COMP40610 - Information Visualization
Visual Exploration Tool Design Document

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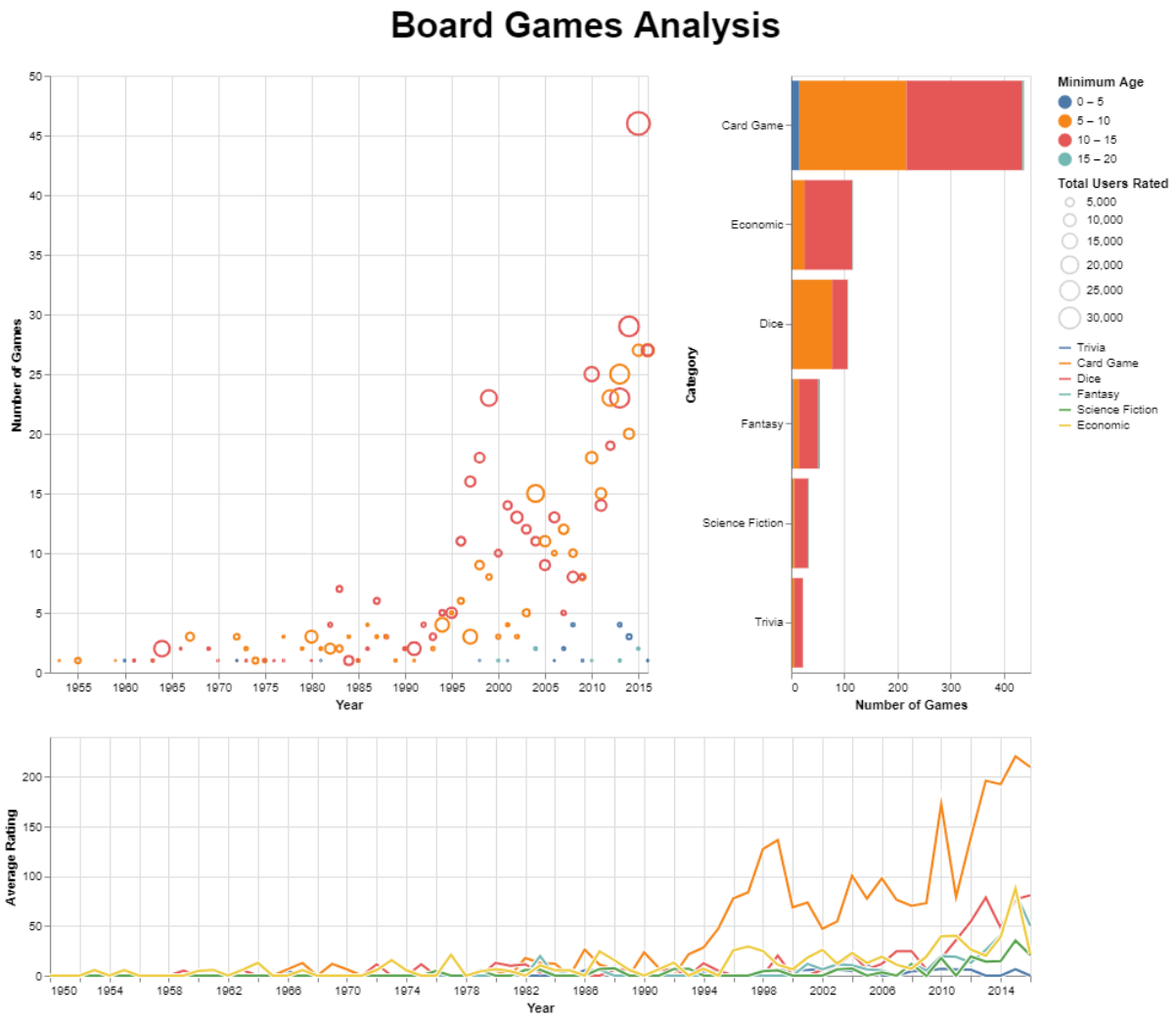
Board Games Analysis

Screenshot of the Vega-lite dashboard



Dataset overview

This is an adaptation of a Board games geek dataset present in R library. We took the dataset from Github. The dataset has 22 features, out of which 9 are quantitative (integer or double) and the rest are categorical (all are nominal).

For reducing the load on Vega-lite and faster execution, we have limited our games category to 5 most popular categories - Trivia, Card Game, Dice, Fantasy, Science Fiction and Economics.

We have used 6 columns of the dataset : Year in which a game is published, minimum age at which a game can be played, category of the game, average rating of the game, and number of users who rated the game, as part of our analysis.

Design considerations

Overall goal: Our main goal is to understand the trends in Gaming industry. Which category has been most popular, which age group leaves the most ratings, which game category favours most to a particular age groups and how has that affected ratings over the years.

Scatter plot graph: Scatter plot is the best way to observe the relationship between two variables. We can map the trend of number of games produced over the years using scatter plot. We can see an upward trend in number of games as we peruse closer to late 2000s. Color is used to segregate different minimum age groups of games. Size of the point shows the number of users who have rated the game. We can observe that as the years progress, not only has the count of games increased, but more and more users are also giving feedback. A line graph would be more appropriate for trend analysis but we chose scatter plot because in this graph we wanted to showcase the number of users who have rated the game along with the count of games produced, therefore it was more appropriate to consider year as a quantitative variable along with users rated, count of games and age category of those games.

Stacked Bar chart: A stacked bar chart is an easy way to compare popularity of specific categories of games with each other. This stacked bar chart displays the total number of games for most popular category. The bar chart is sorted based on total number of games per category. Sorting by this attribute makes it easy to to find the most popular category. An alternative would be to sort alphabetically – this would make it easier to find specific category, but harder to see what is at the top and bottom of the list. Colour is used to indicate minimum age of the players required to play the game. Minimum age is used because we have used that field in our scatter plot to understand the overall trend of games belonging all categories. We can observe that most games of popular categories are catered towards the age group 5 and above. Alternatively, we can also specify minimum playtime as color to see which category has the longest running games as future work.

Multiple Line Graph: This is a line graph that shows the count of games released each year based on category. Each line represents the popular category (same ones used in stacked bar chart). This approach makes it convenient to track changes over the popularity of each category through the years. Although popularity can also be assessed from stacked graphs, with line graphs, we can also see how the popularity of particular categories have changed over time as well as compare the popularity of every category with each other.

Interaction consideration: Main goal when considering our interaction was for targetted analysis. We added brush tool on our first graph (scatter plot) to allow selection of particular range of years. When a period is selected, we can observe how the stacked bar changes regarding the no of games produced in that period for all categories, and the line graph below also changes the year period to show trend for all categories during that period. Another interaction we thought would be beneficial was category wise analysis. When we

select a particular category of games from the second graph (stacked graph), we can see how that game has faired over all years in the line graph below and in the first graph we can see how many users rated for that game over the period and the what is the minimum age required to play that category of games. We can also select more than one categories of games by holding shift and selecting required categories from our second graph to compare and analyse trends for multiple categories at the same time