5dd63
- Youtube video's watched
    1. https://youtu.be/wM1wn1bZ3S4?si=kCqHMEpUYKZFRS0c
    2. https://youtu.be/x0ThXHbtqCQ?si=5Twz-4kyzvMfdEJT
    3. https://youtu.be/Ciy1J97dbY0?si=5rnRNhpgLfqEblrk