

Business Analytics

(CSL 231)

Lab Practical Report (Mini Project)



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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.

WPS Office

BA project report.docx

googleplaystore.xlsx

2

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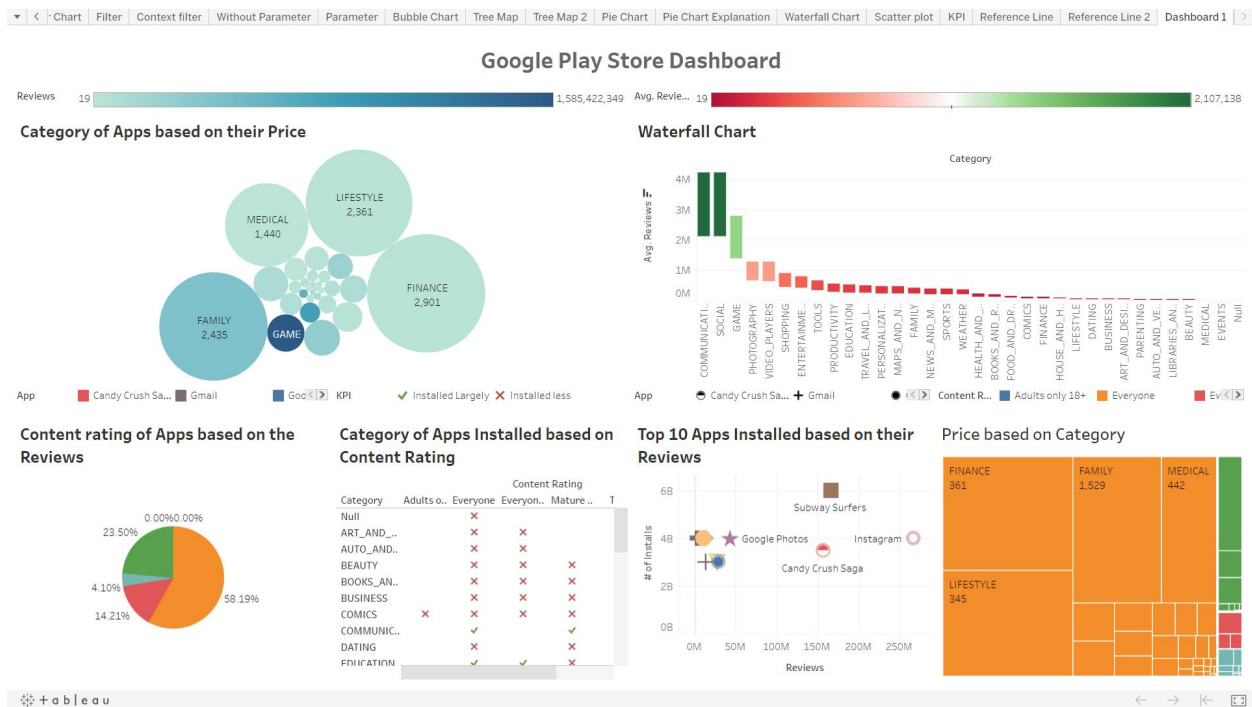
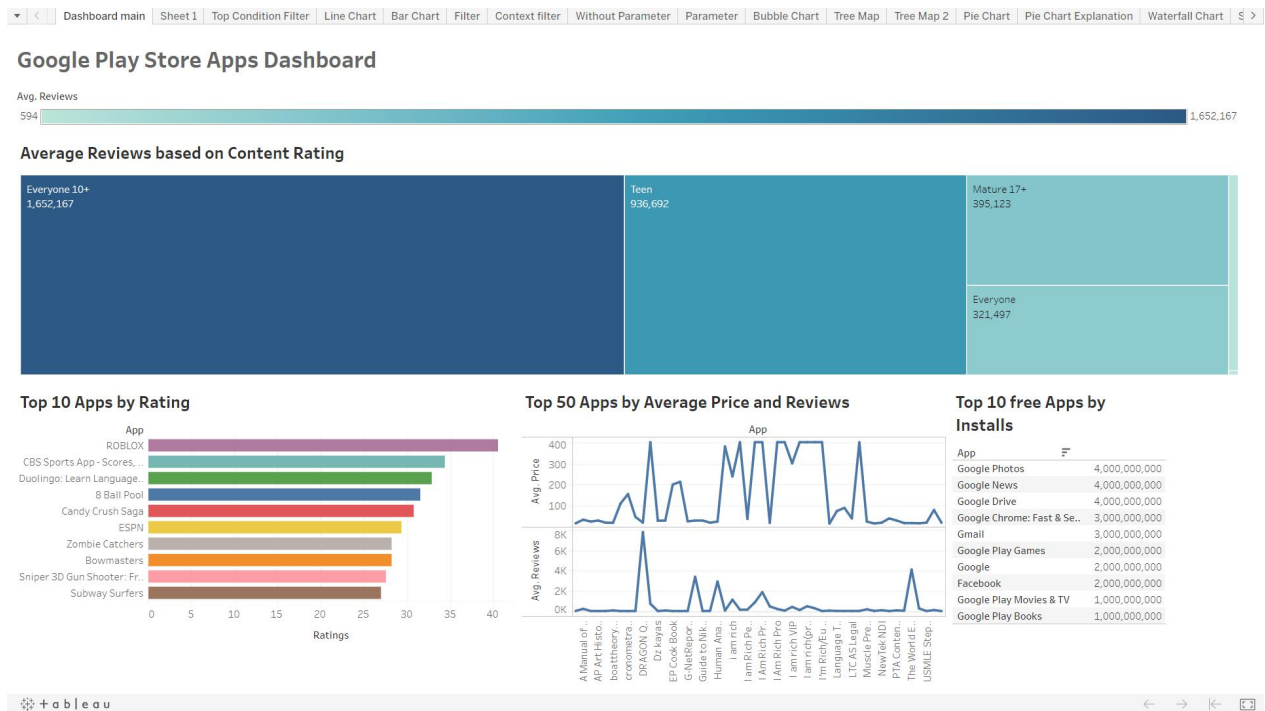
	A	B	C	D	E	F	G	H	I	J	K	L	M
	App	Category	Rate	Review	Size	Installs	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver	
1	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND_DESIGN	4.1	159	19M	10,000+	Free	Everyone	Art & Design	07-Jan-18	1.0.0	4.0.3 and up	
2	Coloring book moana	ART_AND_DESIGN	3.9	967	14M	500,000+	Free	Everyone	Art & Design;Pretend Play	15-Jan-18	2.0.0	4.0.3 and up	
3	U Launcher Lite â€” FREE Live Cool Themes, Hide Apps	ART_AND_DESIGN	4.7	87510	8.7M	5,000,000+	Free	Everyone	Art & Design	01-Aug-18	1.2.4	4.0.3 and up	
4	Sketch - Draw & Paint	ART_AND_DESIGN	4.5	215644	25M	50,000,000+	Free	Teen	Art & Design	08-Jun-18	Varies with device	4.2 and up	
5	Pixel Draw - Number Art Coloring Book	ART_AND_DESIGN	4.3	967	2.8M	100,000+	Free	Everyone	Art & Design;Creativity	20-Jun-18	1.1	4.4 and up	
6	Paper flowers instructions	ART_AND_DESIGN	4.4	167	5.6M	50,000+	Free	Everyone	Art & Design	26-Mar-17	1	2.3 and up	
7	Smoke Effect Photo Maker - Smoke Editor	ART_AND_DESIGN	3.8	178	19M	50,000+	Free	Everyone	Art & Design	26-Apr-18	1.1	4.0.3 and up	
8	Infinite Painter	ART_AND_DESIGN	4.1	36815	29M	1,000,000+	Free	Everyone	Art & Design	14-Jun-18	6.1.61.1	4.2 and up	
9	Garden Coloring Book	ART_AND_DESIGN	4.4	13791	33M	1,000,000+	Free	Everyone	Art & Design	20-Sep-17	2.9.2	3.0 and up	
10	Kids Paint Free - Drawing Fun	ART_AND_DESIGN	4.7	121	3.1M	10,000+	Free	Everyone	Art & Design;Creativity	03-Jul-18	2.8	4.0.3 and up	
11	Text on Photo - Fonteez	ART_AND_DESIGN	4.4	13880	28M	1,000,000+	Free	Everyone	Art & Design	27-Oct-17	10.4	4.1 and up	
12	Name Art Photo Editor - Focus n Filters	ART_AND_DESIGN	4.4	8788	12M	1,000,000+	Free	Everyone	Art & Design	31-Jul-18	10.15	4.0 and up	
13	Tattoo Name On My Photo Editor	ART_AND_DESIGN	4.2	44829	20M	10,000,000+	Free	Teen	Art & Design	02-Apr-18	3.8	4.1 and up	
14	Mandala Coloring Book	ART_AND_DESIGN	4.6	4326	21M	100,000+	Free	Everyone	Art & Design	26-Jun-18	1.0.4	4.4 and up	
15	3D Color Pixel by Number - Sandbox Art Coloring	ART_AND_DESIGN	4.4	1518	37M	100,000+	Free	Everyone	Art & Design	03-Aug-18	1.2.3	2.3 and up	
16	Learn To Draw Kawaii Characters	ART_AND_DESIGN	3.2	55	2.7M	5,000+	Free	Everyone	Art & Design	06-Jun-18	NaN	4.2 and up	
17	Photo Designer - Write your name with shapes	ART_AND_DESIGN	4.7	3632	5.5M	500,000+	Free	Everyone	Art & Design	31-Jul-18	3.1	4.1 and up	
18	350 Diy Room Decor Ideas	ART_AND_DESIGN	4.5	27	17M	10,000+	Free	Everyone	Art & Design	07-Nov-17	1	2.3 and up	
19	FlipaClip - Cartoon animation	ART_AND_DESIGN	4.3	194216	39M	5,000,000+	Free	Everyone	Art & Design	03-Aug-18	2.2.5	4.0.3 and up	
20	Boys Photo Editor - Six Pack & Men's Suit	ART_AND_DESIGN	4.6	224939	31M	10,000,000+	Free	Everyone	Art & Design	30-Jul-18	5.5.4	4.1 and up	
21	Logo Maker - Small Business	ART_AND_DESIGN	4	450	14M	100,000+	Free	Everyone	Art & Design	20-Apr-18	4	4.1 and up	
22	Boys Photo Editor - Six Pack & Men's Suit	ART_AND_DESIGN	4.1	654	12M	100,000+	Free	Everyone	Art & Design	20-Mar-18	1.1	4.0.3 and up	
23	Superheroes Wallpapers 4K Backgrounds	ART_AND_DESIGN	4.7	7699	4.2M	500,000+	Free	Everyone 10+	Art & Design	12-Jul-18	2.2.6.2	4.0.3 and up	
24	McQueen Coloring pages	ART_AND_DESIGN	NaN	61	7.0M	100,000+	Free	Everyone	Art & Design; Action & Adventure	07-Mar-18	1.0.0	4.1 and up	
25	HD Mickey Minnie Wallpapers	ART_AND_DESIGN	4.7	118	23M	50,000+	Free	Everyone	Art & Design	07-Jul-18	1.1.3	4.1 and up	
26	Harley Quinn wallpapers HD	ART_AND_DESIGN	4.8	192	6.0M	10,000+	Free	Everyone	Art & Design	25-Apr-18	1.5	3.0 and up	
27	Colorfit - Drawing & Coloring	ART_AND_DESIGN	4.7	20260	25M	500,000+	Free	Everyone	Art & Design;Creativity	11-Oct-17	1.0.8	4.0.3 and up	
28	Animated Photo Editor	ART_AND_DESIGN	4.1	203	6.1M	100,000+	Free	Everyone	Art & Design	21-Mar-18	1.03	4.0.3 and up	
29	Pencil Sketch Drawing	ART_AND_DESIGN	3.9	136	4.8M	10,000+	Free	Everyone	Art & Design	12-Jul-18	6	2.3 and up	
30	Easy Realistic Drawing Tutorial	ART_AND_DESIGN	4.1	223	4.2M	100,000+	Free	Everyone	Art & Design	22-Aug-17	1	2.3 and up	
31	Pink Silver Bow Keyboard Theme	ART_AND_DESIGN	4.2	1120	9.2M	100,000+	Free	Everyone	Art & Design	12-Jul-18	6.7.12.2018	4.0.3 and up	
32	Art Drawing Ideas	ART_AND_DESIGN	4.1	227	5.2M	50,000+	Free	Everyone	Art & Design	31-May-18	1.2	2.3 and up	
33	Anime Manga Coloring Book	ART_AND_DESIGN	4.5	5035	11M	100,000+	Free	Everyone	Art & Design	19-Jul-18	2.2	4.0 and up	
34	Easy Origami Ideas	ART_AND_DESIGN	4.2	1015	11M	100,000+	Free	Everyone	Art & Design	06-Jun-18	1.1.0	4.1 and up	
35	1 Creative Idea	ART_AND_DESIGN	4.7	353	4.2M	10,000+	Free	Teen	Art & Design	27-Apr-18	1.6	4.1 and up	
36	How to draw Ladybug and Cat Noir	ART_AND_DESIGN	3.8	564	9.2M	100,000+	Free	Everyone	Art & Design	11-Jul-18	2.1	4.1 and up	
37	UNICORN - Color By Number & Pixel Art Coloring	ART_AND_DESIGN	4.7	8145	24M	500,000+	Free	Everyone	Art & Design;Creativity	02-Aug-18	1.0.9	4.4 and up	
38	Floor Plan Creator	ART_AND_DESIGN	4.1	36639	Varies with device	5,000,000+	Free	Everyone	Art & Design	14-Jul-18	Varies with device	2.3.3 and up	
39	PIP Camera - PIP Collage Maker	ART_AND_DESIGN	4.7	158	11M	10,000+	Free	Everyone	Art & Design	29-Nov-17	1.3	4.0.3 and up	
40	How To Color Disney Princess - Coloring Pages	ART_AND_DESIGN	4	591	9.4M	500,000+	Free	Everyone	Art & Design	31-Mar-18	1	4.0 and up	
41	Drawing of the Fashion Ideas	ART_AND_DESIGN	4.7	117	1.5M	10,000+	Free	Everyone	Art & Design	20-Jul-18	2.0.1	4.0.3 and up	

googleplaystore

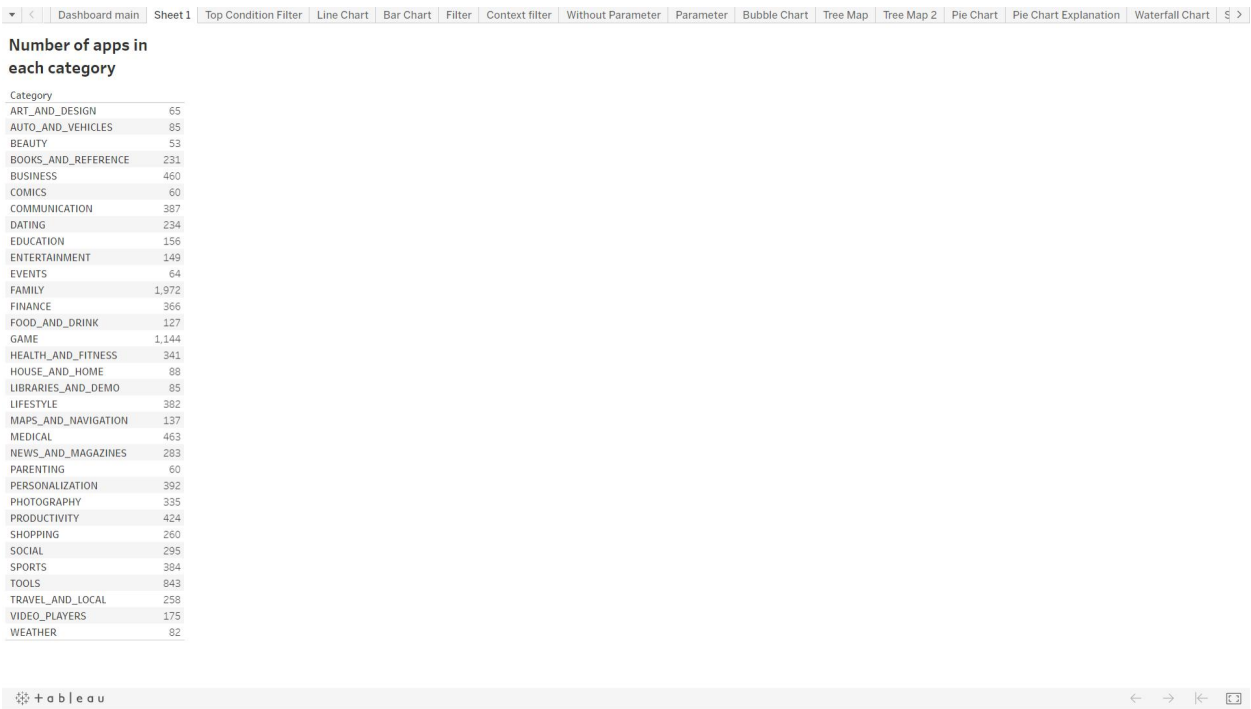
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Visualization Analysis

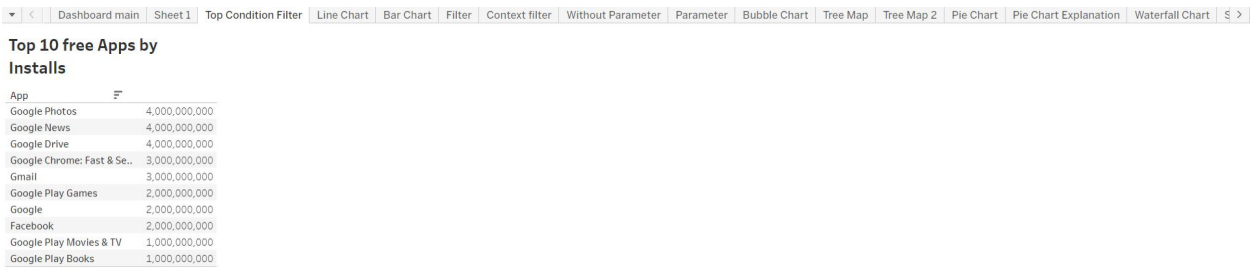
Dashboard: This sheet is a mix of the visualizations that has been depicted in the project.



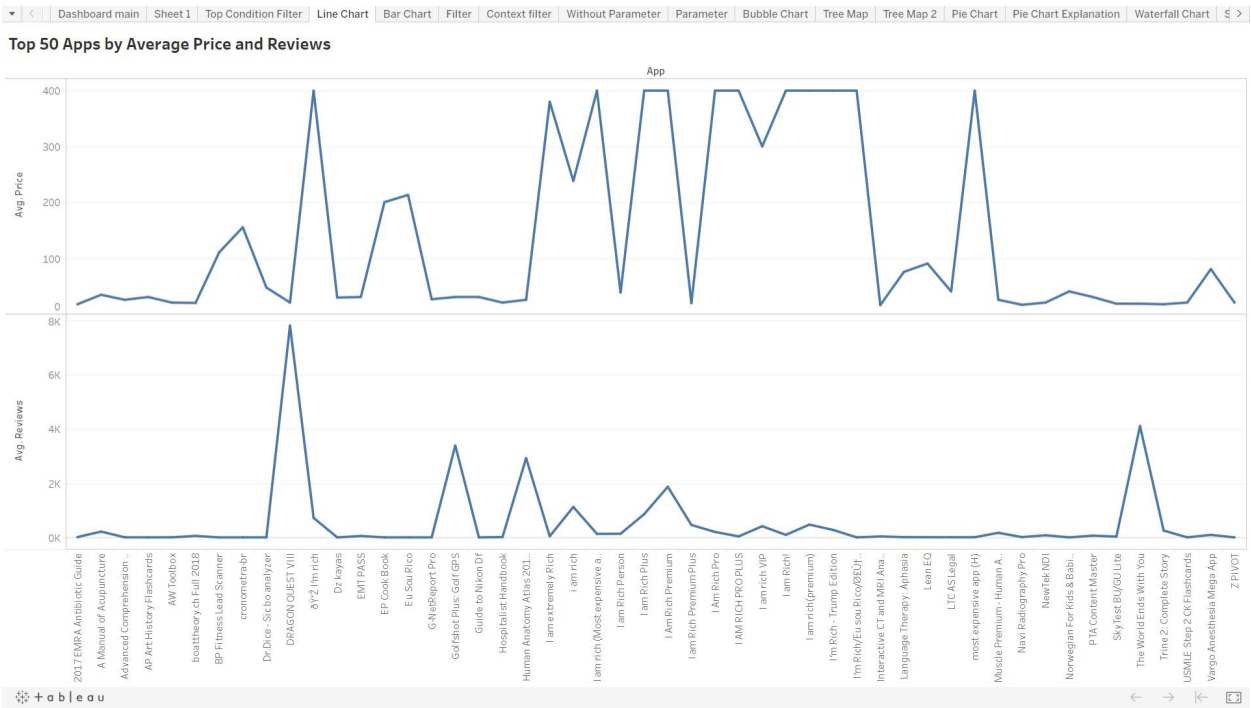
Sheet 1: This sheet shows the number of apps in each category.



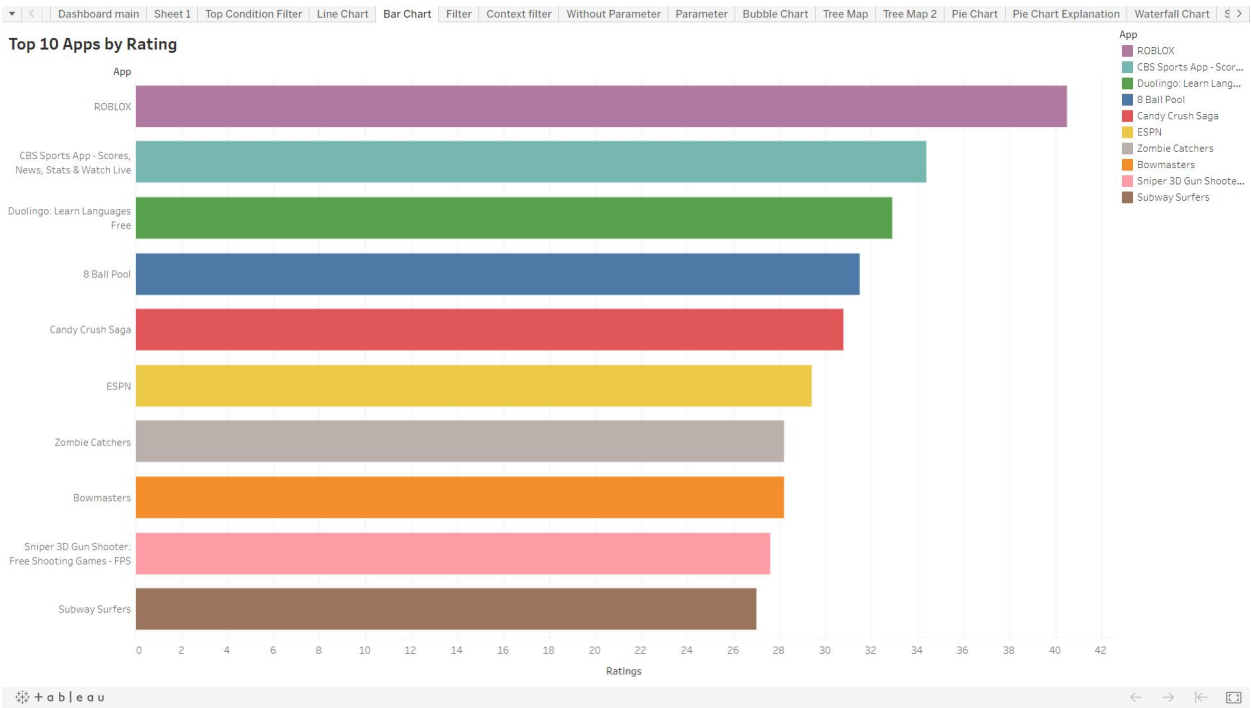
Top Condition filter: This filter helps in identifying the top N apps. Here, the top filter depicts the top 10 free apps which have been installed by the user.



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.

Dashboard mainSheet 1Top Condition FilterLine ChartBar ChartFilterContext filterWithout ParameterParameterBubble ChartTree MapTree Map 2Pie ChartPie Chart ExplanationWaterfall Chart

Top 10 Apps on the basis of reviews

Category (All)

Category	App	Reviews
COMMUNICATION	WhatsApp Messenger	207,348,304
	Messenger.86" Text and Video Chat for Free	169,932,272
FAMILY	Clash of Clans	44,881,447
	Clash Royale	23,125,280
	Candy Crush Saga	22,419,455
GAME	Subway Surfers	166,331,958
	Clash of Clans	134,677,334
	Candy Crush Saga	134,573,681
	8 Ball Pool	85,201,288
	Clash Royale	69,405,018
	Instagram	266,241,989
SOCIAL	Facebook	156,286,514
	Snapchat	68,045,010
SPORTS	8 Ball Pool	14,184,910

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.

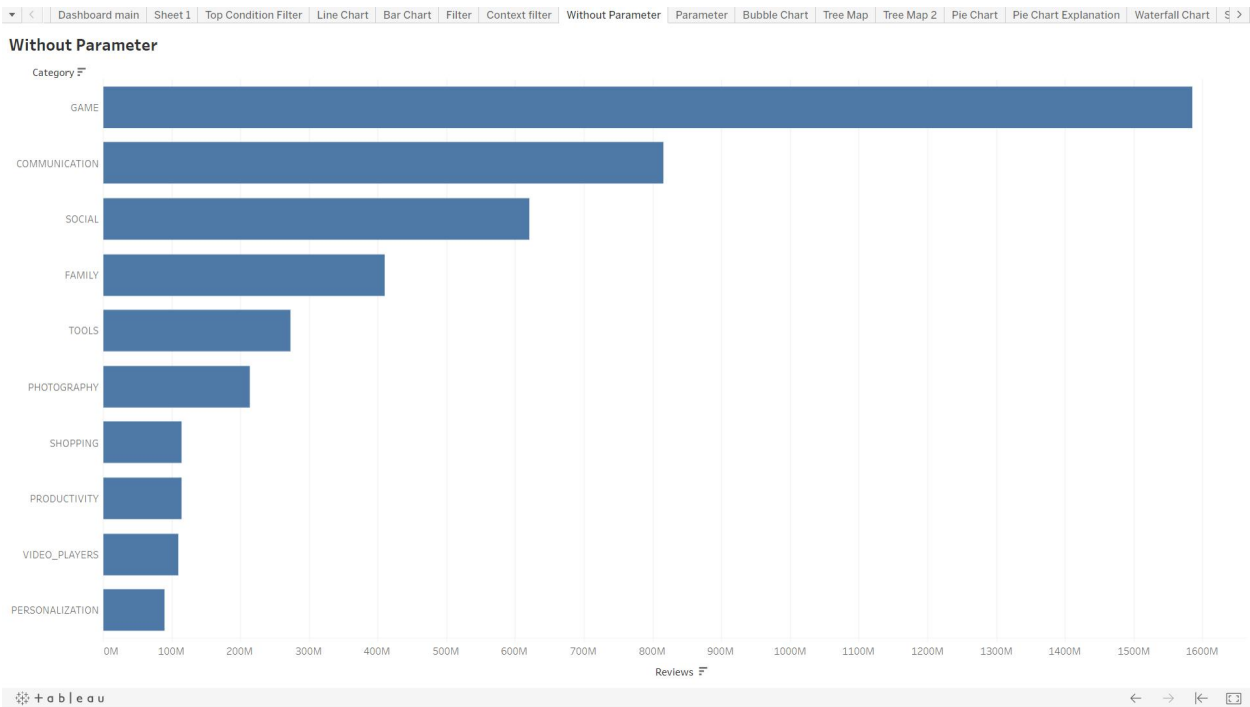
Dashboard mainSheet 1Top Condition FilterLine ChartBar ChartFilterContext filterWithout ParameterParameterBubble ChartTree MapTree Map 2Pie ChartPie Chart ExplanationWaterfall Chart

Top 10 apps based on Reviews using Context Filter

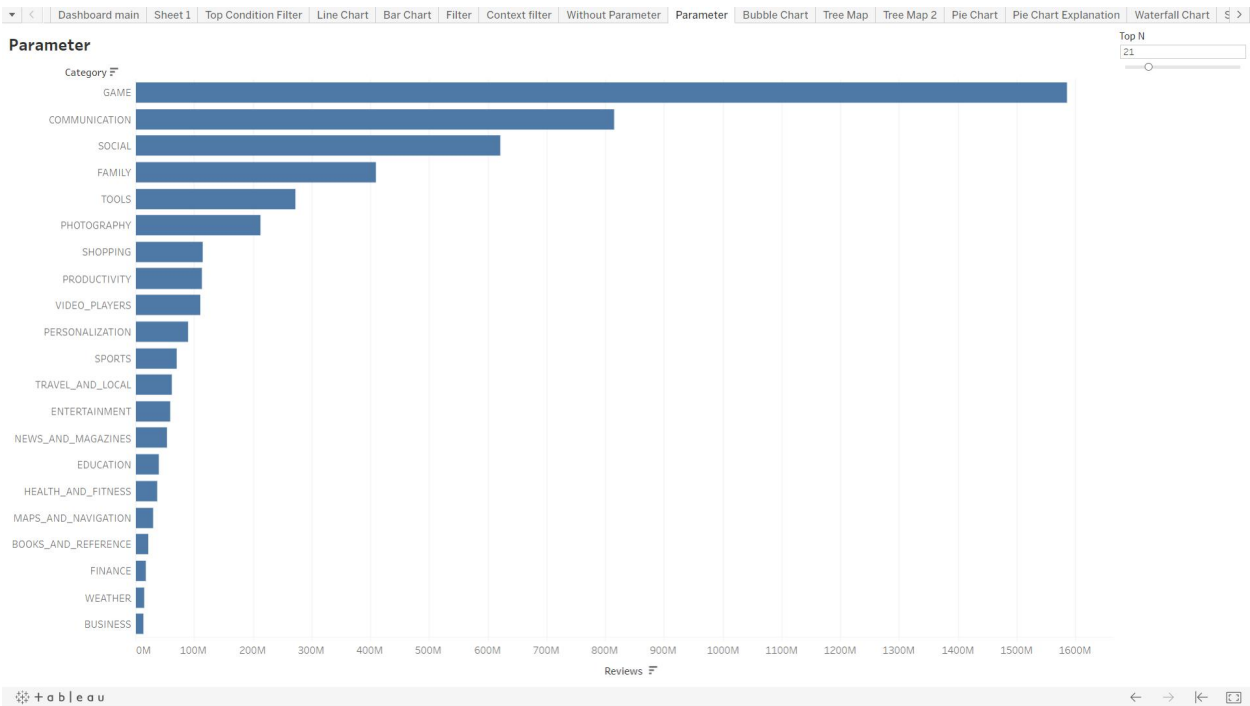
Category BEAUTY

Category	App	Reviews
BEAUTY	Beauty Camera - Selfie Camera	113,715
	Ipsy: Makeup, Beauty, and Tips	49,790
	Best Hairstyles step by step	45,452
	Ulta Beauty	42,050
	Mirror - Zoom & Exposure -	32,090
	Sephora: Skin Care, Beauty Makeup & Fragrance Shop	26,834
	Hush - Beauty for Everyone	18,900
	Selfie Camera	17,934
	Mirror Camera (Mirror + Selfie Camera)	9,315
	Filters for Selfie	8,572

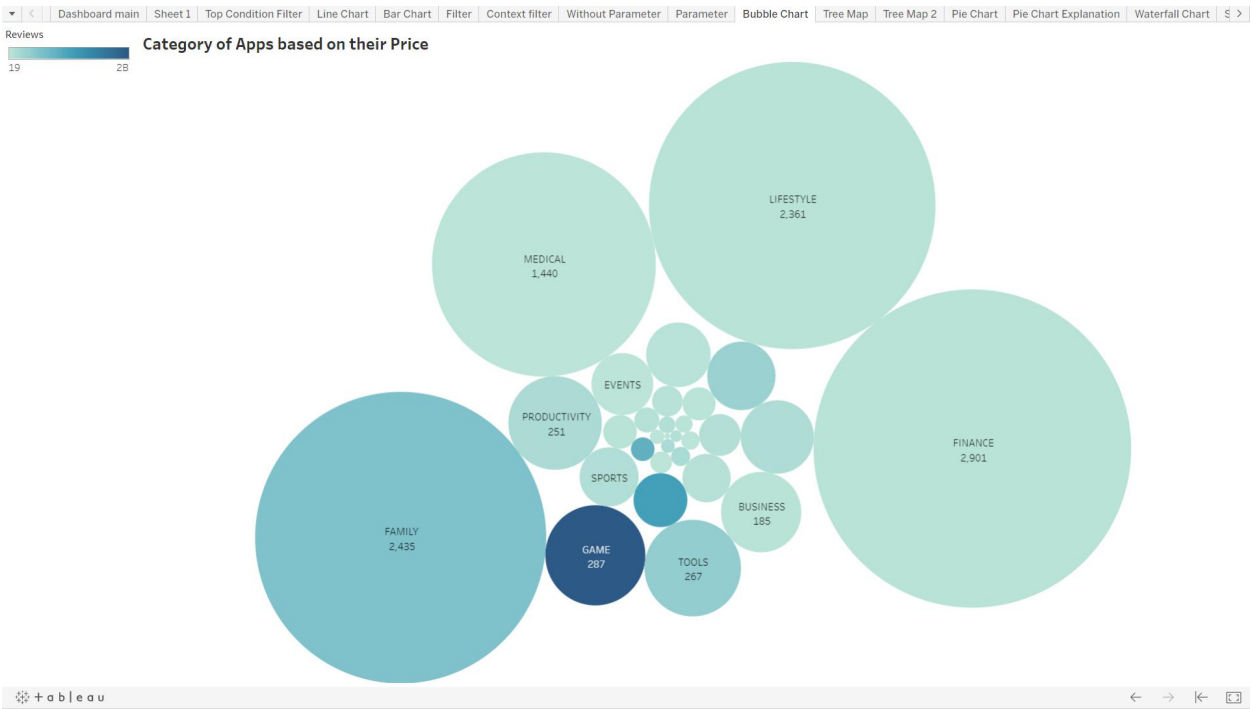
Without Parameter: This sheet shows the top 10 categories based on their reviews.



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.



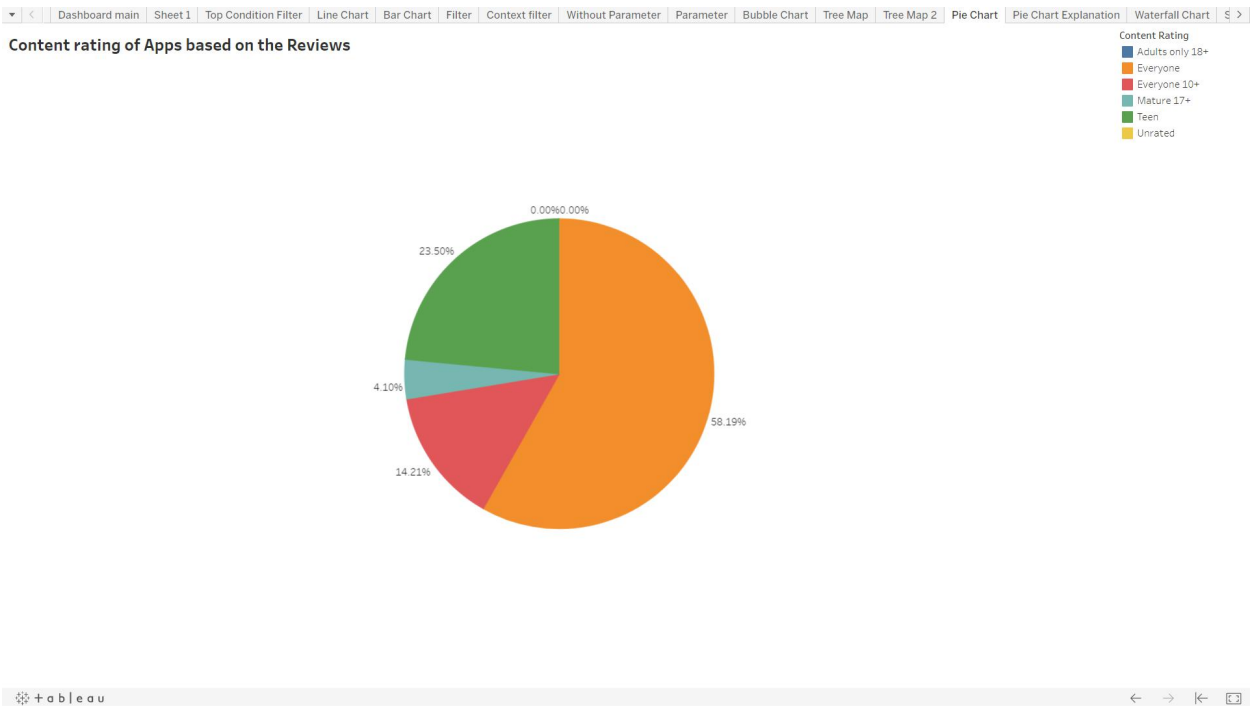
Tree Map: Use tree maps to display data in nested rectangles. Tree map will help identify the category of apps based on their price.



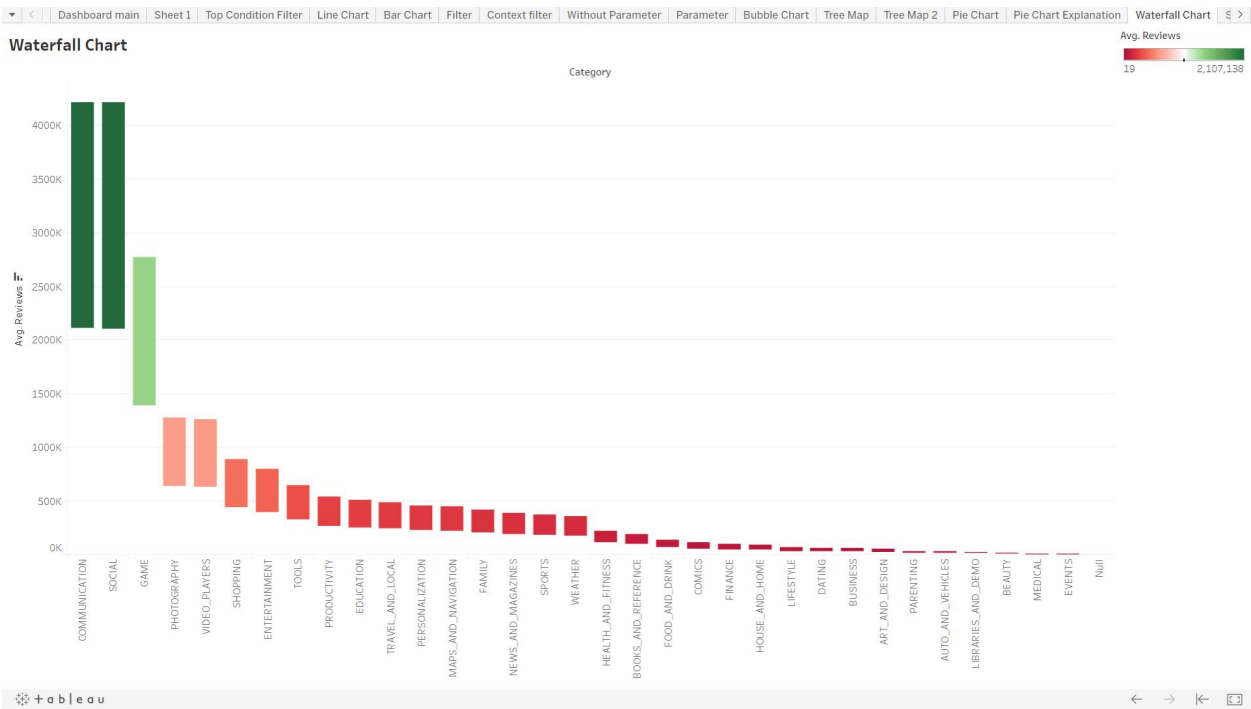
Tree Map 2: This chart shows the average reviews a category has received based on their content rating.



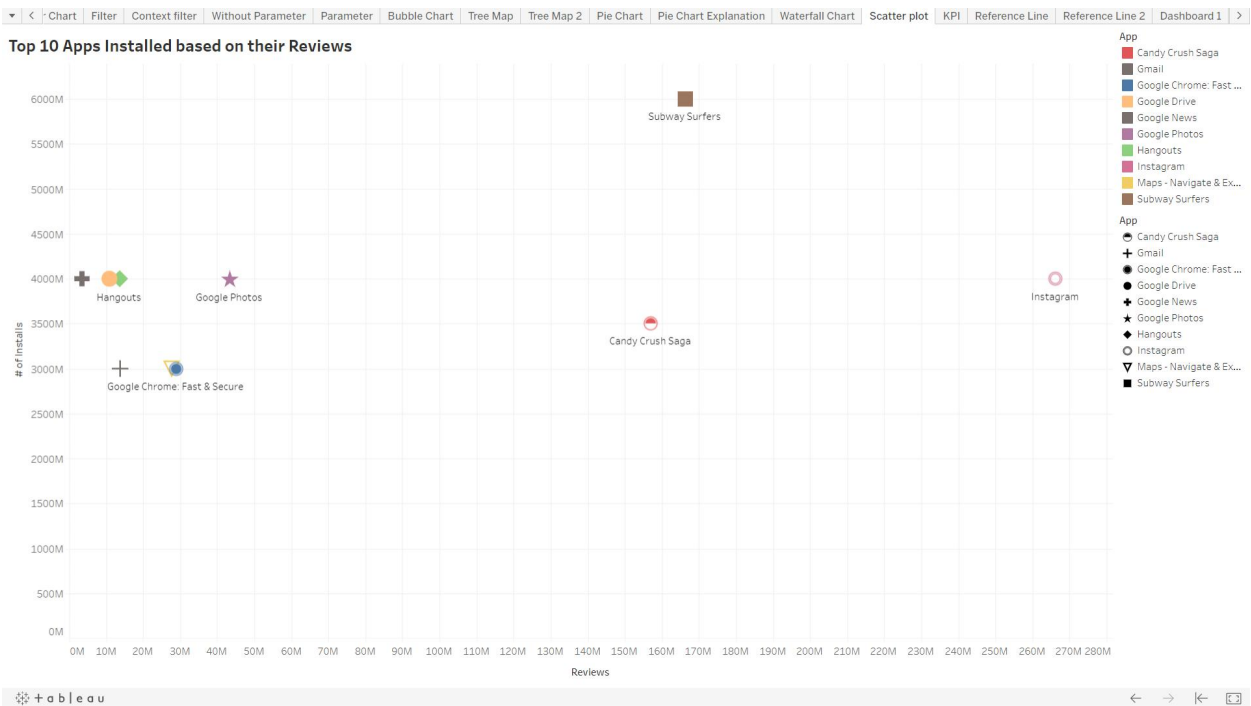
Pie Chart: A **pie chart** represents data as slices of a circle with different sizes and colors. This here depicts the content rating of the apps based on their reviews. For eg: Free category of apps has the highest reviews.



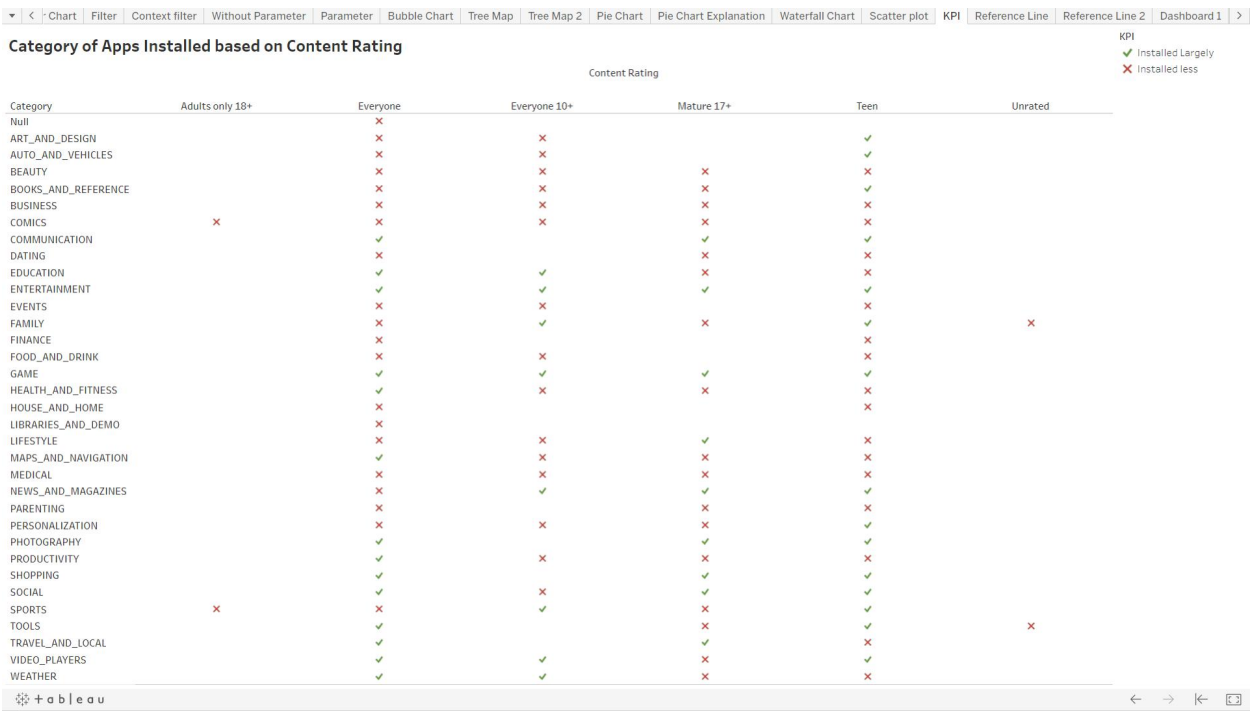
Waterfall Chart: This chart represents the relationship between each category and the average number of reviews given by the users.



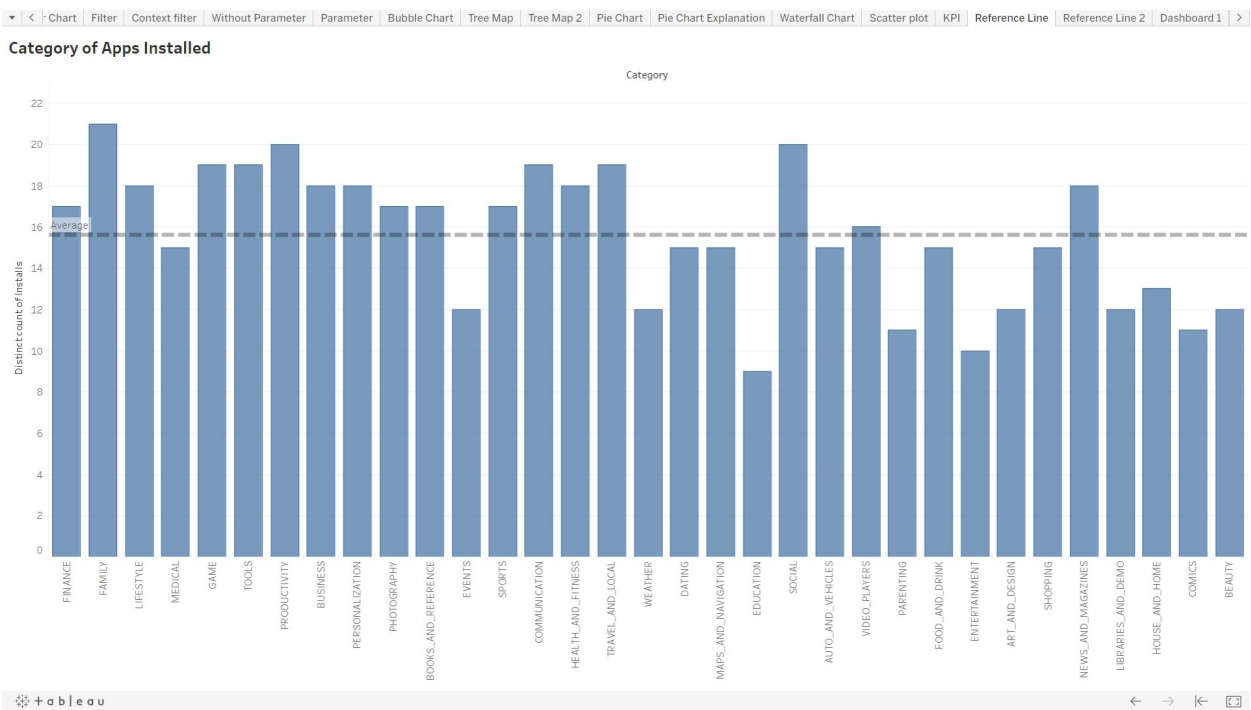
Scatter Plot: Use **scatter plots** to visualize relationships between numerical variables. This plot depicts the top 10 apps that has been installed by the users based on their reviews.



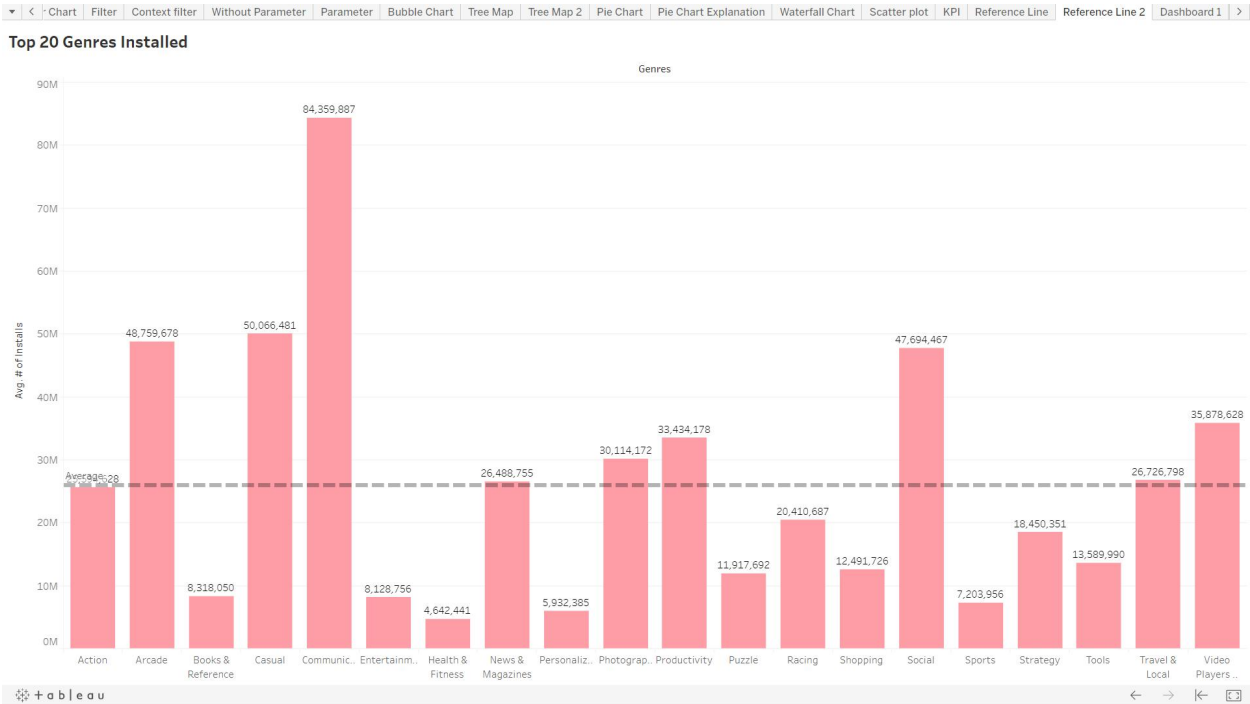
KPI: Key Performance Indicators are one of the most common things people need to display in a dashboard. This usually involves comparing current values or historical trends against a target value.



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.



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.