Problem Statement: AI Model for Gait Analysis and Abnormal Gait Detection

The project consists of 6 files (d1, d2, d3, d4, d5 and d6). It deals with training and testing a model (IsolationForest) with normal gait data such that it identifies the limit within which a person's gait stays normal. If any deviation is detected, it is assumed to be abnormal. File d1.py deals with data collection and management for training and testing. File d2.py deals with extracting the data from training videos and collecting them into a file gait_features.csv. File d3.py deals with the preprocessing of testing data and its preparation. Important features like step-count, rms acceleration and average step time were extracted. File d4.py uses the training data to tune the IsolationForest model for normal gait and abnormal gait detection. It stores the model in a file anomaly_model.pkl. File d5.py deals with creation of an asymmetry_model.pkl that detects asymmetry (abnormality) in the extracted gait data. File d6.py compares the model accuracy by testing it on the training and testing datasets, and then finally create a fusion of both the datasets and use the trained model for testing accuracy.