Project Proposal for Data Visualization Final Project: Mobile Strategy Games

- Basic Information
  - project title: Mobile Strategy Games
  - name: Ziling Wang
  - email: zwang155@dons.usfca.edu
  - repository: https://github.com/zwang155/Mobile-Strategy-Games
  - link: https://zwang155.github.io/Mobile-Strategy-Games/

- Background and Motivation
  - I'm quite interested in mobile games. When I feel bored, I may turn on my mobile phone, browse the app store and try some interesting games. On the other hand, the mobile games industry is becoming more and more popular, as mobile phones plays a significant role in our daily lives nowadays. However, mobile games is a very broad topic. And, for comparison, putting two games together makes no sense when they belong to different categories. Among all the game categories, strategy games are the ones that attract me most. Therefore, I plan to narrow the range down to mobile strategy games.

- Project Objectives
  A. Among all the features provided, find out their connections with user ratings (if exist). — meet feature A, E
  B. Find out is there any patterns between the average user ratings and user rating count, and discuss can they somehow show the popularity of the games (if exist). — meet feature B, E
  C. Research on whether the price and in-app purchases will influence the games, and compare them with free games. — meet feature C, E
  D. Explore the dataset to find something interesting. — meet feature D, H
  E. Do some research on the icons of the games (optional). — meet feature E, G
  F. Select some games I played before or had interest on, and try to find out what kind of games I like. Allow the user to select theirs maybe. (optional) — meet feature E, F

- Data
  - https://www.kaggle.com/tristan581/17k-apple-app-store-strategy-games
  - The dataset comes from kaggle. It contains 17007 games on the apple app store. It was collected on the 3rd of August 2019, using the iTunes API and the App Store sitemap.

- Data Processing
  - I'll clean invalid entries; remove duplicates; filter out useless data (for example the entry with user rating count less than 100); delete null values if necessary, or switch to some default values (like 0 or -1 if it's numbers). I can do the data processing through python script.

- Visualization Design
  - Designs are attached after the Project Schedule section (before the Related Work section)

- Must-Have Features
  A. Provide several visualizations to show the connection between user ratings and other features; OR one multidimensional visualization that user ratings is mapped to one of its scales. — meet project objective A
  B. Provide a Scatter plot with average user ratings and user rating count; OR any other visualization that can show the patterns. — meet project objective B

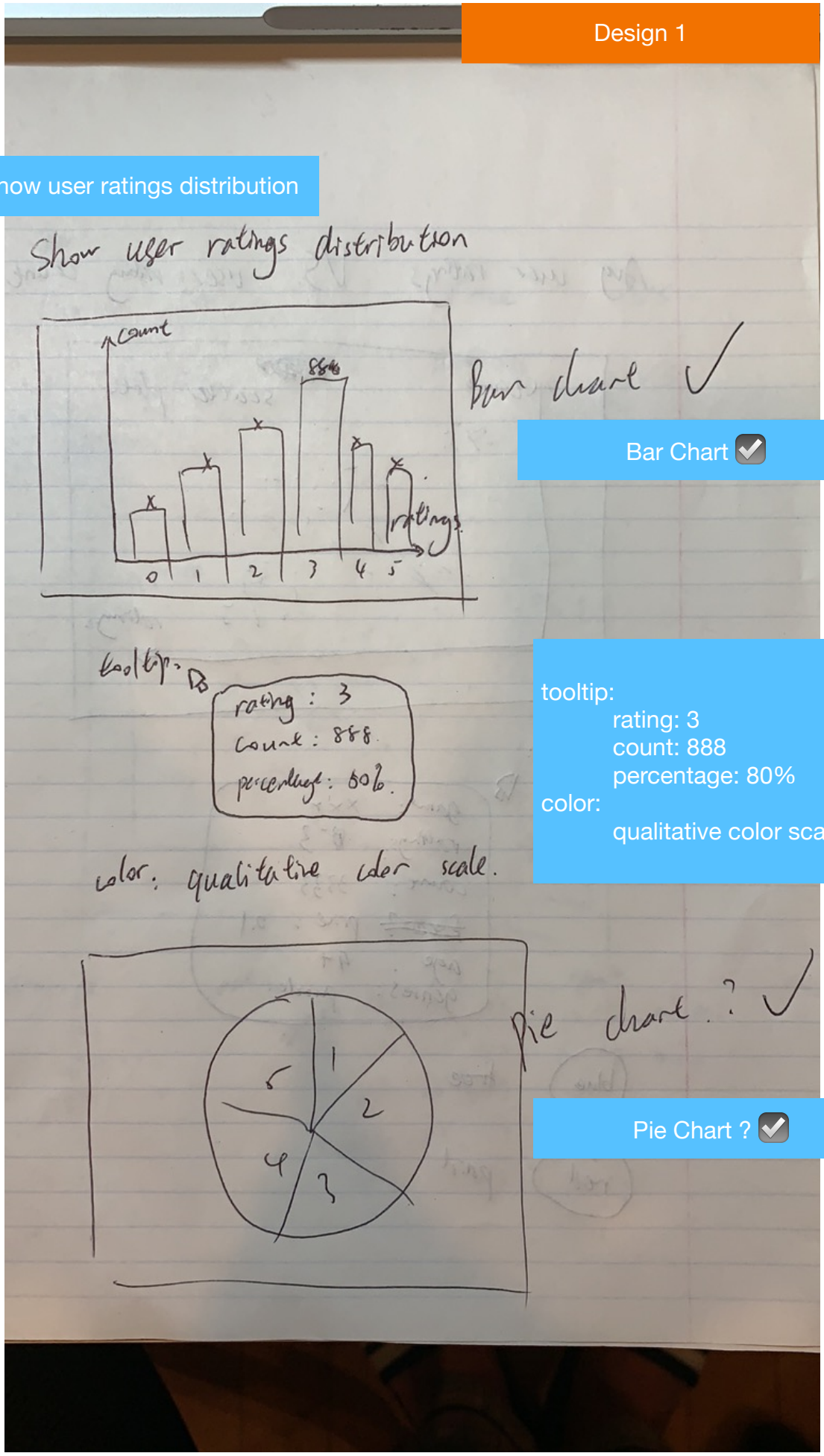
C. Split games into different groups based on prices and in-app purchases, and visualize them with other features (average user ratings, user rating count, etc.) — meet project objective C
D. Add at least one visualization similar to the ones in related work sections, to better explore the dataset. — meet project objective D
E. Implement basic user interaction like tooltips for most visualizations. — meet all project objectives

- Optional Features
  F. Select a few games and give visualizations of them in details. Allow the user to select games and give visualizations of them in details — meet project objective F
  G. Provide visualizations to show the icon groups (group the icons based on color, shape, etc.) — meet project objective E
  H. Add more visualizations similar to the ones in related work sections, to better explore the dataset. — meet project objective D

- Project Schedule
  - Project Proposal — Mar 31
    - Give a proposal for this project, including these sections: basic information, background and motivation, project objectives, data, data processing, visualization design, must-have features, optional features, project schedule
  - Revised Proposal — Apr 7
    - Revise the proposal, append related work section and provide the website
  - Alpha Release — Apr 12
    - Finish three static visualizations (1 from Design 1, 1 from Design 2, 1 from Design 3) and update them into the website
    - Finish the alpha release report
  - Midpoint — Apr 19
    - Finish the remaining static visualizations for all the designs
    - Do some optional visualizations if time allowed
    - Format the website
  - Beta Release — Apr 26
    - Decorate the website to make it beautiful
    - Add basic interaction functions like tooltip to all the visualizations
    - Do some optional features if time allowed
    - Prepare for the presentation
  - Final Project Presentation — May 10
    - Finish all the code for the website
    - Record the Presentation
  - Project Report Draft — May 17
    - Give a report for the project
  - Project Report — May 19
    - Revise the report

Design 1

Show user ratings distribution



Bar Chart ☑

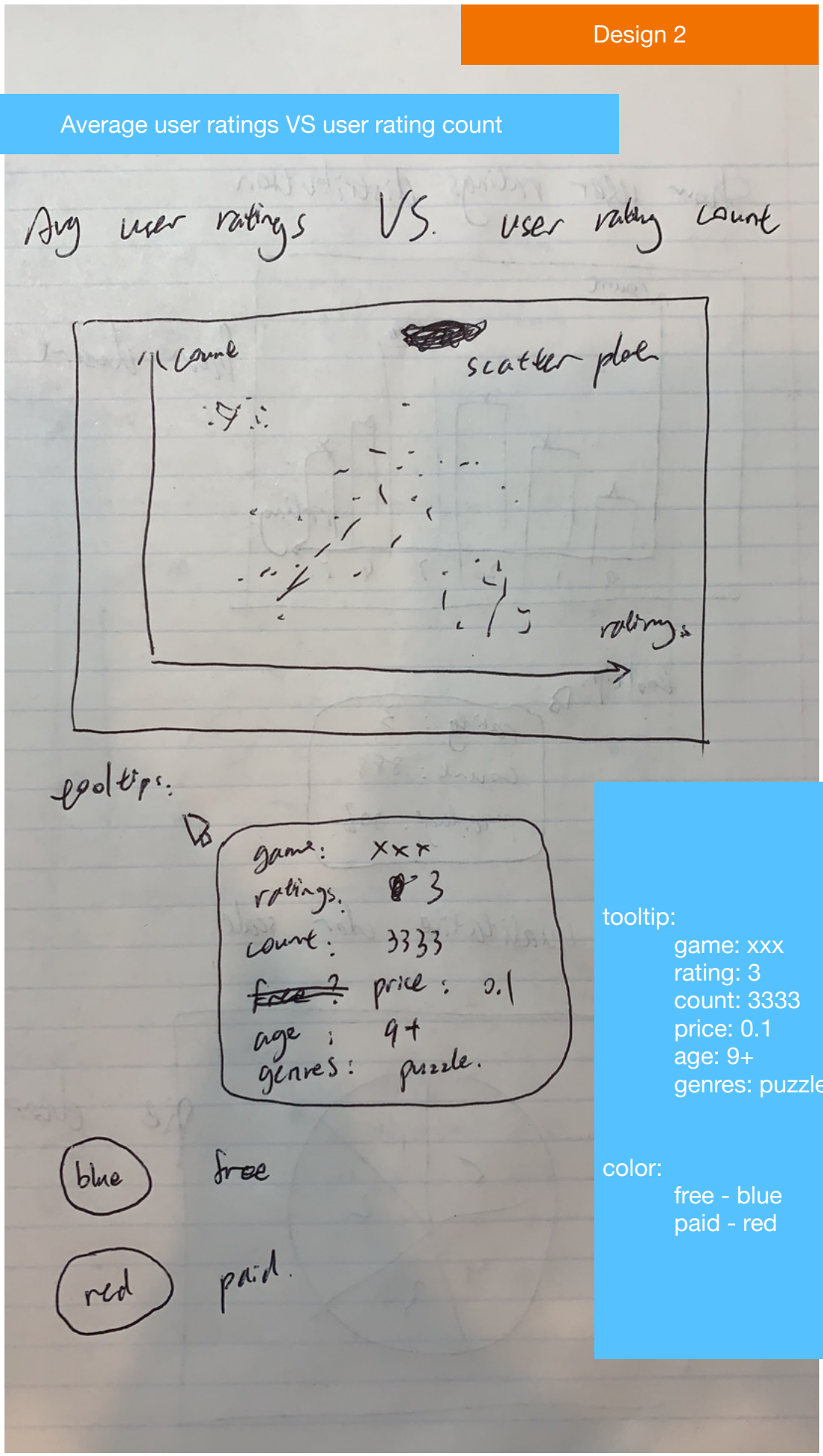
tooltip:
- rating: 3
- count: 888
- percentage: 80%

color:
- qualitative color scale

Pie Chart ? ☑

Design 2

Average user ratings VS user rating count

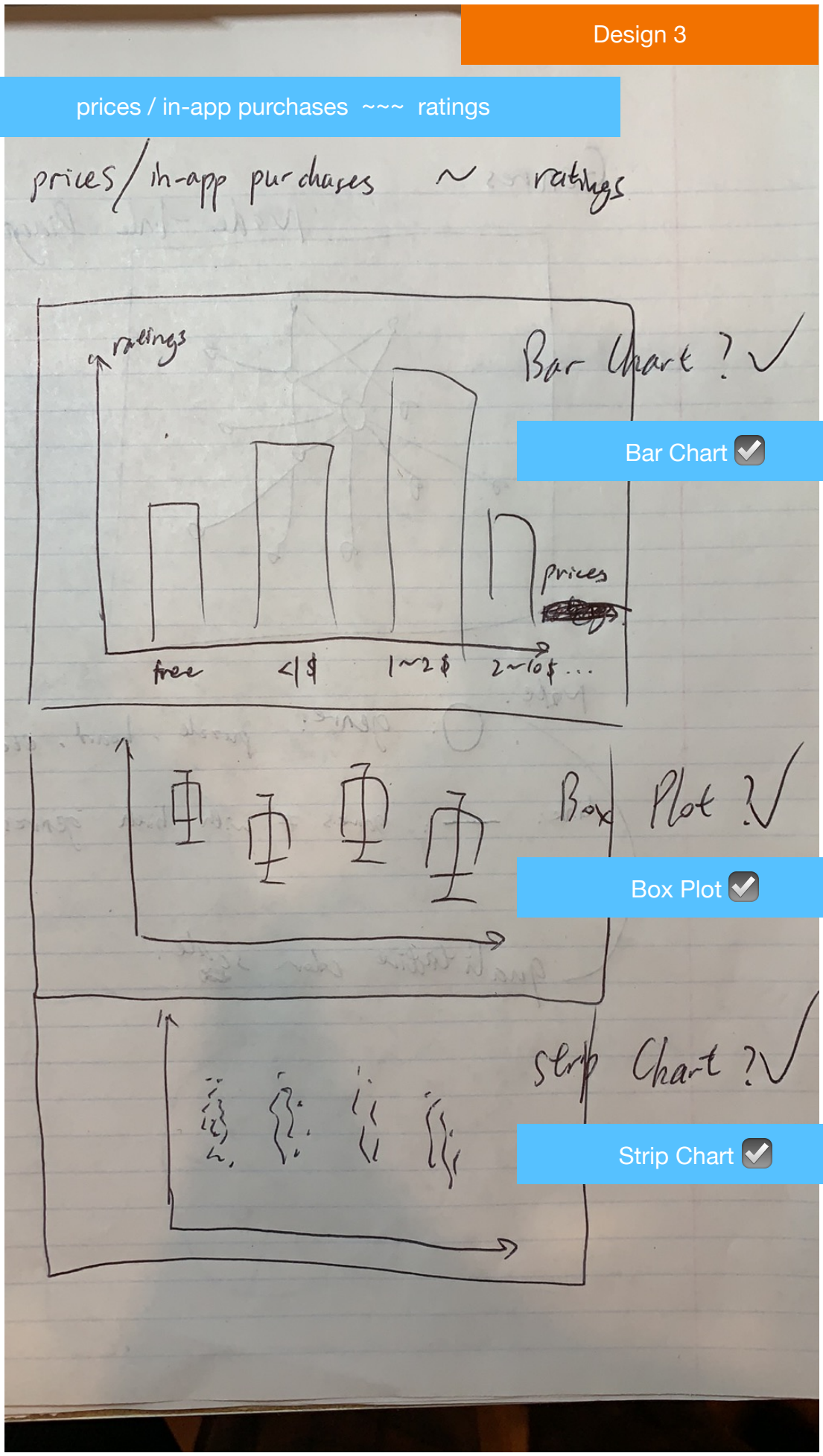


tooltip:
- game: xxx
- rating: 3
- count: 3333
- price: 0.1
- age: 9+
- genres: puzzle

color:
- free - blue
- paid - red

Design 3

prices / in-app purchases ~~~ ratings



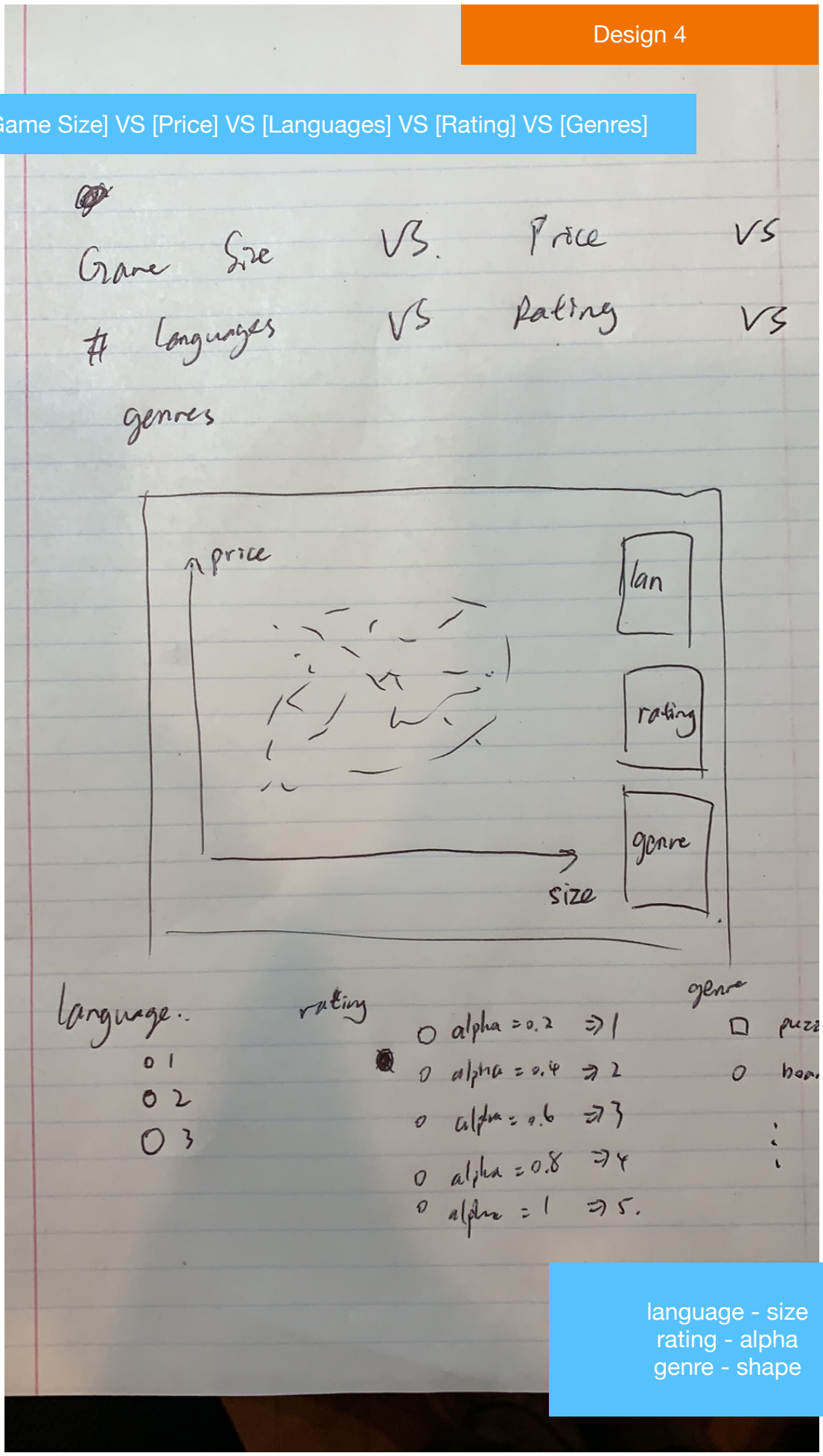
Bar Chart ☑

Box Plot ☑

Strip Chart ☑

Design 4

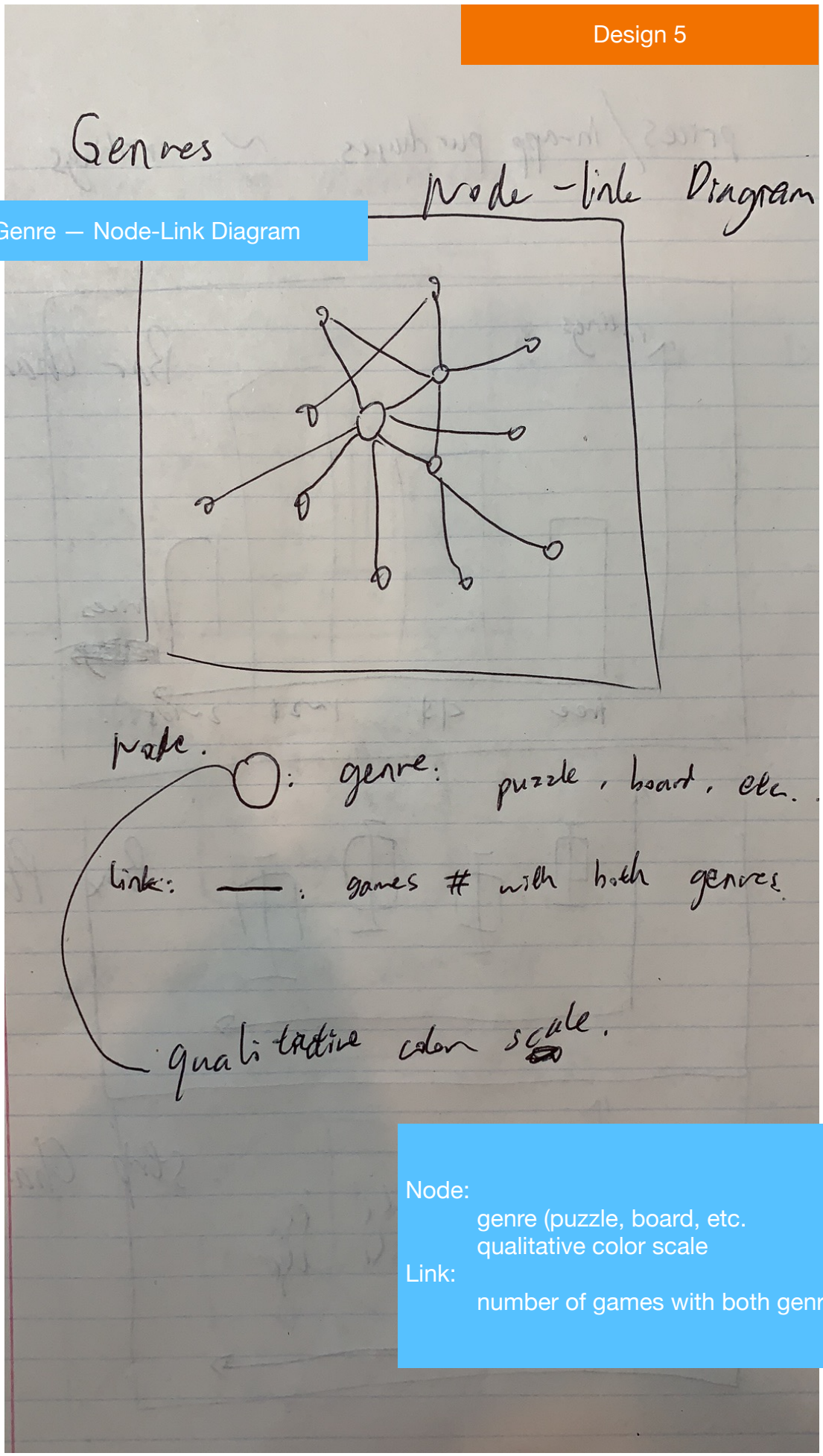
[Game Size] VS [Price] VS [Languages] VS [Rating] VS [Genres]



language - size
rating - alpha
genre - shape

Design 5

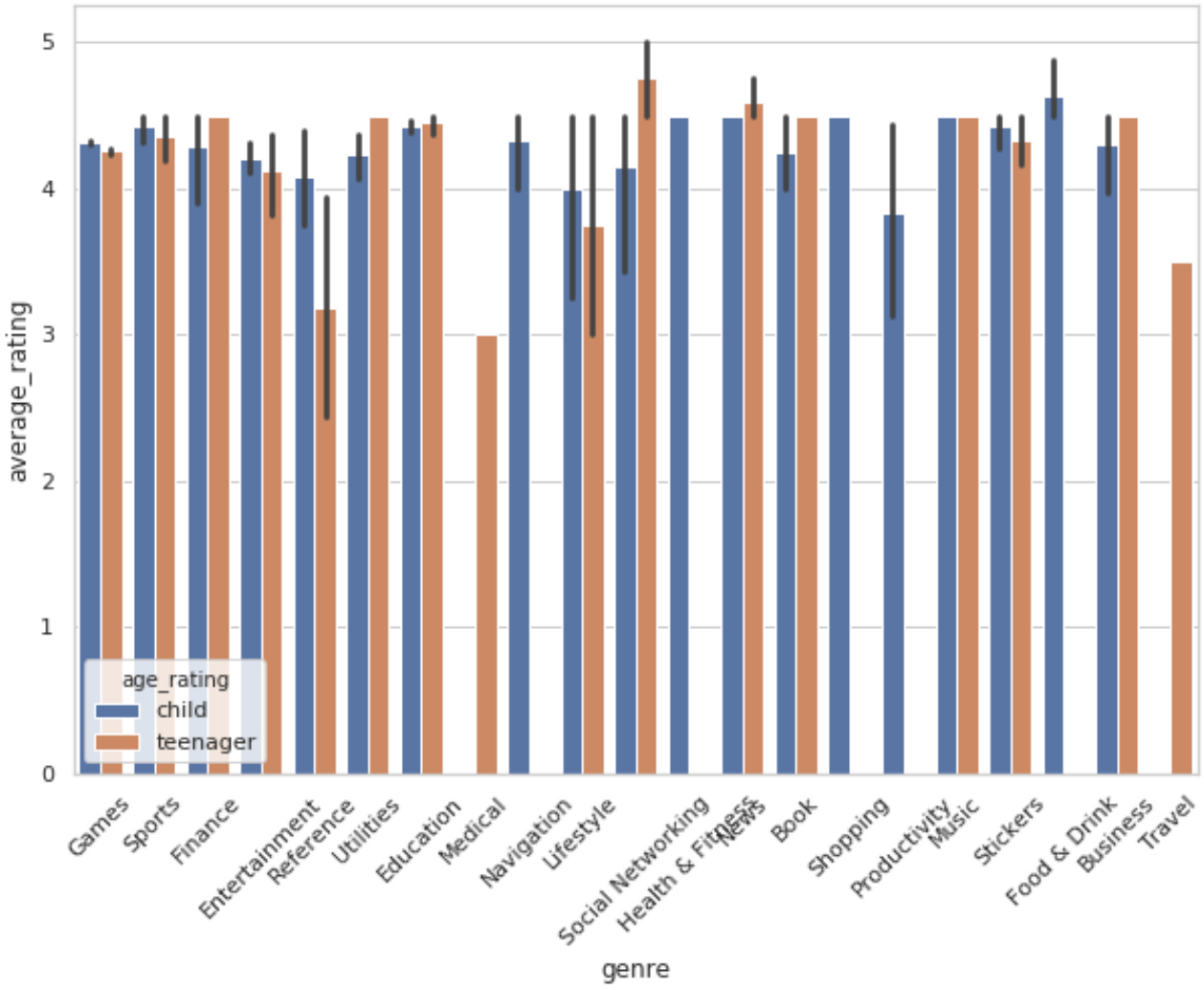
Genre — Node-Link Diagram



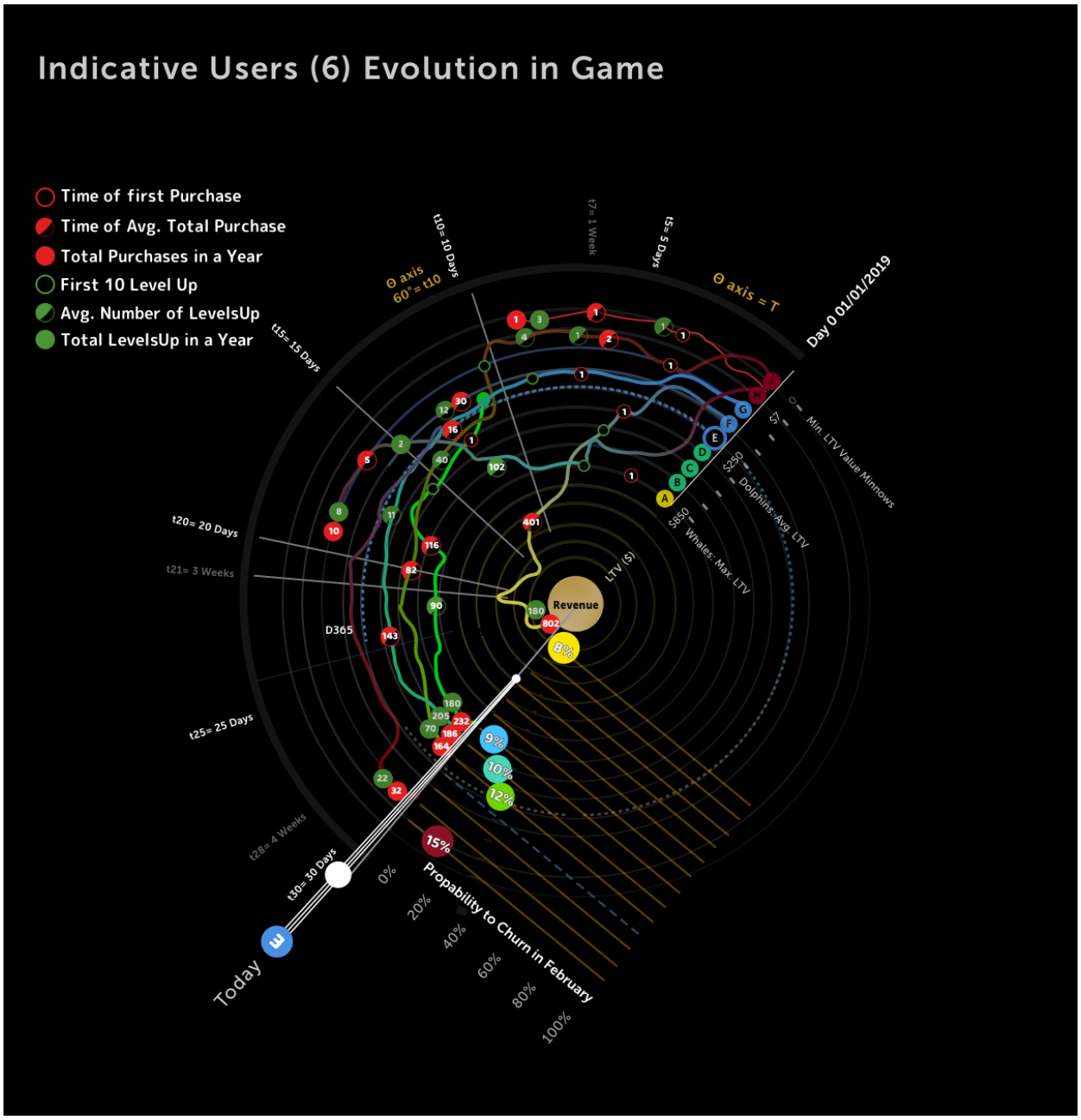
Node:
genre (puzzle, board, etc.
qualitative color scale

Link:
number of games with both genres

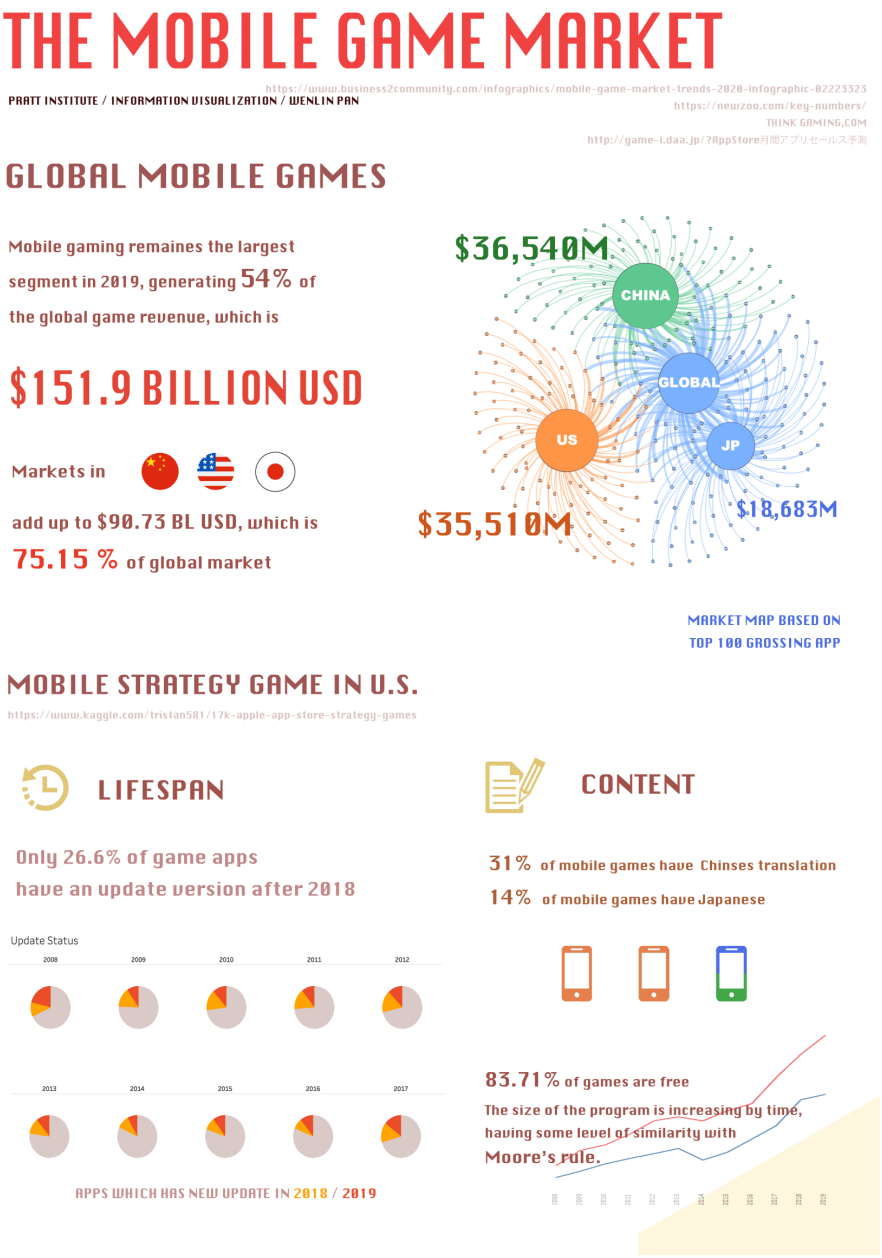
- Related Work
  - Nida Güler. *EDA and Data Visualization Mobile Strategy Games*. https://www.kaggle.com/nidaguler/eda-and-data-visualization-mobile-strategy-games



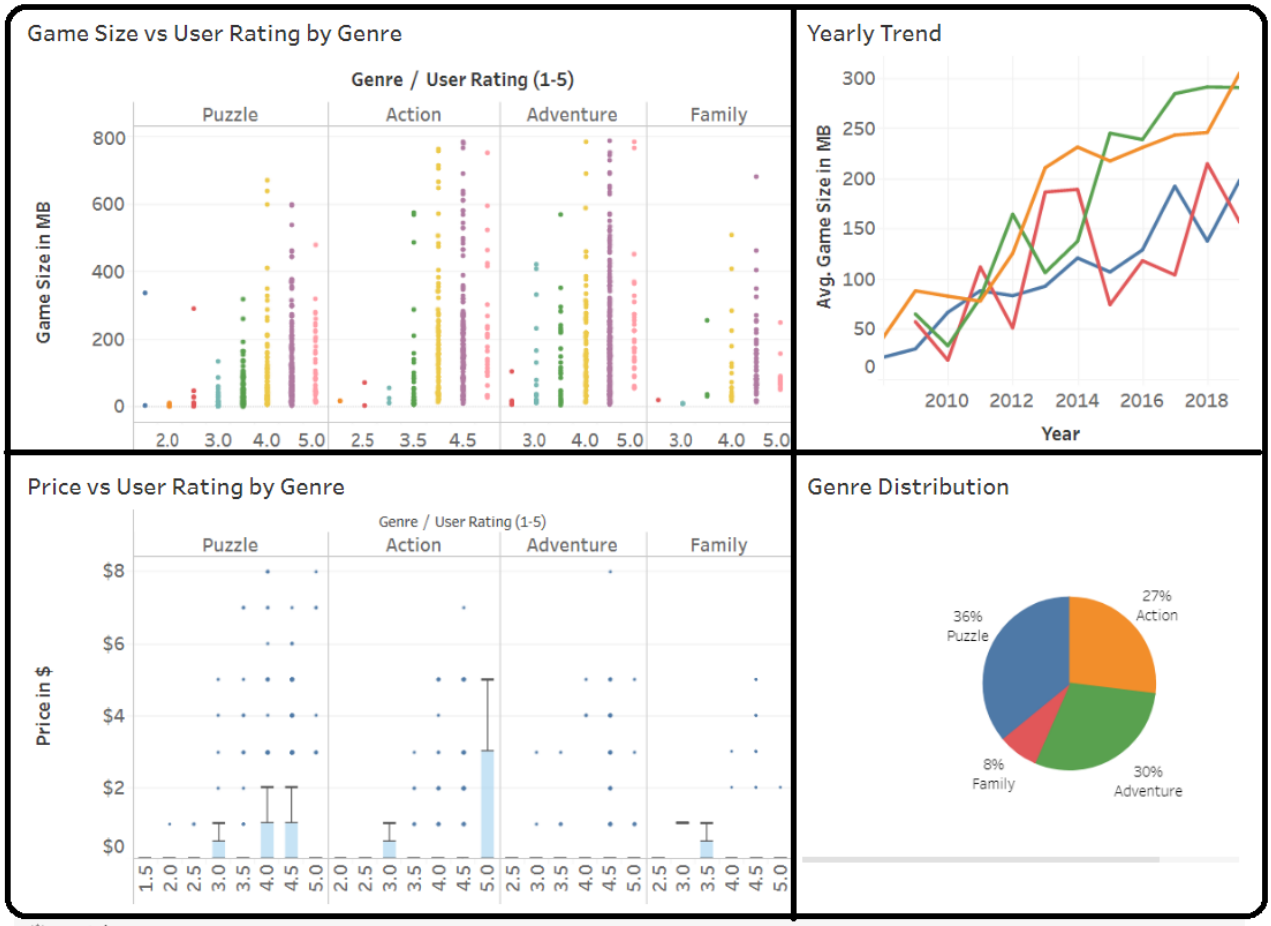
- Alex Moukas. *The Beginner's Guide To Data Visualization for Mobile Games*. https://www.wappier.com/blog/data-visualization-for-mobile-games

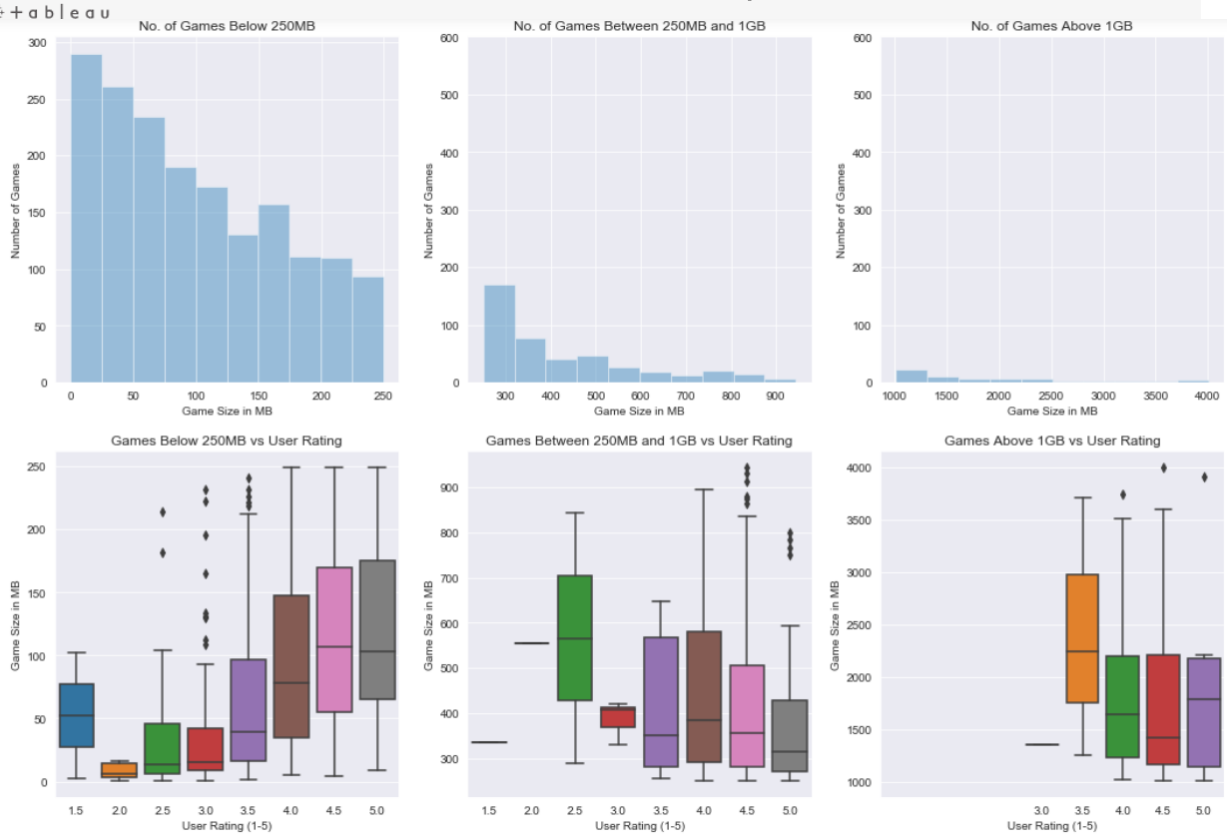


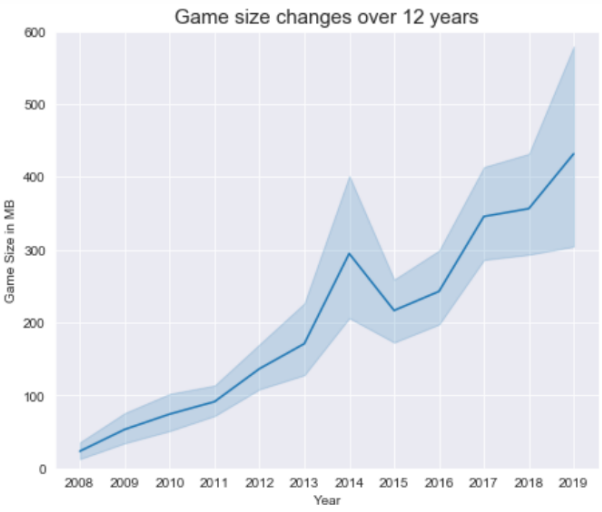
- WenLin Pan. *INFOVIS: MOBILE GAMING*. https://studentwork.prattsi.org/infovis/visualization/infovis-mobile-gaming/

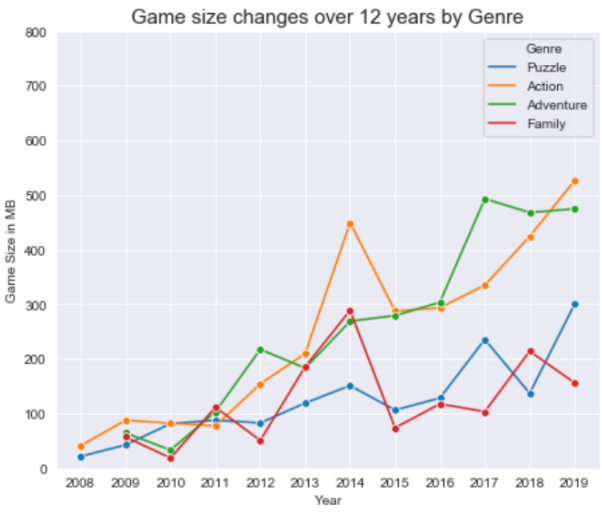


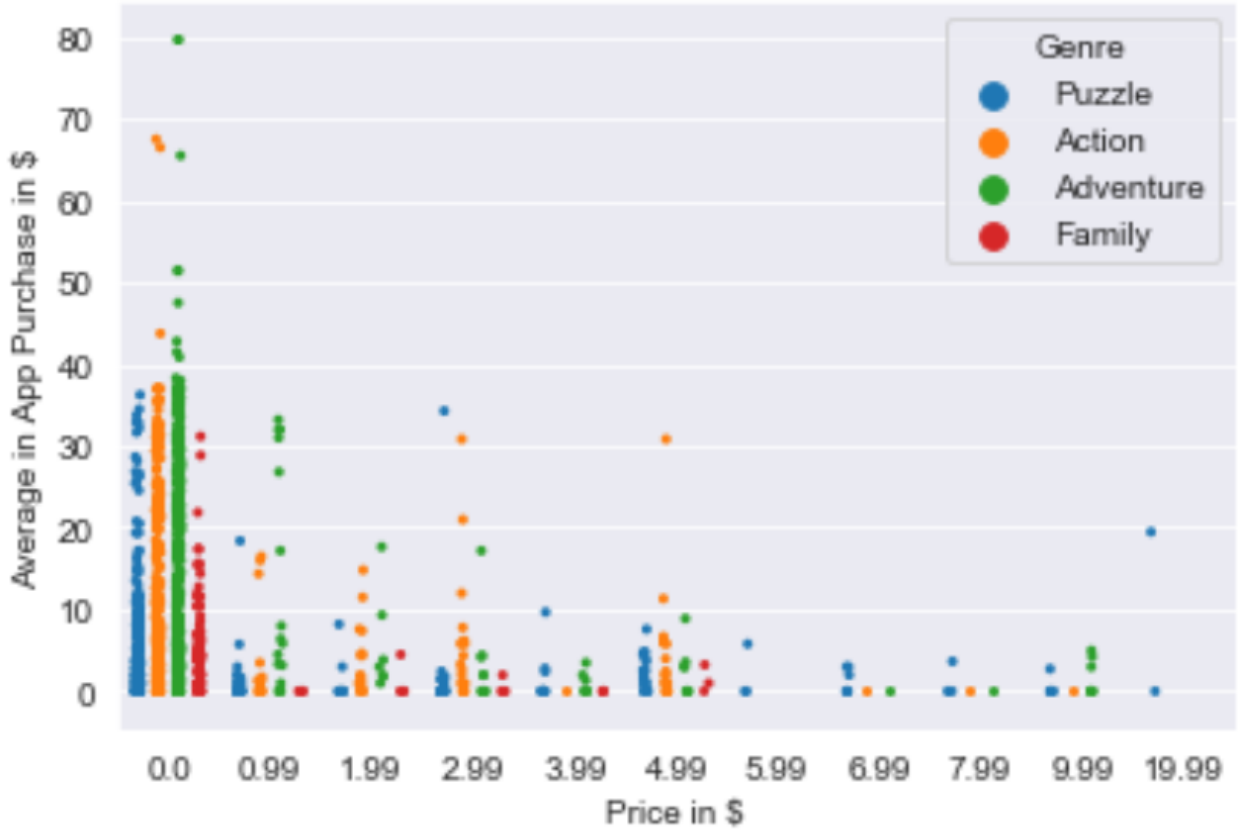
- hkhoi. *Mobile_Game_Analysis*. https://github.com/hkhoi/Mobile_Game_Analysis






Game size changes over 12 years
Game Size in MB
Year
0
100
200
300
400
500
600
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


Game size changes over 12 years by Genre
Game Size in MB
Year
Genre
Puzzle
Action
Adventure
Family
0
100
200
300
400
500
600
700
800
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


Average in App Purchase in $
Price in $
Genre
Puzzle
Action
Adventure
Family
0
10
20
30
40
50
60
70
80
0.0
0.99
1.99
2.99
3.99
4.99
5.99
6.99
7.99
9.99
19.99

- Jimmy Chu. https://observablehq.com/@jcy/explore-game-industry