Purpose

The purpose of your project is to develop an AI model that can accurately estimate human poses in video.

Scope

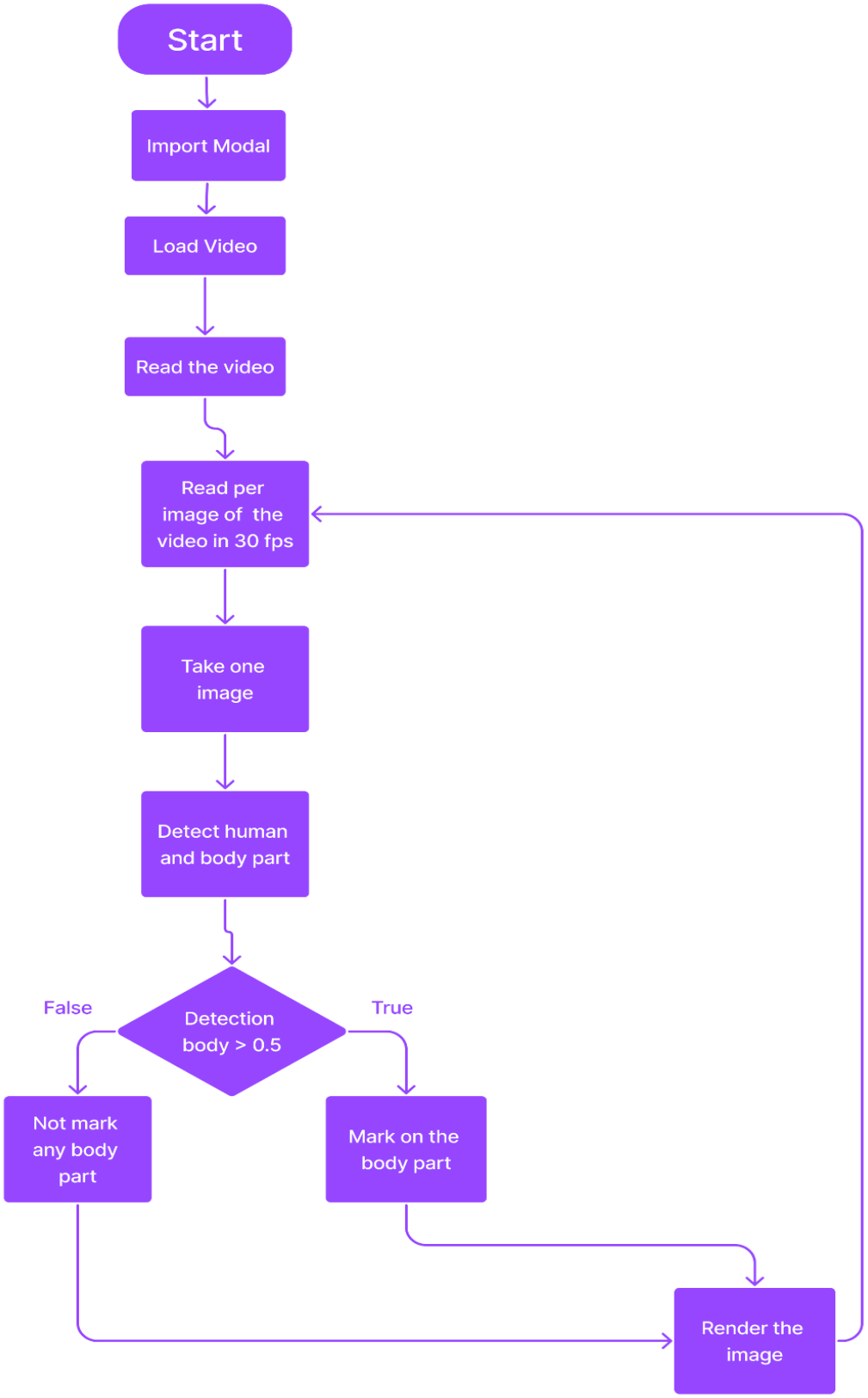
The scope of your project includes the development of a deep learning model that can detect and track semantic key points in human poses. You could also consider exploring the variety of databases, performance metrics, and human body models incorporated for implementing HPE (Human Pose Estimation) methodologies.

Learning Outcome

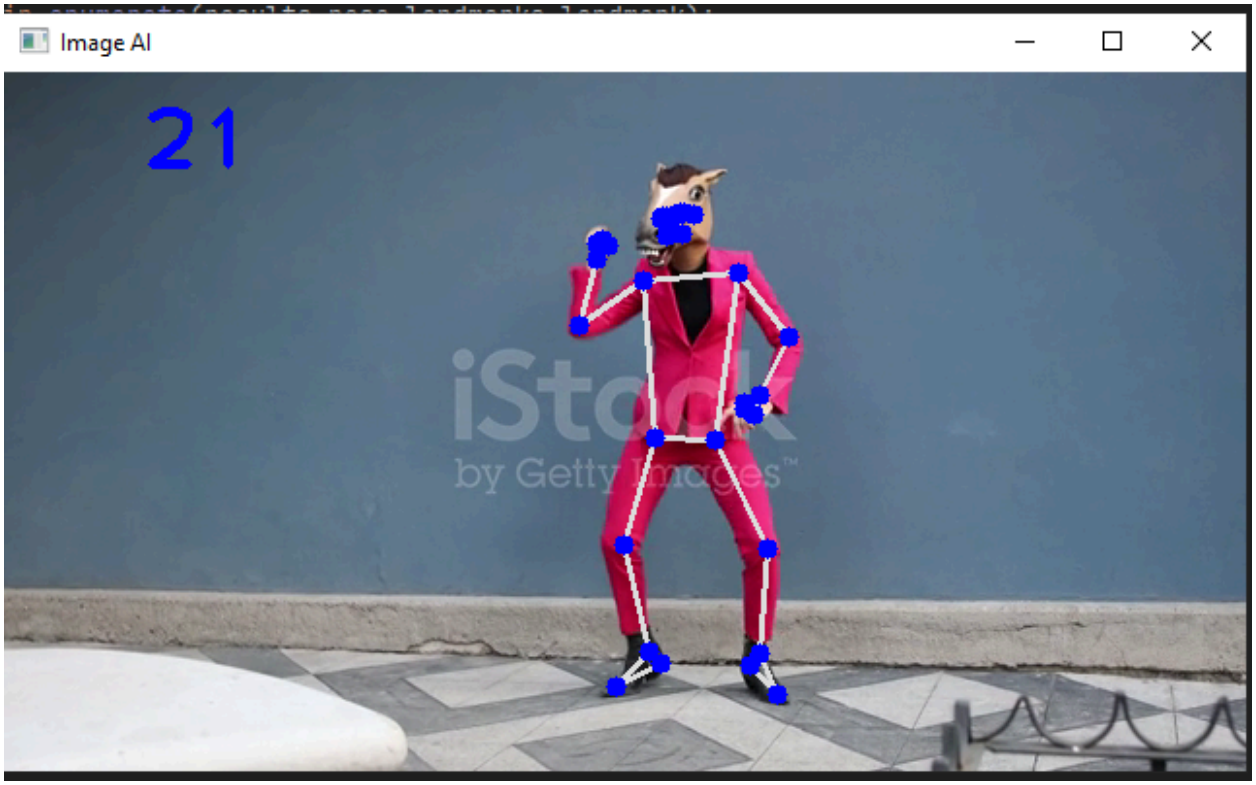
The learning outcome of your project is to gain a deeper understanding of the application of deep learning in human pose estimation and how to use the XML data of Machine Learning where can detect a human body. You could also consider discussing the limitations and potential future research directions in this area.

Flow Chart

I'm using a package named Meadiapipe for detecting the human body shape and mark down the body shape. Fist I need to load a video then Processing the video for detecting body shape. The video will be checked by the program 24 Image per second. I choose 24 FPS because my computer power limitation. If any computer have more power and the computer use Graphics card for loading video then it can process the original FPS of the video. To the next page, I attached my flow chart of my project.


Start
Import Modal
Load Video
Read the video
Read per image of the video in 30 fps
Take one image
Detect human and body part
Detection body > 0.5
False
True
Not mark any body part
Mark on the body part
Render the image

Output of the project



Future Scope

1. **Multi-person pose estimation**: Extend your model to detect and track multiple people in images or videos.
2. **Real-time pose estimation**: Optimize your model to achieve real-time performance on low-power devices.
3. **3D pose estimation**: Explore the possibility of estimating 3D human poses from 2D images or videos.

Conclusion

In conclusion, developing an AI model for pose estimation was a challenging yet rewarding experience. Through this project, I gained hands-on experience in developing deep learning models and working with large datasets. I also learned about the importance of choosing appropriate performance metrics and the significance of incorporating human body models for accurate pose estimation. Looking ahead, there are several potential future research directions that could be explored, such as multi-person pose estimation, real-time pose estimation, and 3D pose estimation. Overall, this project has provided me with a deeper understanding of the application of deep learning in human pose estimation and has equipped me with valuable skills that I can apply to future projects.