ECE 143 Group 1 - Project Proposal

Successful Board Game Design Analysis and Recommendation System for Board Game Designers

Name:
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Problem:
To continue developing a more relevant, engaging, and fun board games for today's modern generation of people, ECE 143 Group 1's team members not only unveiled the secrets behind a successful board game design characteristics based on 2021 Board Games Data-set from the BoardGameGeek but also build a smart recommendation system that suggests suitable board games design features based on the board game designer's selected theme or domain of a board game. The recommendation system aims to assist board game designers to create a new generation of successful board games based on its selected theme or domain of a board game for today's modern society.

Dataset:
The BoardGameGeek Dataset on Board Games was downloaded from the IEEE Data Port website, (https://ieee-dataport.org/open-access/boardgamegeek-dataset-board-games). The data-set has 20343 different board games. All the 13 features in the dataset excluding the ID of a board game will be analyzed in this project, including the name of a board game, year published, the minimum number of players, the maximum number of players, playtime, minimum age, users rated, rating average, board game rank, complexity average, owned users, mechanics, and domains.

Proposed Solution and Real world Application:
ECE 143 Team 1 proposes to develop a basic yet impactful recommendation system for board game designers to create and design a more engaging and popular board game based on the 2021 board game dataset. The recommendation system that uses collaborative based-filtering approach not only helps a board designer to better design board games based on its selected board games theme (i.e., domain) but also helps board game publishers to earn more profits by selling in-demand products. Before recommending board game design features, the recommendation system pre-processes the dataset to extract valuable insights about what makes a board game

design successful by visualizing the dataset features including user ownerships, number of ratings, average rating of the game, etc.

The real work application of the proposed solution is allowing the designers and board game companies to analyze the current trends in the board game industry and predict future demand and design accordingly.

Project Timeline:

Tasks	Estimated Completion Time	Team Member(s) in Charge	Tentative Deadline
1. Data Collection and Preprocessing Data	One Week	Manas Bedmutha, Siddhant Saoji	14th February
2. Data visualization	Two Weeks	Kai Chuen Tan, Joshua Smith, Xiaolei Du, Manas Bedmutha, Siddhant Saoji, and Ali Zaidi	23rd February
3. Recommendation System	Two Week	Kai Chuen Tan, and Ali Zaidi	7th March
4. Final Presentation	A Day	Kai Chuen Tan, and Ali Zaidi	9th March

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Data Visualization:

Group 1: Joshua
1.) Year Published

Group 2: Joshua
1.) Game Weight

Group 3: Xiaolei Du
1.) Avg Rating
2.) Bayes Rating
3.) Std

Group 4: Kai
1.) Min Player
2.) Max Player

Group 5: Manas
1.) ComAgeRec
2.) MfgAgeRec

Group 6: Kai
1.) NumOwned
2.) NumWant
3.) NumWish
4.) NumUserRating
5.) NumComments

Group 7: Siddhant
1.) NumAlternates
2.) Num Expansions
3.) NumImplementations
4.) IsReImplementations

Group 8: Siddhant
1.) Mfg Play Time
2.) ComMinPlayTime
3.) ComMaxPlayTime

Group 9: Manas

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1.) Kickstarted

Group 10: N/A

1.) Rank

Group 11: Xiaolei Du

1.) Categories

Group 12: Kai

1.) Mechanics

Group 13: Kai

1.) Themes

Group 14: Xiaolei Du

1.) Subcategories

Group 15: Joshua

1.) Publishers