Business Analytics

(CSL 231)

Lab Practical Report (Mini Project)

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Semester: 7th

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Session 2019-20

<u>INDEX</u>

Abstract

The objective of the project is to check the assertiveness, complexion and diversity of apps available on Google play store and how people are engaging towards them on the whole. Vast visualization algorithms have been applied to get the best outcome for each sub data set. Some of them include- Top Condition filter, Line Chart, Bar Chart, Context Filter. To conclude we can say that apps which fall under **GAMES** category play a huge impact on both the producer and the consumer.

Introduction

With advancing technologies being introduced everyday, it is very important for both consumer and producer to maintain a balanced in the ecosystem. The importance of mobile phones in our everyday life and activities is undeniably unending. This is so because there is ongoing tremendous transformation in that mobile phones are no longer the ordinary communication device it used to be. It has become the colossal point of attention for individuals and businesses alike, courtesy of the various incredible features and opportunities that mobile phones offer. The cumulative progress of mobile technology, the availability and access to high speed internet and the remarkable communicative interface in these devices results into a whole level of new and innovative experience mobile computing.

On a general note, the presence of mobile apps on phones can be likened to be the decorations on a cake because they make mobile phones enjoyable and fun. Mobile apps are unlimited in number with usage that cuts across all walks of life and with people wanting more and more of these apps for easy lifestyle and living. Presently, the use of mobile apps can be seen in areas such as communication, education, cooking, social media, shopping, business (money making), matrimony, and banking. On daily basis individuals seek for updated versions of these apps. Hence, app developers and app developing companies are always working to keep up to date with the demands. Due to this, there has been a recent increase in the growth of new app developers and app development companies.

This project emphasis on the **key point of content ratings, reviews, type of apps, price** and our understanding of the same.

About the Data Source

The data being manipulated in this project is primarily taken from Google Play Store. This project consist of the following characteristics:

- **App Name:** This column consist the names of all the apps that is being manipulated in this dataset. For eg: Whatsapp, facebook etc.

- **Category:** This column defines the diversity and the user base of each app.
  For eg: Coloring book moana falls under the art and book category.

- **Rating:** Each app accepts feedback from its user on a 5 star scale with 1 being the lowest and 5 being the highest.

- **Reviews:** Each app accepts feedback from its users in a paragraph structured format.

- **Size:** This column establishes the amount of memory that is required on the users' mobile device.

- **Installs:** This column defines the number of downloads since the release of the app.

- **Type:** This set contains 2 subsets - paid or free.

- **Content Rating:** This category is one of the important category as the target audience for the app is defined.

Visualization Analysis

Dashboard: This sheet is a mix of the visualizations that has been depicted in the project.

Google Play Store Apps Dashboard

Avg. Reviews

594 ▬▬ 1,652,167

Average Reviews based on Content Rating

| Everyone 10+ 1,652,167 | Teen 936,692 | Mature 17+ 395,123 |
| | | Everyone 321,497 |

Top 10 Apps by Rating

Top 50 Apps by Average Price and Reviews

Top 10 free Apps by Installs

App	
Google Photos	4,000,000,000
Google News	4,000,000,000
Google Drive	4,000,000,000
Google Chrome: Fast & Se..	3,000,000,000
Gmail	3,000,000,000
Google Play Games	2,000,000,000
Google	2,000,000,000
Facebook	2,000,000,000
Google Play Movies & TV	1,000,000,000
Google Play Books	1,000,000,000

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Google Play Store Dashboard

Reviews 19 ▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬ 1,585,422,349   Avg. Revie.. 19 ▬▬▬▬▬▬▬▬▬▬▬▬▬▬ 2,107,138

Category of Apps based on their Price

App   ● Candy Crush Sa... ▬ Gmail   ● God ‹ › KPI   ✔ Installed Largely ✘ Installed less

Waterfall Chart

App   ● Candy Crush Sa... + Gmail   ● ‹ › Content R... ■ Adults only 18+ ■ Everyone ■ Ev ‹ ›

Content rating of Apps based on the Reviews

Category of Apps Installed based on Content Rating

Category	Adults o..	Everyone	Everyon..	Mature ..	T
Null					
ART_AND_..		✘	✘		
AUTO_AND..		✘			
BEAUTY		✘	✘	✘	
BOOKS_AN..		✘	✘	✘	
BUSINESS		✘	✘	✘	
COMICS	✘	✘	✘	✘	
COMMUNIC..		✔	✔		✔
DATING		✘			
EDUCATION		✔	✔	✘	

Top 10 Apps Installed based on their Reviews

Price based on Category

| FINANCE 361 | FAMILY 1,529 | MEDICAL 442 | |
| LIFESTYLE 345 | | | |

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Sheet 1: This sheet shows the number of apps in each category.

Number of apps in each category

Category	
ART_AND_DESIGN	65
AUTO_AND_VEHICLES	85
BEAUTY	53
BOOKS_AND_REFERENCE	231
BUSINESS	460
COMICS	60
COMMUNICATION	387
DATING	234
EDUCATION	156
ENTERTAINMENT	149
EVENTS	64
FAMILY	1,972
FINANCE	366
FOOD_AND_DRINK	127
GAME	1,144
HEALTH_AND_FITNESS	341
HOUSE_AND_HOME	88
LIBRARIES_AND_DEMO	85
LIFESTYLE	382
MAPS_AND_NAVIGATION	137
MEDICAL	463
NEWS_AND_MAGAZINES	283
PARENTING	60
PERSONALIZATION	392
PHOTOGRAPHY	335
PRODUCTIVITY	424
SHOPPING	260
SOCIAL	295
SPORTS	384
TOOLS	843
TRAVEL_AND_LOCAL	258
VIDEO_PLAYERS	175
WEATHER	82

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Top Condition filter: This filter helps in identifying the top N apps. Here, the top filter depicts the top 10 free apps which have been installed by the user.

Top 10 free Apps by Installs

App	
Google Photos	4,000,000,000
Google News	4,000,000,000
Google Drive	4,000,000,000
Google Chrome: Fast & Se..	3,000,000,000
Gmail	3,000,000,000
Google Play Games	2,000,000,000
Google	2,000,000,000
Facebook	2,000,000,000
Google Play Movies & TV	1,000,000,000
Google Play Books	1,000,000,000
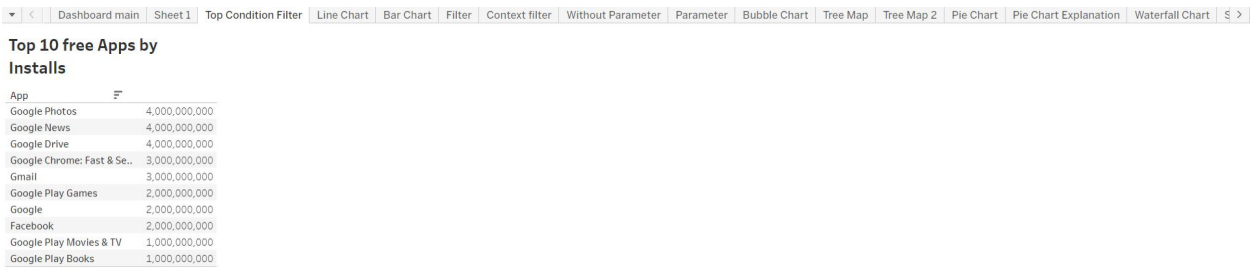
Line Chart: This chart is used to connect individual data points in a view. The sheet below shows the top 50 apps by their average price and the reviews.
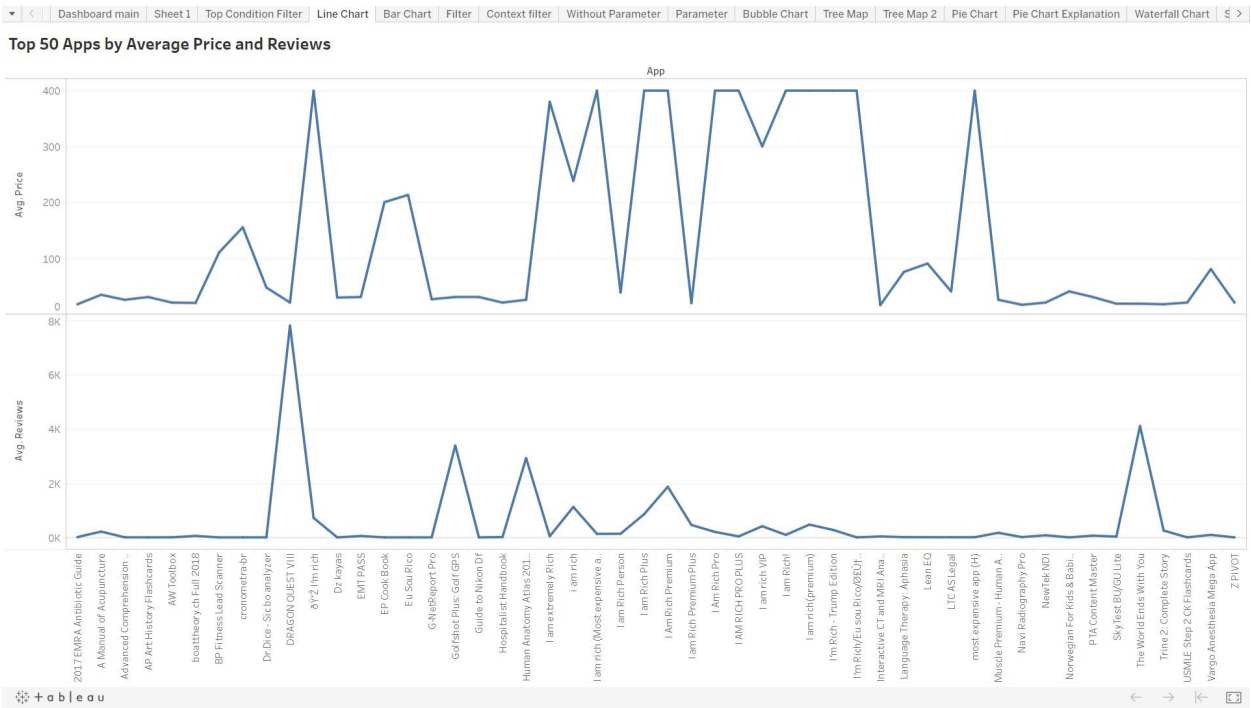
Bar Chart: The top 10 apps which have received the highest rating is displayed here.
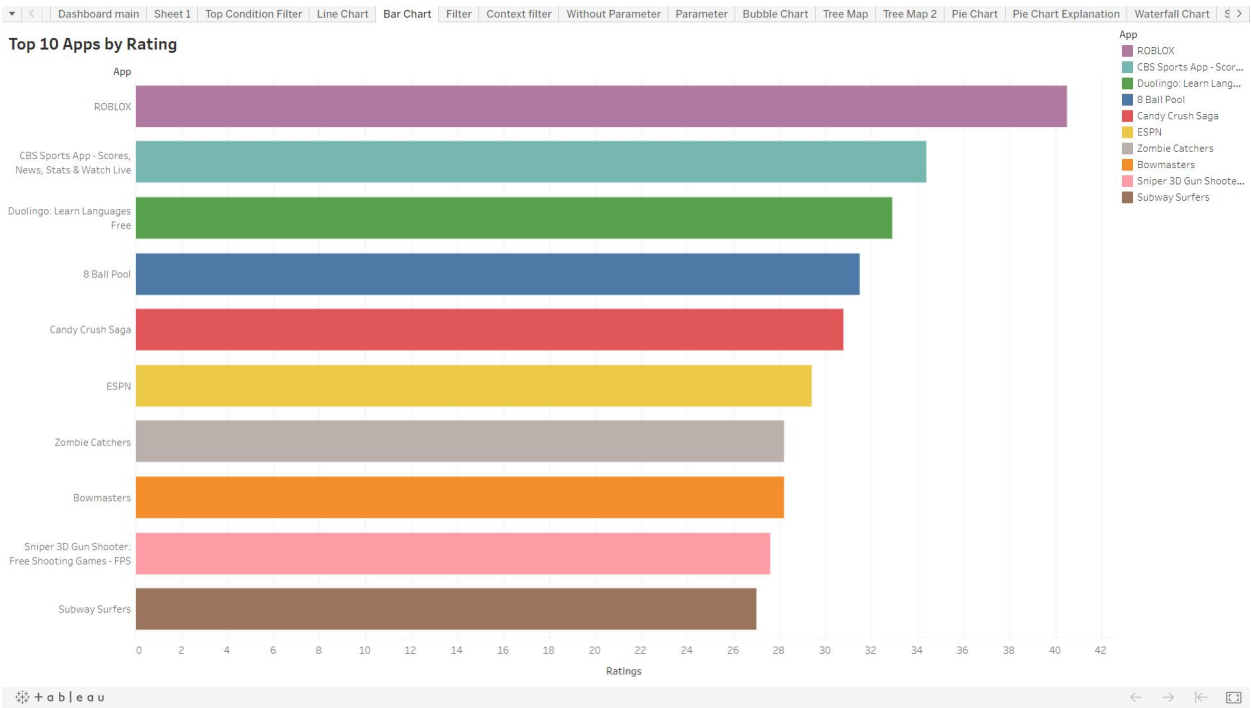
Filter: The filter condition is used to separate a small amount of data from the whole dataset. Here, it shows the top 10 apps on the basis of reviews.

Context Filter: It creates a dependent numerical or top N filter. The context filter is used in this sheet to depict the top 10 apps based on their reviews. For eg: If we choose the beauty category, then it will show the top 10 apps of the beauty category based on their reviews.

Without Parameter: This sheet shows the top 10 categories based on their reviews.
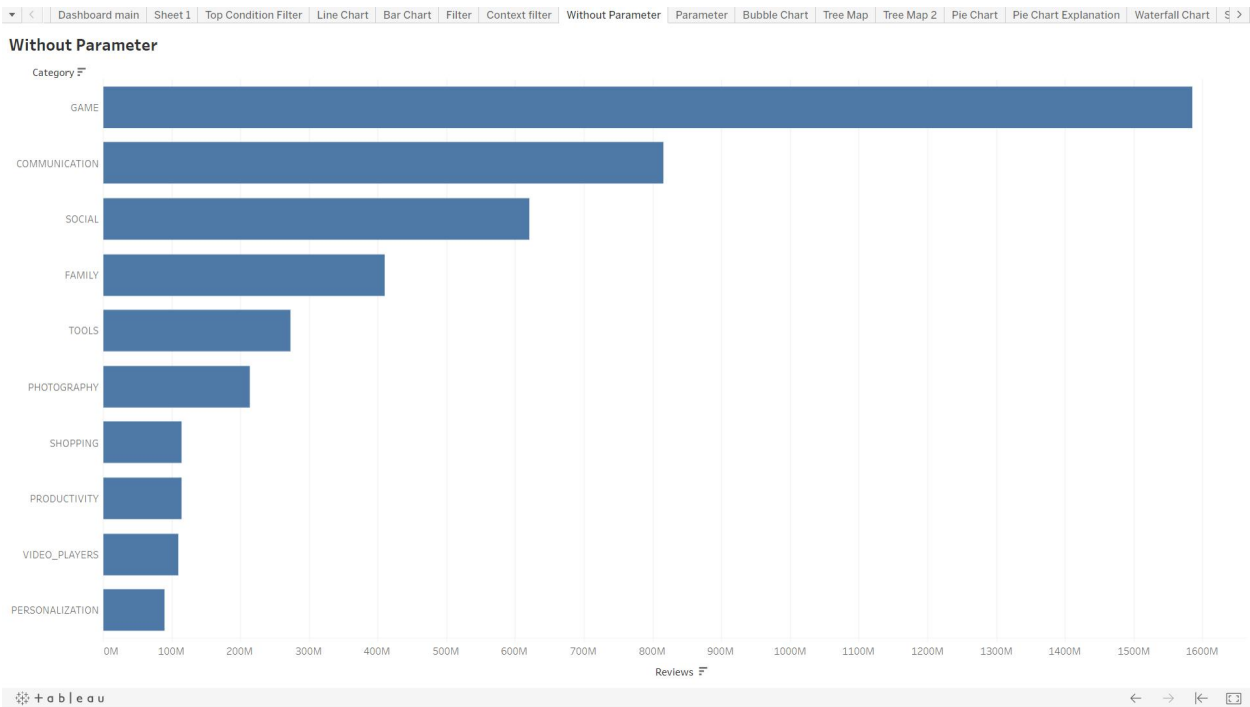
Parameter: A parameter is a global placeholder value such as a number, date, or string that can replace a constant value in a calculation, filter, or reference line. This sheet depicts the top N category according to the reviews they have received using the parameter.
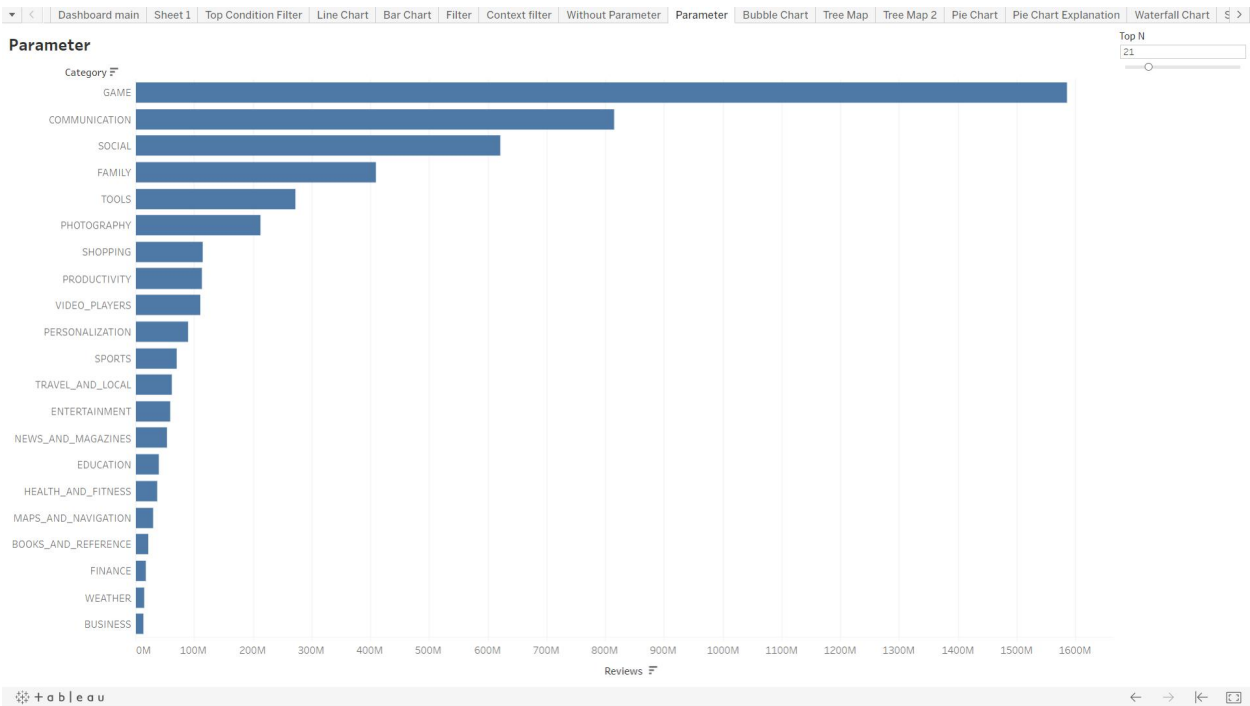
Bubble Chart: Use packed **Bubble charts** to display data in a cluster of circles. This chart shows the category of apps based on their price. Game category consist of the apps which has the highest price.

Reviews
19   28   **Category of Apps based on their Price**
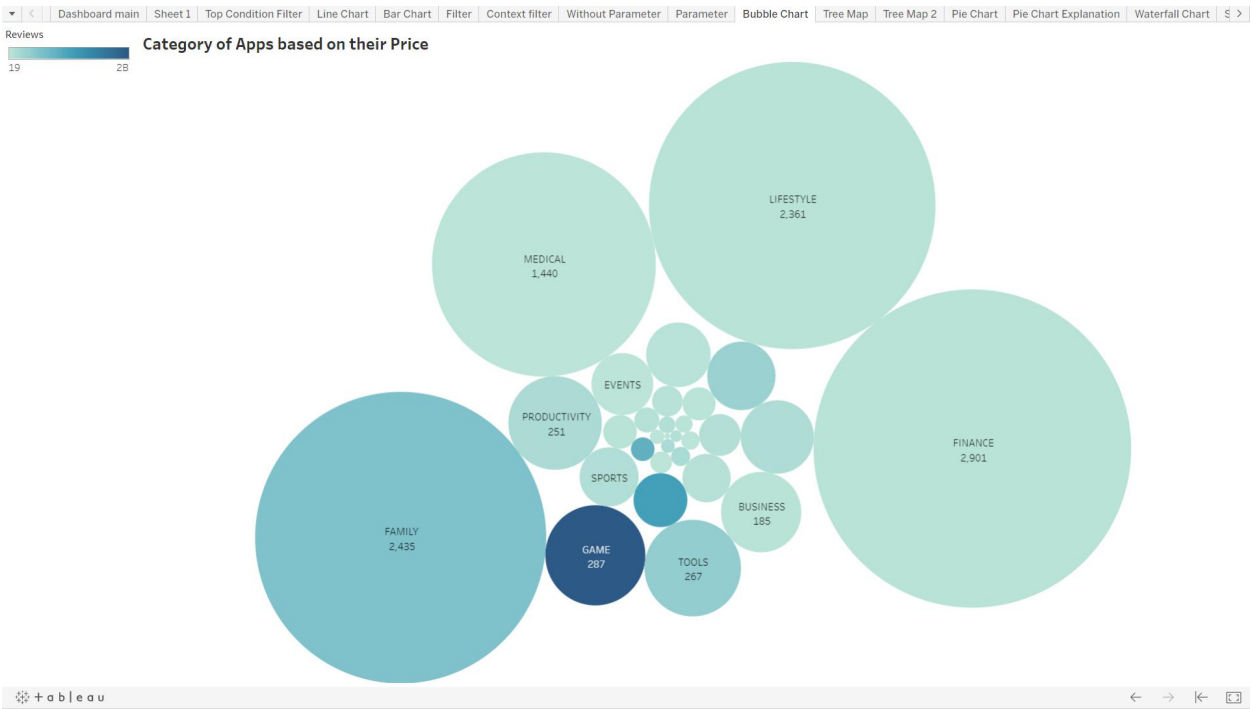

LIFESTYLE
2,361

MEDICAL
1,440

EVENTS

PRODUCTIVITY
251

FINANCE
2,901

SPORTS

FAMILY
2,435

BUSINESS
185

GAME
287

TOOLS
267

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Tree Map: Use tree maps to display data in nested rectangles. Tree map will help identify the category of apps based on their price.

Price based on Category

Content Rating
■ Adults only 18+
■ Everyone
■ Everyone 10+
■ Mature 17+
■ Teen
■ Unrated

FINANCE
361

FAMILY
1,529

MEDICAL
442

FINANCE
5

FAMILY
261

GAME
331

LIFESTYLE
345

TOOLS
835

BUSINESS
445

GAME
608

SPORTS
338

FAMILY
131

PERSONALIZATION
322

PRODUCTIVITY
413

PHOTOGRAPHY
318

EVENTS
53

FAMILY
50

‡ + a b l e a u

Tree Map 2: This chart shows the average reviews a category has received based on their content rating.

Average Reviews based on Content Rating

Avg. Reviews
594   1,652,167

| Everyone 10+ 1,652,167 | Teen 936,692 | Mature 17+ 395,123 |
| | Everyone 321,497 | Adults only 18+ |

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Pie Chart: A **pie chart** represents data as slices of a circle with different sizes and colors. This here depicts the content rating of the apps based on their reviews. For eg: Free category of apps has the highest reviews.

Content rating of Apps based on the Reviews

Content Rating
- Adults only 18+
- Everyone
- Everyone 10+
- Mature 17+
- Teen
- Unrated

0.00% 0.00%
23.50%
4.10%
58.19%
14.21%

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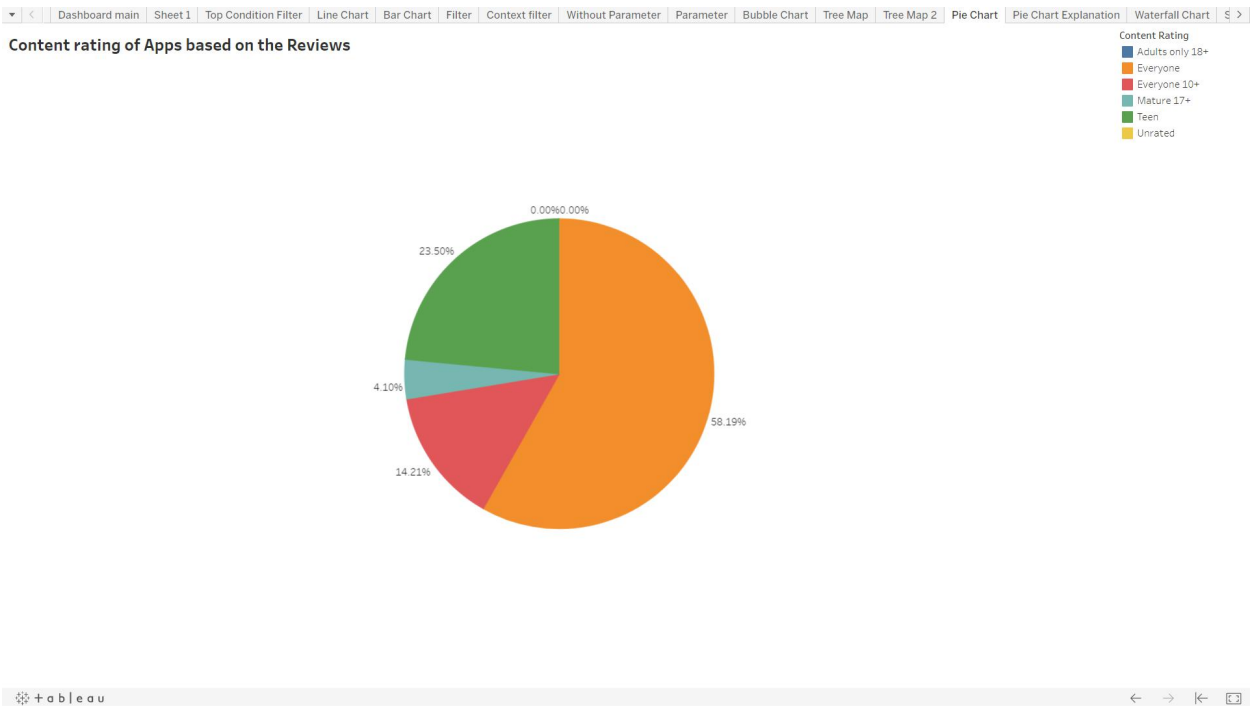
Waterfall Chart: This chart represents the relationship between each category and the average number of reviews given by the users.
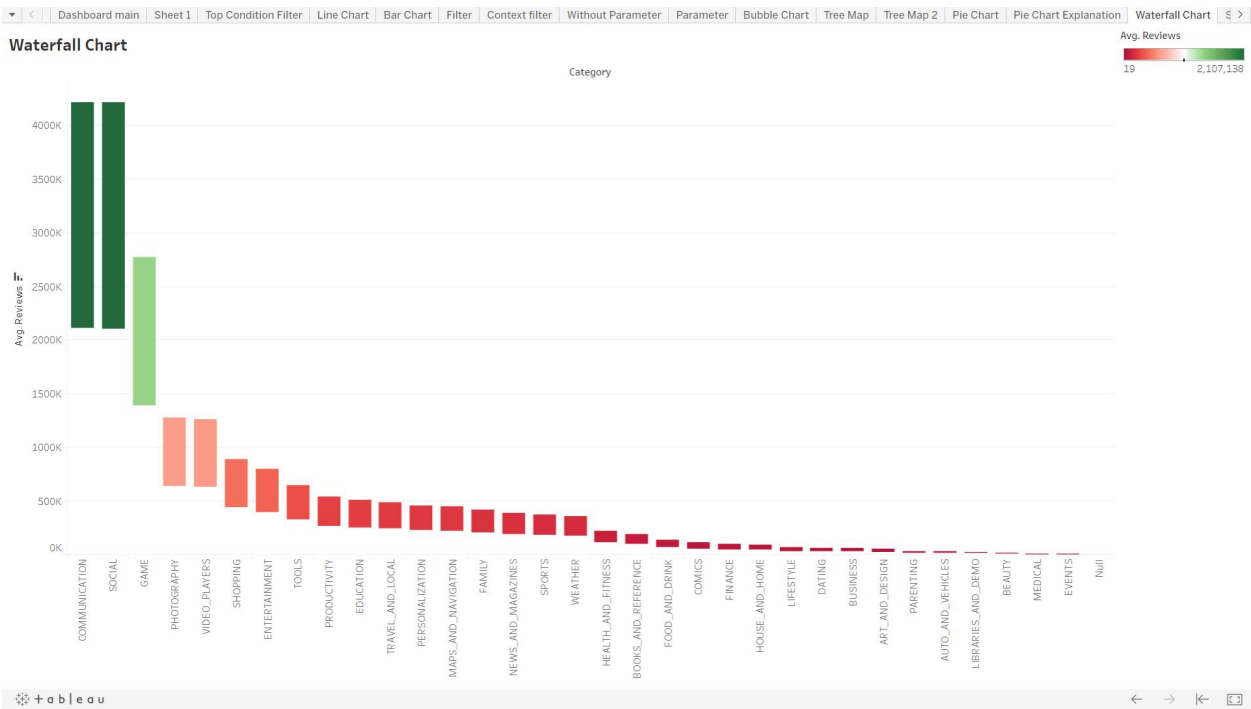

Scatter Plot: Use **scatter plots** to visualize relationships between numerical variables. This plot depicts the top 10 apps that has been installed by the users based on their reviews.
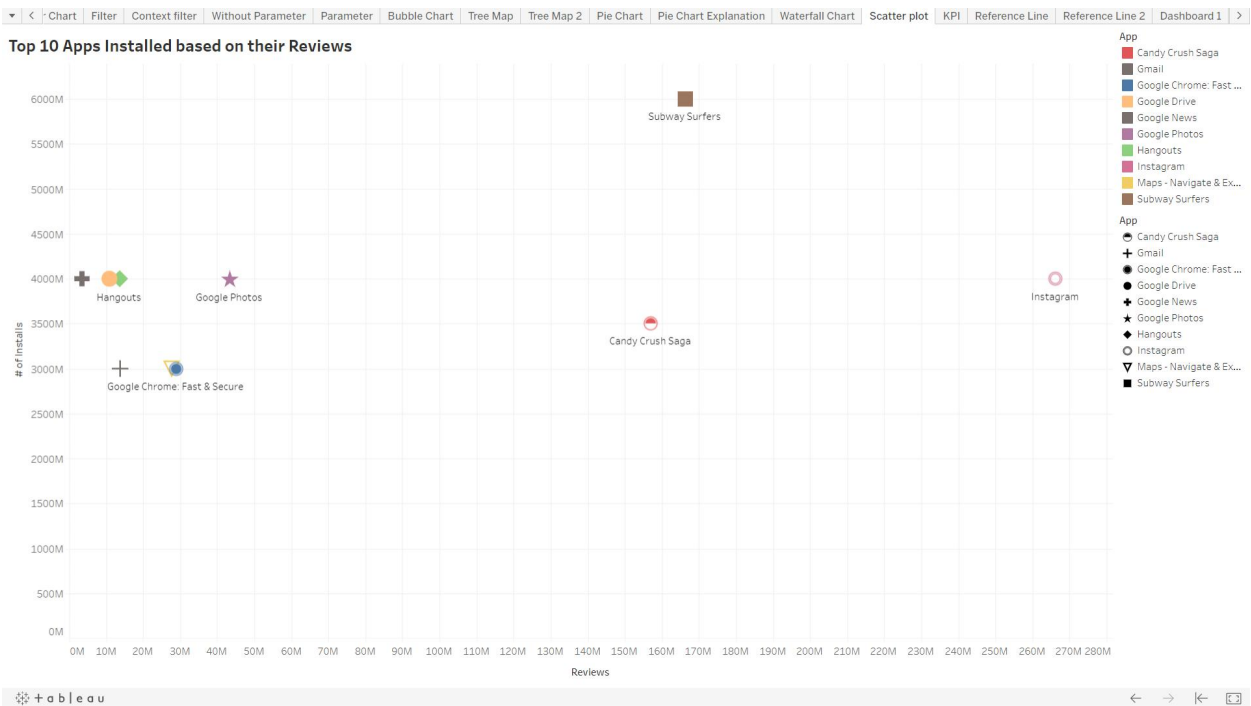
KPI: **Key Performance Indicators** are one of the most common things people need to display in a dashboard. This usually involves comparing current values or historical trends against a target value.
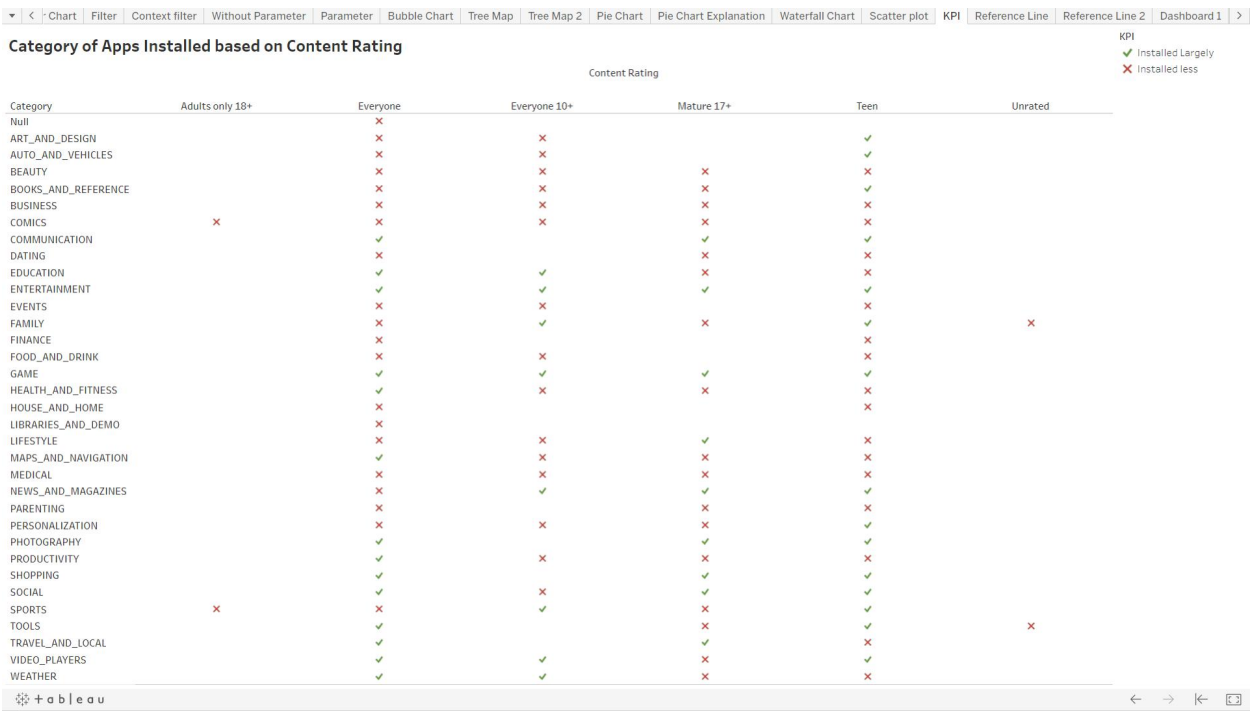
Reference Line: A **reference line**, also referred to as a base **line**, is a user-defined vertical or horizontal **line** in the graph. This chart shows the category of apps installed by the users.
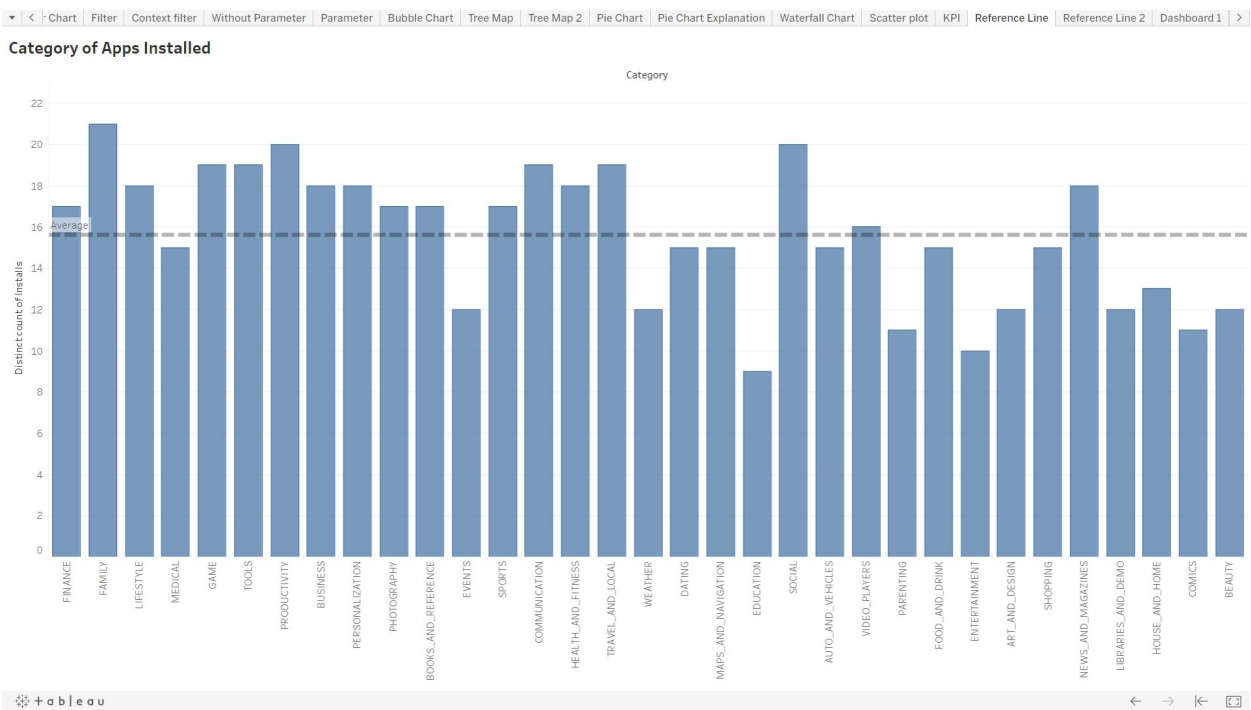
Reference Line: This line here shows the average number of genres installed.

Top 20 Genres Installed
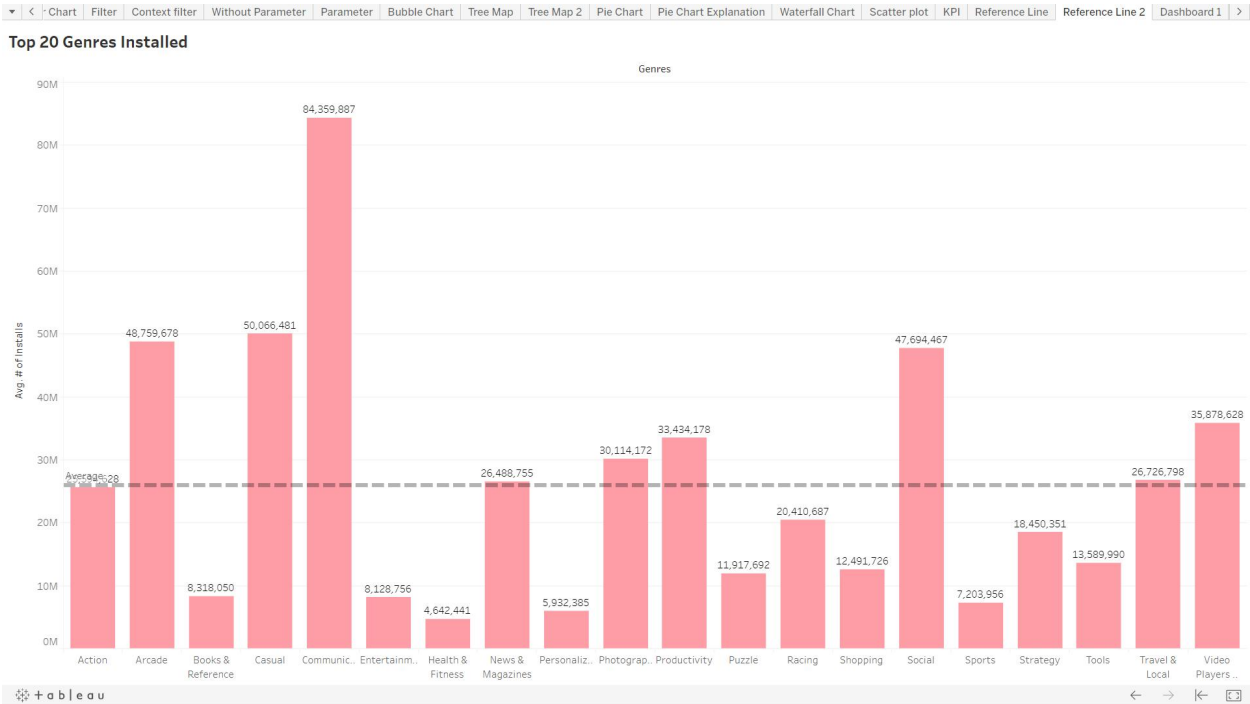
Conclusion

After the analysis of the given dataset, we can statistically say that **Games** category is more popular, that is a large number of users are actively downloading and sharing their experiences of the same to the development company, indirectly provoking the company to keep their users engaged by releasing similar but unconventional apps in the same category.