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MODULE CODE   :CMPG 312

Project Choice: Classifying Different Clothing Items (e.g. Shirts and Jackets)

Data Collection Process:

- **Challenges**: One of the challenges was making sure I had enough angles and variations in the lighting. The first time I saw the model getting confused was when the photographs had sudden illumination changes (bright vs. dim). Furthermore, I noticed that the model worked better with a simple, unobtrusive background.

- **Successes** I managed to compile a large assortment of apparel, making sure that shirts and jackets were represented with a range of designs, hues, and perspectives. The model performed better and was more generalizable when given a variety of cases.

- **Impact of Data Diversity:** When I made sure the dataset for both clothing categories was diverse and balanced, the model performed significantly better. Accuracy was enhanced by using shirts and coats with varying patterns, colors, and seasons. Because it prevented the model from overfitting to a particular type of clothes, a well-balanced dataset was essential to the model's effectiveness.

Teachable Machine Experience:

- **Ease of Use:** Teachable Machine was very user-friendly. Uploading images, creating classes, and training the model was all straightforward. I appreciated that I could test the model instantly after uploading the data.

- **Helpful Functionalities:** Instantaneous preview of the model's performance when evaluated with fresh data was one of the most useful aspects. Additionally, it was fantastic that Teachable Machine reduced manual labor by automatically separating the data into training and testing sets.

- **Limitations or Difficulties:** The model struggled slightly when testing with images that were too similar (e.g. a jacket that looked very much like a shirt). It didn't always classify well in cases where the clothing was mixed (e.g. a jacket worn over a shirt).

Learnings and Applications:

- **Learnings** I learned how crucial high-quality and diverse data are to machine learning models. For a model to function properly in real-world situations, it must be trained on data that accounts for all possible factors. Teachable Machine's capacity to enable experimenting without necessitating coding expertise was insightful.

- **Applications:**

  - **Personal:** I could use this model in a personal wardrobe assistant app, where the app could recognize what clothes I have based on pictures I upload.
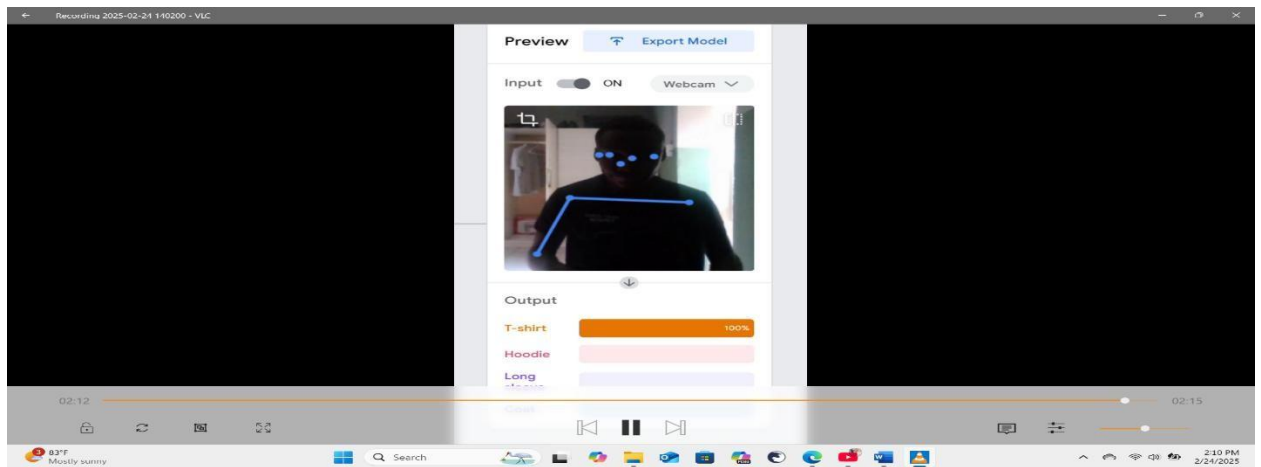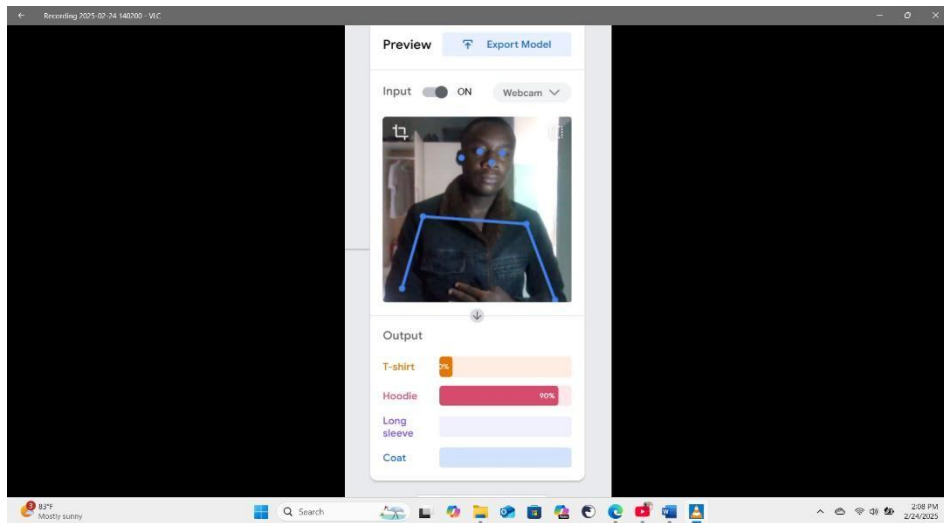
Professional: In the retail sector, this model could be integrated into ecommerce platforms to recommend outfits based on uploaded photos, or it could assist clothing stores in automatically classifying clothing in photos or videos for inventory purposes.

Screenshots:

- The uploaded images for shirts and jackets.

- A screenshot showing the model's performance on test data

Conclusion: This project gave me practical experience using Teachable Machine to train a machine learning model. I discovered that building a successful model requires both highquality and diverse data. Such a model could be used for both professional and personal purposes (e.g., as a wardrobe assistant).

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