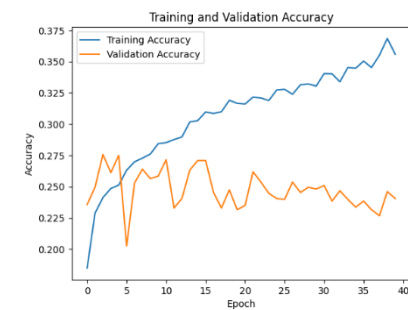
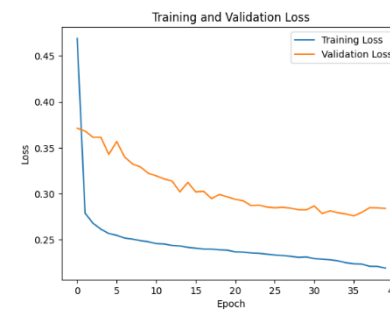
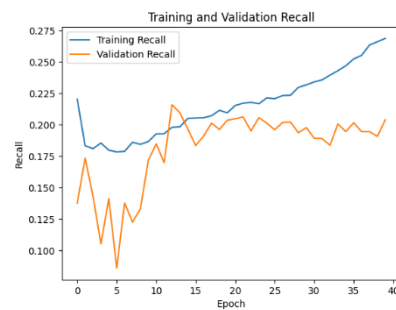
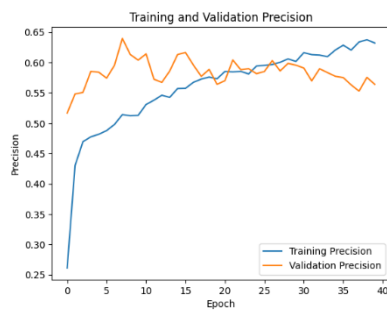


# Introduction

Using TensorFlow and Keras to form a CNN for classifying movie posters by genre. Our process includes pre-processing information, fetching pictures from google drive and names in csv file, making TensorFlow datasets, and utilizing methods like batching and prefetching for data pre-processing. We define the model architecture utilizing the Keras useful API with convolutional, dropout, and dense layers in a particular format. All through preparing, we utilize callbacks such as ModelCheckpoint and LearningRateScheduler to monitor performance and alter parameters. Evaluation includes computing estimations like accuracy, recall, precision, loss as well as making visualizations to evaluate model performance including comparisons between predicted and actual genre for given movie posters. In summary: we're developing a comprehensive pipeline for building, training, and assessing a CNN-based genre classification neural network for movie poster predictions.

## Pre-processing and model evaluation

Data preprocessing includes fetching movie images and corresponding genre names, building TensorFlow datasets, and optimizing data handling with methods like batching and prefetching. The model architecture, actualized utilizing TensorFlow and Keras, comprises of convolutional, dropout, and dense layers, planned to meaningful features from posters and classify them into different classes. During training, we utilize callbacks like ModelCheckpoint and LearningRateScheduler to optimize and alter demonstrate parameters over multiple epochs. Evaluation includes computing measurements such as precision, accuracy, recall, and creating visualizations like training & validation loss and confusion matrix to evaluate model performance. Furthermore, we compare predicted genre with actual truth for each poster to analyse classification accuracy. Generally, our process incorporates comprehensive data preprocessing, model development, preparing, and assessment to create a vigorous CNN-based neural network model for movie posters.



## Conclusion

In our genre classification model for movie posters, the evaluation results show a mixed performance. Whereas the accuracy is very low as 23.85%, precision stands out with 57.51%, demonstrating a moderately large extent of correctly predicted positive cases among all predicted positive cases. However, recall is lower at 20.15%, proposing that the demonstrate may have missed identifying a few true positive cases among all real positive cases. This error between precision and recall highlights the model's inclination to be more cautious in predicting positive cases, possibly coming about in missed openings for classification. The choice of the Adam optimizer with a learning rate of 1e-4 appears reasonable for this assignment because it has encouraged direct merging amid preparing. Advance examination and fine-tuning may be needed to improve our model's performance.

