GAME RECOMMENDATION SYSTEM

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PROBLEM STATEMENT

- Scrape the data necessary for the model and clean it .
- Build recommendation system for recommending games.
- Visualizing whether there are any clusters so that we can exploit that property too in building the recommendation system.

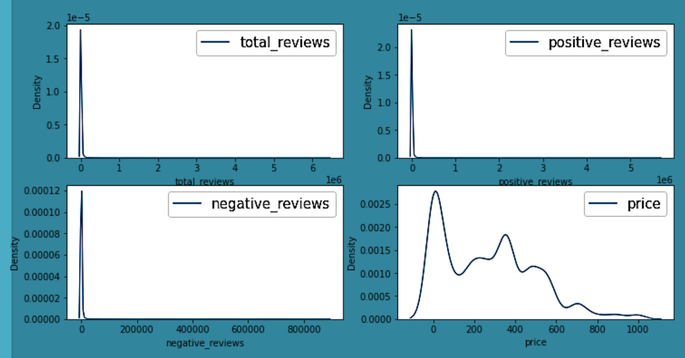
ABOUT DATA SET

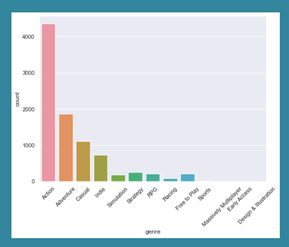
- Data: https://store.steampowered.com/
- UserData: https://steamcommunity.com/games/steam/members

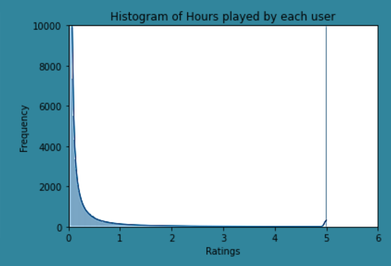
MOTIVATION

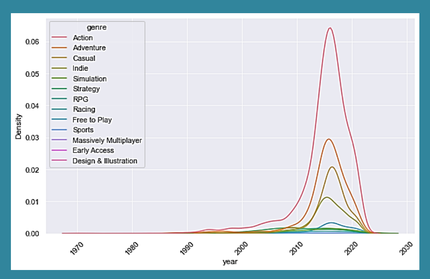
- Recommendation systems helps users to find and select items from huge number of available options of web. It has been used as a marketing strategy by many companies.

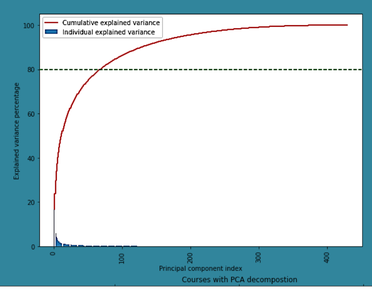
EDA

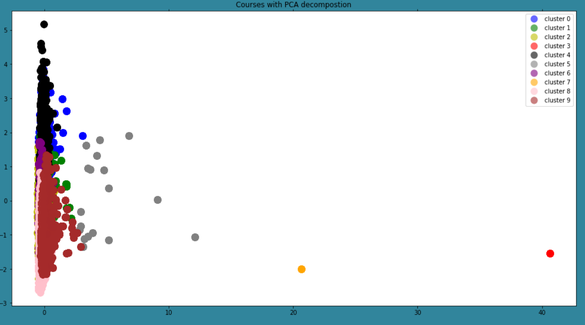










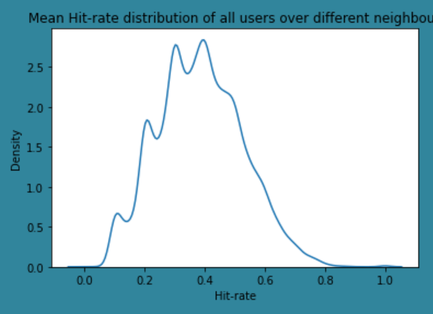


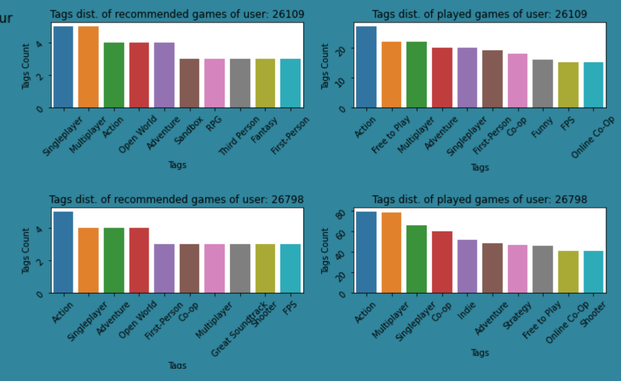
MODELS

BASE MODELS :

Base Models	MSE
Baseline Popular Model	0.086
CF Model	0.096
Simple CB Model	0.269
Hybrid Model (mean(CF, CB))	0.13
User-user model (cosine sim)	0.000047

User – User Model -

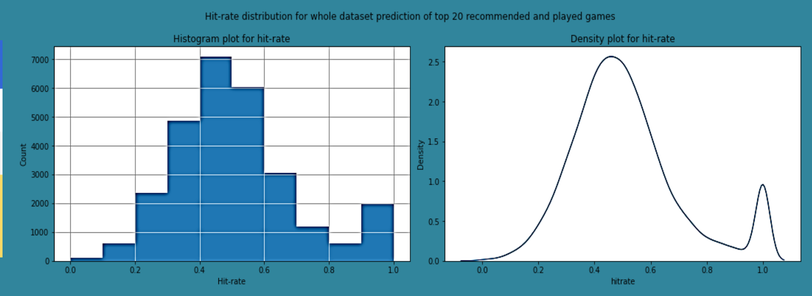




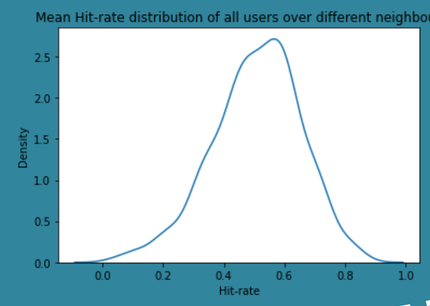
COMPLEX MODELS :

Models	MSE
CF Model (cosine sim weighted avg)	0.005
User centric Content based (with hyper parmeter tuning)	0.12
CF-Matrix factorization (Embedding)	0.02
Content Boosted Collaborative Filtering	0.03

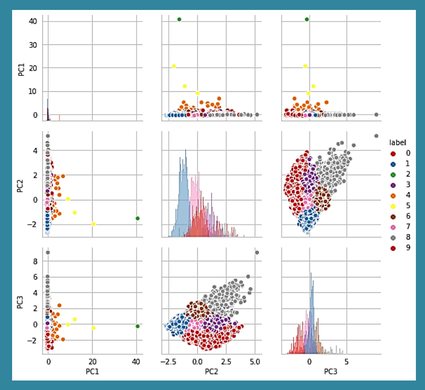
Matrix factorization -

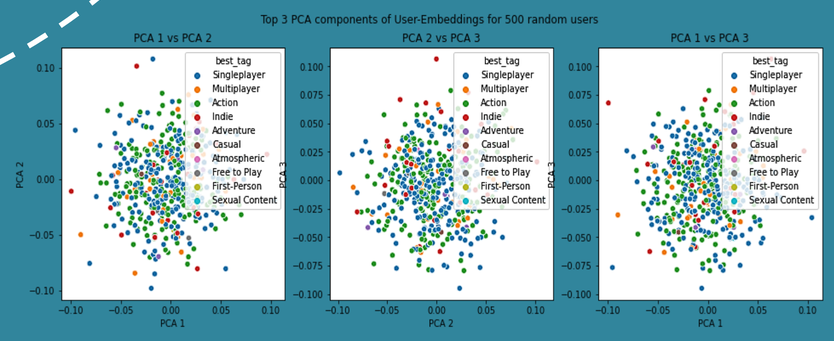


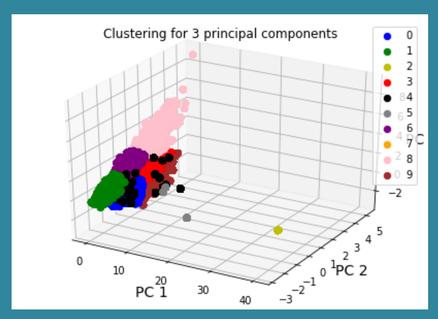
Content boosted Collaborative filtering-



PCA







CONCLUSION AND INFERENCE

Performance :

0.51 hit-rate is decent progress but it tells us that we are not able to make models fully personalize.

Eval. Metric :

MSE can be used as loss function but to interpret results, we can not rely on mse. Hit-rate alone can’t explain the model.

Best Model :

- base model : user-user based filtering (0.41 hit-rate)
- complex model: Matrix factorization and content-boosted filtering (0.51 hit-rate)

Online Evaluation

Our system currently only uses past user’s data, so we haven’t incorporated things like new games released, trends in community etc.

FUTURE SCOPE

- Game related features.
- Variety of user’s data .
- Use other eval. Metrics.
- Cluster Based Models

REFERENCES:

- https://link.medium.com/xpaS84yiGqb
- https://store.steampowered.com/
- https://steamcommunity.com/games/steam/members