We used the Full MovieLens Dataset from Kaggle, which consists of meta-data collected from TMDB and GroupLens. The dataset contains entries for 45,466 movies and each entry for a given movie contains various elements about the film such as genre, user rating, cast, and most importantly, poster. We preprocessed the dataset to remove entries with improper formatting, which simplified working with the data, and isolated the genres.

![Figure 1](image1.png)  
**Figure 1:** A visualization of our problem with an example poster

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![Figure 2](image2.png)  
**Figure 2:** An example poster from our dataset

The film industry is one industry that is incredibly reliant upon the use of posters to promote movies. Posters must convey a movie's theme and genre to make the film appealing as possible to a wide variety of people. This makes the features that a poster include on it incredibly important in the portrayal of a movie.

Our project attempted to train a model that could learn features on a movie poster and predict the movie's genre/genres on the basis of these features.

![Figure 3](image3.png)  
**Figure 3:** ResNet34 Architecture

![Figure 4](image4.png)  
**Figure 4:** Residual Block

The ResNet network and the Custom Architecture performed slightly better in pure accuracy when compared to ML-KNN.

The distribution of our dataset may predispose our model towards certain genres. We had a range of 655 class members (TV Movies) to 15941 members (Dramas). Our model also would sometimes learn features that were prevalent but not intrinsic to a given genre, which could account for errors.

This may also have been caused by issues of resolution.

![Figure 5](image5.png)  
**Figure 5:** The custom architecture

![Table 2](image6.png)  
**Table 2:** Performance of ResNet34 Model

![Table 3](image7.png)  
**Table 3:** Top 5 class performances by ResNet34

For this project, we used features to make predictions about genre, given more time, we would attempt to predict other things about a movie from its poster such as viewer ratings or cast members.

The current dataset had a large number of dramas and few TV movies - we could augment our dataset to expose our model to more examples and make our model more robust.

![Future](image8.png)  
**Future**

**References**

1. The Movie Dataset: https://www.kaggle.com/rounakbanik/the-movies-dataset