Movie Recommendations

Developing and Deploying a Recommendation Algorithm

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Business Problem

- A new streaming company called ML Movies wants to implement an active movie recommendation system for its users
- Using a list of available films that have previously been rated by other users, develop a recommendation algorithm that generates curated movie recommendations.

Data Utilized

- The data for this project is sourced from MovieLens. The data describes
  - 100,936 ratings
  - 9742 movies
  - 610 users

Baseline Model

- Surprise Library used to develop baseline models for three algorithms
- Hyper-parameter settings left as default for baseline testing
- Models cross validated, Average RMSE shown in table to the right.

Model	RMSE
SVD	0.873
KNNWithMeans	0.898
KNNBasic	0.947

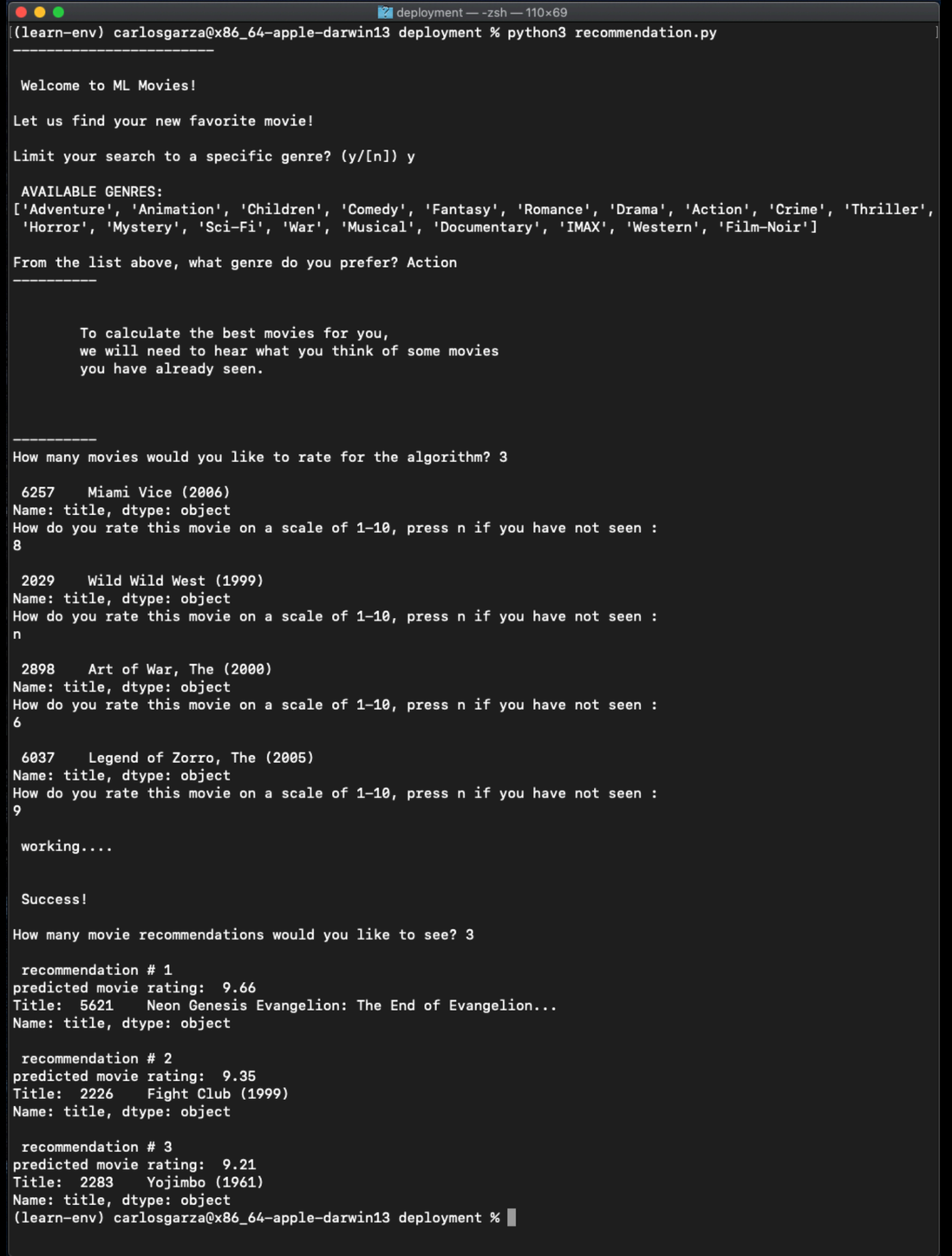
Tuning and Results

- Using a brute force grid search that tries many combinations of model hyper-parameters, the SVD recommendation model's performance was slightly improved.
- The optimized model's performance is summarized in the table to the right.
- A script for a recommendation algorithm was created that requires no specialized knowledge to use.

Metric	Average Value
RMSE	0.856
MAE	0.656
Fit Time (s)	6.54

Deployment

- Model hyper-parameters are used in a python script algorithm



Conclusions

- Using singular value decomposition, the model created has a RMSE of 0.85
- The python script file using the SVD model provides the flexibility to filter by genre and is intuitive enough for a non technical audience
- The algorithm consistently finds movies to recommend the user with predicted user ratings of >8/10

Future Work

- Create GUI for a user to interact with the algorithm
- Code for the possibility to select more than one genre
- Create more robust code that is more flexible with user input
- Create a way to save recommendations or save and update a user profile

Thank You

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