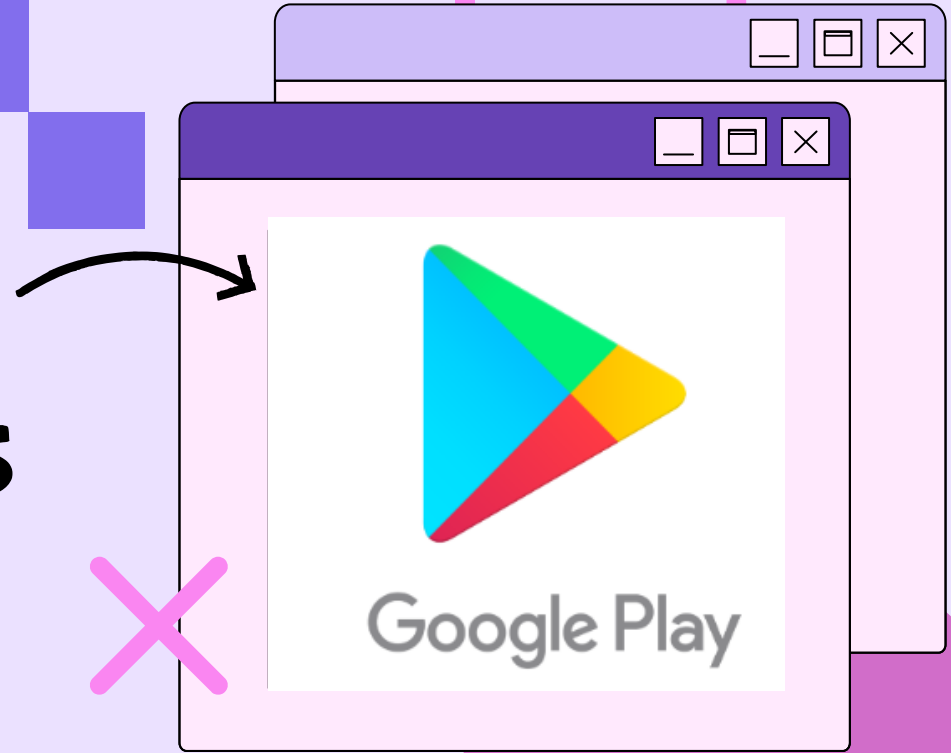


# ANALYSIS OF GOOGLE PLAYSTORE APPLICATIONS

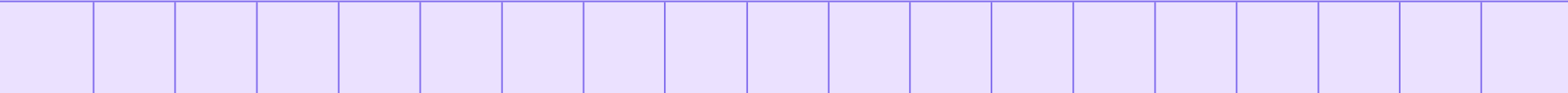
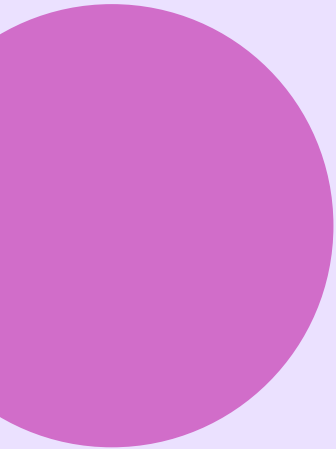


# **GROUP 4**

***GARIMA AGRAWAL***  
***20BCE2034***

***PRAMAN VERMA***  
***19BCE2082***

***YASH AJAY SARAF***  
***20BCE0680***



## PROBLEM DESCRIPTION

## SCOPE

## SOLUTIONS/ OBJECTIVES

## DATASETS

[illegible]

## DESIGN & METHODOLOGY

## JUSTIFICATION

# DATABASE CONNECTIVITY

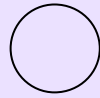
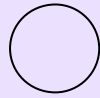
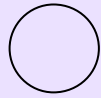
# VISUAL ENCODING

[illegible]

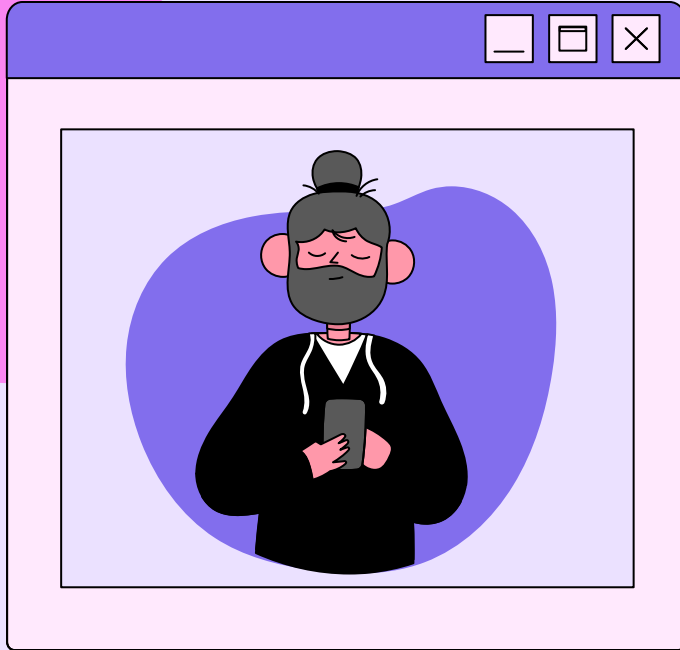
## 10 USER INTERFACE

## 12 REFERENCES

[illegible]



# PROBLEM DESCRIPTION



As of the first quarter of 2021, the number of apps on Google Play Store were 3.48 million.

To stand out in this oversaturated market, App Developers need to figure out what factors have an impact on the consumer's preferences.

It really takes a lot of time and team work to make a good app, so if a developer is making an application then his work should be paid off.

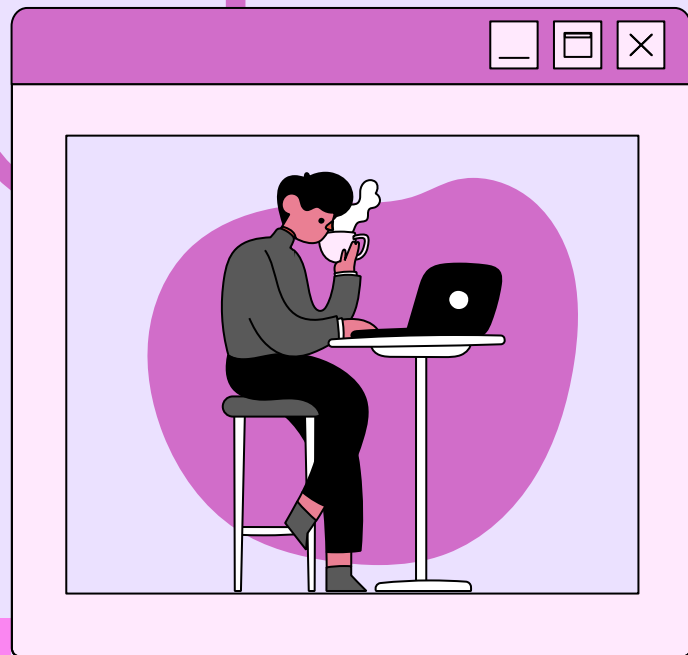
But what kind of applications should be made ?





# SCOPE

The outcome of our project is to demonstrates the relevance of app reviews in the market, as they may be one of the determining factors for the number of installs.



# PROPOSED SOLUTION



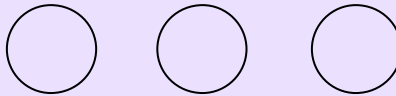
## EXPLORE

Inquire factors that can influence application installation.



## FOCUS

Focus on app categories with maximum downloads to emphasize for development.



## ANALAYZE

Reflect upon the feedback by improving our applications



# DATASETS

Kaggle link - <https://www.kaggle.com/datasets/lava18/google-play-store-apps?resource=download&select=googleplaystore.csv>

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Rating	App	Category	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
2	4.1	Photo Editor & Candy Camera & Grid & Scrapbook	ART_AND_DESIGN	159	19M	10,000+	Free		0 Everyone	Art & Design	07-Jan-18	1.0.0	4.0.3 and up
3	3.9	Coloring book moana	ART_AND_DESIGN	967	14M	500,000+	Free		0 Everyone	Art & Design;Pre	15-Jan-18	2.0.0	4.0.3 and up
4	4.7	U Launcher Lite â€” FREE Live Cool Themes & Icons	ART_AND_DESIGN	87510	8.7M	5,000,000+	Free		0 Everyone	Art & Design	01-Aug-18	1.2.4	4.0.3 and up
5	4.5	Sketch - Draw & Paint	ART_AND_DESIGN	215644	25M	50,000,000+	Free		0 Teen	Art & Design	08-Jun-18	Varies with device	4.2 and up
6	4.3	Pixel Draw - Number Art Coloring Book	ART_AND_DESIGN	967	2.8M	100,000+	Free		0 Everyone	Art & Design;Creative	20-Jun-18	1.1	4.4 and up
7	4.4	Paper flowers instructions	ART_AND_DESIGN	167	5.6M	50,000+	Free		0 Everyone	Art & Design	26-Mar-17	1	2.3 and up
8	3.8	Smoke Effect Photo Maker - Smoke Editor	ART_AND_DESIGN	178	19M	50,000+	Free		0 Everyone	Art & Design	26-Apr-18	1.1	4.0.3 and up
9	4.1	Infinite Painter	ART_AND_DESIGN	36815	29M	1,000,000+	Free		0 Everyone	Art & Design	14-Jun-18	6.1.61.1	4.2 and up
10	4.4	Garden Coloring Book	ART_AND_DESIGN	13791	33M	1,000,000+	Free		0 Everyone	Art & Design	20-Sep-17	2.9.2	3.0 and up
11	4.7	Kids Paint Free - Drawing Fun	ART_AND_DESIGN	121	3.1M	10,000+	Free		0 Everyone	Art & Design;Creative	03-Jul-18	2.8	4.0.3 and up
12	4.4	Text on Photo - Fonteeer	ART_AND_DESIGN	13880	28M	1,000,000+	Free		0 Everyone	Art & Design	27-Oct-17	1.0.4	4.1 and up
13	4.4	Name Art Photo Editor - Focus n Filters	ART_AND_DESIGN	8788	12M	1,000,000+	Free		0 Everyone	Art & Design	31-Jul-18	1.0.15	4.0 and up
14	4.2	Tattoo Name On My Photo Editor	ART_AND_DESIGN	44829	20M	10,000,000+	Free		0 Teen	Art & Design	02-Apr-18	3.8	4.1 and up
15	4.6	Mandala Coloring Book	ART_AND_DESIGN	4326	21M	100,000+	Free		0 Everyone	Art & Design	26-Jun-18	1.0.4	4.4 and up
16	4.4	3D Color Pixel by Number - Sandbox Art Color	ART_AND_DESIGN	1518	37M	100,000+	Free		0 Everyone	Art & Design	03-Aug-18	1.2.3	2.3 and up
17	3.2	Learn To Draw Kawaii Characters	ART_AND_DESIGN	55	2.7M	5,000+	Free		0 Everyone	Art & Design	06-Jun-18	NaN	4.2 and up
18	4.7	Photo Designer - Write your name with shapes	ART_AND_DESIGN	3632	5.5M	500,000+	Free		0 Everyone	Art & Design	31-Jul-18	3.1	4.1 and up
19	4.5	350 Diy Room Decor Ideas	ART_AND_DESIGN	27	17M	10,000+	Free		0 Everyone	Art & Design	07-Nov-17	1	2.3 and up
20	4.3	FlipaClip - Cartoon animation	ART_AND_DESIGN	194216	39M	5,000,000+	Free		0 Everyone	Art & Design	03-Aug-18	2.2.5	4.0.3 and up
21	4.6	ibis Paint X	ART_AND_DESIGN	224399	31M	10,000,000+	Free		0 Everyone	Art & Design	30-Jul-18	5.5.4	4.1 and up
22	4	Logo Maker - Small Business	ART_AND_DESIGN	450	14M	100,000+	Free		0 Everyone	Art & Design	20-Apr-18	4	4.1 and up
23	4.1	Boys Photo Editor - Six Pack & Men's Suit	ART_AND_DESIGN	654	12M	100,000+	Free		0 Everyone	Art & Design	20-Mar-18	1.1	4.0.3 and up
24	4.7	Superheroes Wallpapers   4K Background	ART_AND_DESIGN	7699	4.2M	500,000+	Free		0 Everyone 10+	Art & Design	12-Jul-18	2.2.6.2	4.0.3 and up

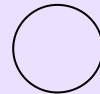
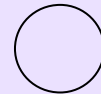
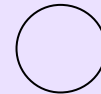
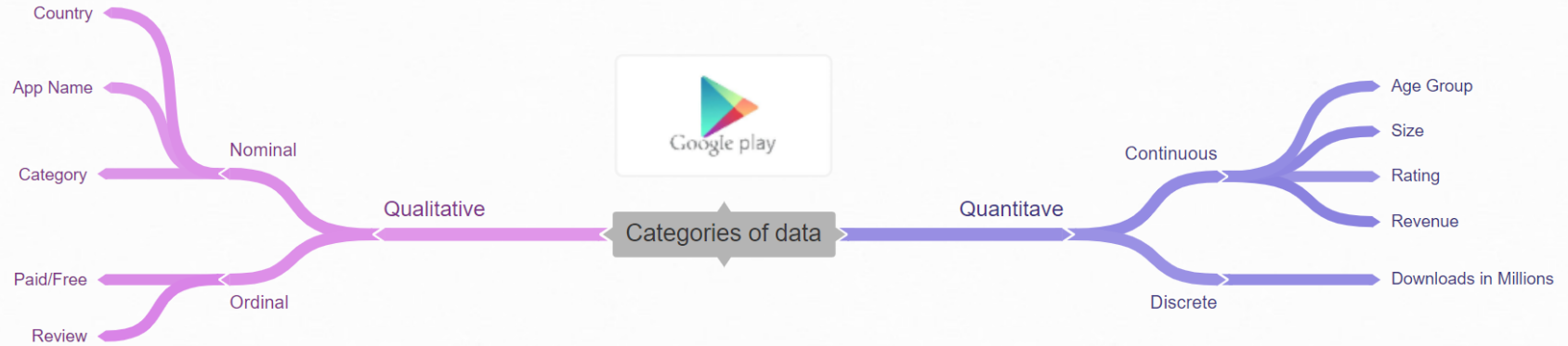


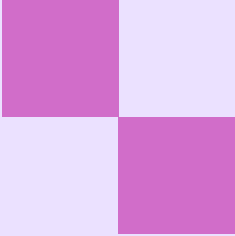
# SAMPLE DATASETS

1	App Name	Rating	Category	Country	Paid/Free	Downloads in Millions	Size	Revenue (2021)	Age Group	Review
2	Facebook		4.1 Social	United States	Free	1,100	64MB	\$117 billion	25-34 years	Good
3	Flipkart		4.3 Shopping	India	Free	3,521	18MB	\$6 billion	25-34 years	Good
4	Hotstar		4.1 Entertainment	India	Free	2,129	80MB	\$16 billion	15-24 years	Bad
5	Instagram		4.3 Social	United States	Free	4,200	106MB	\$26 billion	25-34 years	Good
6	MX Player Pro		4 Video Players & Editors	South Korea	Paid	120	20MB	\$6 billion	18-34 years	Bad
7	Netflix		4.2 Entertainment	United States	Paid	5,000	17MB	\$120 billion	18-34 years	Good
8	Paytm		4.6 Finance	India	Free	1,500	94MB	\$6 billion	15-24 years	Bad
9	Spotify		4.3 Music & Audio	Sweden	Free	1,212	27MB	\$10 billion	18-34 years	Bad
10	Subway Surfers		4.3 Arcade Game	Denmark	Free	1,233	123MB	\$32 billion	9-18 years	Bad
11	Telegram		4.3 Communication	Germany	Free	499	72MB	Nil	18-34 years	Nil
12	WhatsApp		4.1 Communication	United States	Free	3,965	78MB	\$122 billion	25-34 years	Good
13	Amazon		4.6 Shopping	India	Free	4,000	32MB	\$35 billion	18-34 years	Good
14	Gpay		4.2 Finance	India	Free	2,222	12MB	\$21 billion	25-34 years	Good
15	PUBG		4.3 Arcade Game	India	Free	5,412	220MB	\$232 billion	15-24 years	Good
16	Myntra		3.9 Shopping	United States	Free	1,236	32MB	\$21 billion	15-24 years	Bad
17	Book My Show		4.1 Entertainment	India	Paid	759	29MB	\$26 billion	18-34 years	Good
18	Snapchat		4.3 Social	Australia	Free	2,560	32MB	\$35 billion	15-24 years	Good
19	MS Teams		3.8 Communication	India	Free	1,280	54MB	\$37 billion	9-18 years	Bad

- Our Dataset has 13 Attributes , and consist of both qualitative and quantitative data and there are about 10840 rows
- App name, Category and Genre are **Nominal**, where as Type and Content Rating are **Ordinal data**.
- Rating, Size, Installs, Price, Reviews are Quantitative data.
- In sample dataset, Reviews are **Ordinal data** and Country is **Nominal data**.

# DESIGN & METHODOLOGY



[illegible]

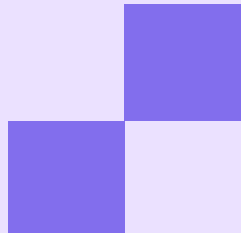
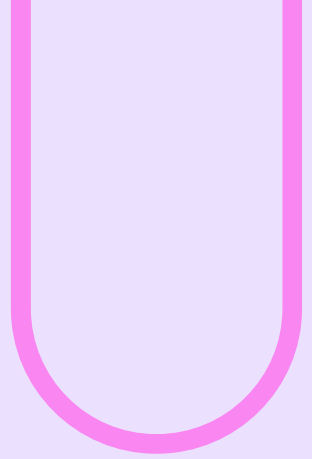
# TOOLS USED

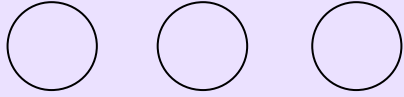
## POWER BI

- Interactive data visualization software

## REASON

- Easy implementation
- Variety of visualisations available
- Direct connectivity of database to the software
- Interesting showcase of data analysis





# DATA CONNECTIVITY

## Add data to get started



Paste or manually enter  
data



Pick a published dataset

Looking for Excel? We're adding it soon. Till then, use **Paste or manually enter data**. To connect to more data sources, download [Power BI Desktop](#).

## MISSION

The dataset  
downloaded from  
Kaggle is imported  
to Power Bi  
software.

# DATA CONNECTIVITY

Power Query



## Enter data

Copy and paste data into the table, or enter data manually. Be sure the data type matches the values in each column. [Learn more](#)



Use first row as headers



	ABC 123 Rating	ABC 123 App	ABC 123 Category	ABC 123 Reviews	ABC 123 Size	ABC 123 Installs	ABC 123 Type	ABC 123 Price	
1	4.1	Photo Editor & Cand...	ART_AND_DESIGN	159	19M	10,000+	Free	0	▲
2	3.9	Coloring book moana	ART_AND_DESIGN	967	14M	500,000+	Free	0	
3	4.7	U Launcher Lite â€” F...	ART_AND_DESIGN	87510	8.7M	5,000,000+	Free	0	
4	4.5	Sketch - Draw & Paint	ART_AND_DESIGN	215644	25M	50,000,000+	Free	0	
5	4.3	Pixel Draw - Number ...	ART_AND_DESIGN	967	2.8M	100,000+	Free	0	
6	4.4	Paper flowers instruct...	ART_AND_DESIGN	167	5.6M	50,000+	Free	0	
7	3.8	Smoke Effect Photo ...	ART_AND_DESIGN	178	19M	50,000+	Free	0	
8	4.1	Infinite Painter	ART_AND_DESIGN	36815	29M	1,000,000+	Free	0	
9	4.4	Garden Coloring Book	ART_AND_DESIGN	13791	33M	1,000,000+	Free	0	
10	4.7	Kids Paint Free - Dra...	ART_AND_DESIGN	121	3.1M	10,000+	Free	0	▼
11									

Name

Table

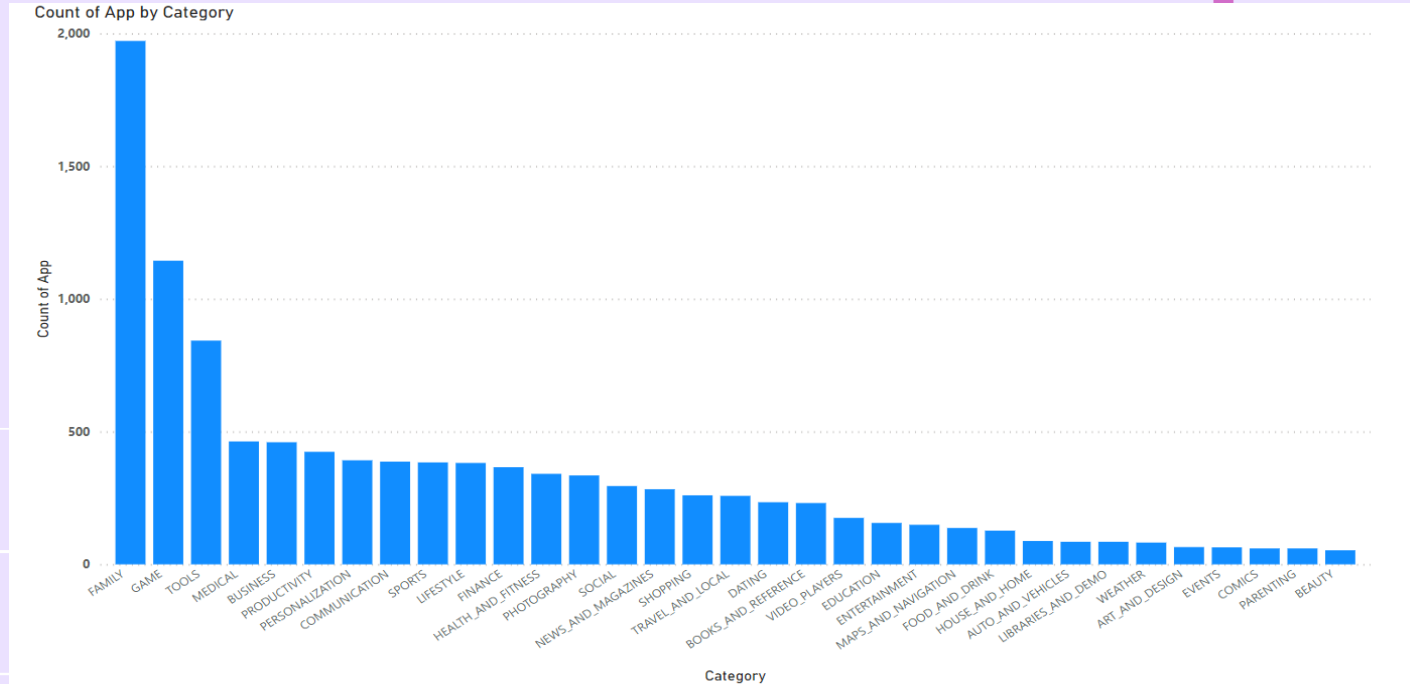
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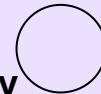
Cancel



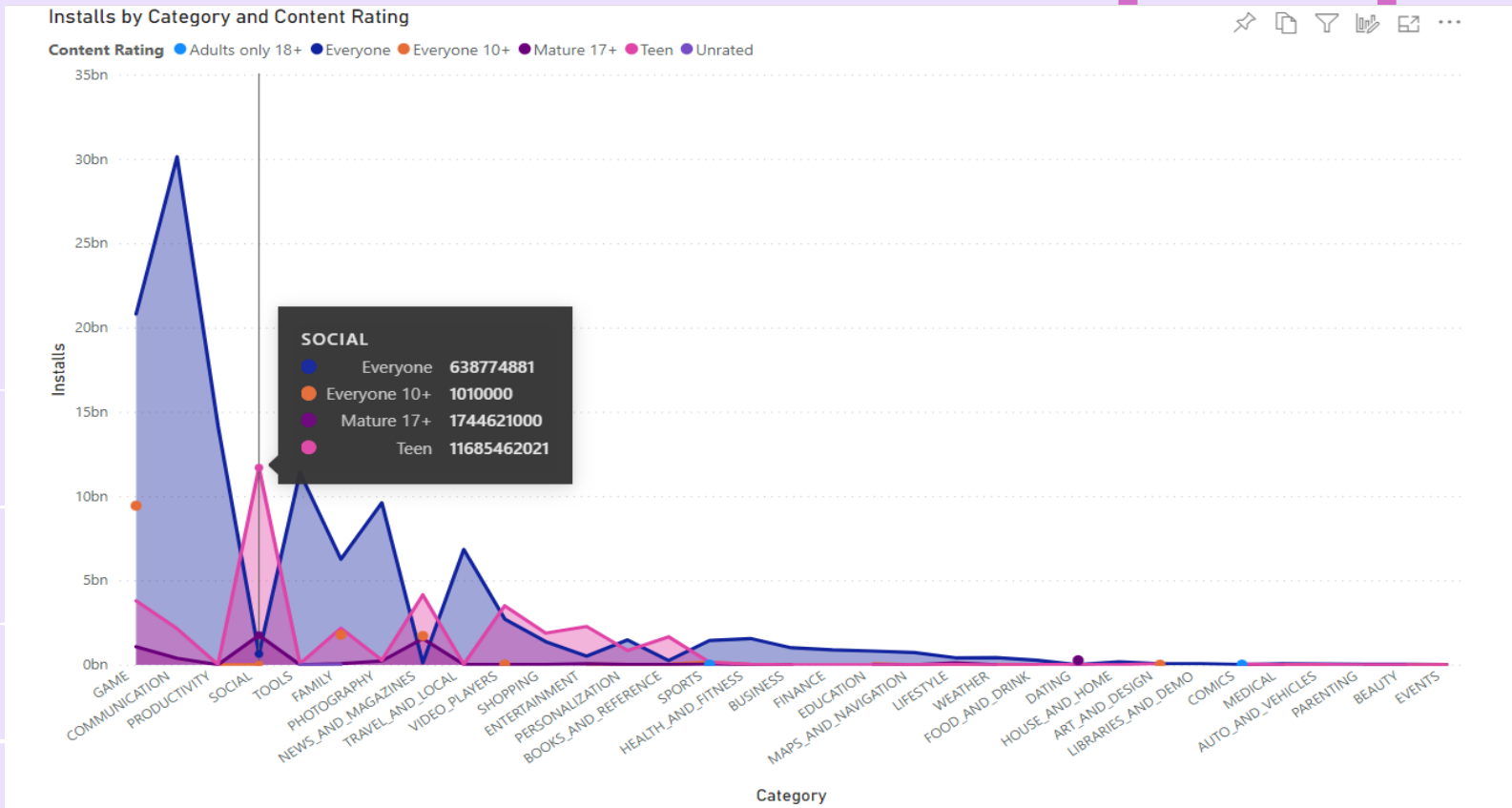
# VISUAL ENCODING - BAR CHART



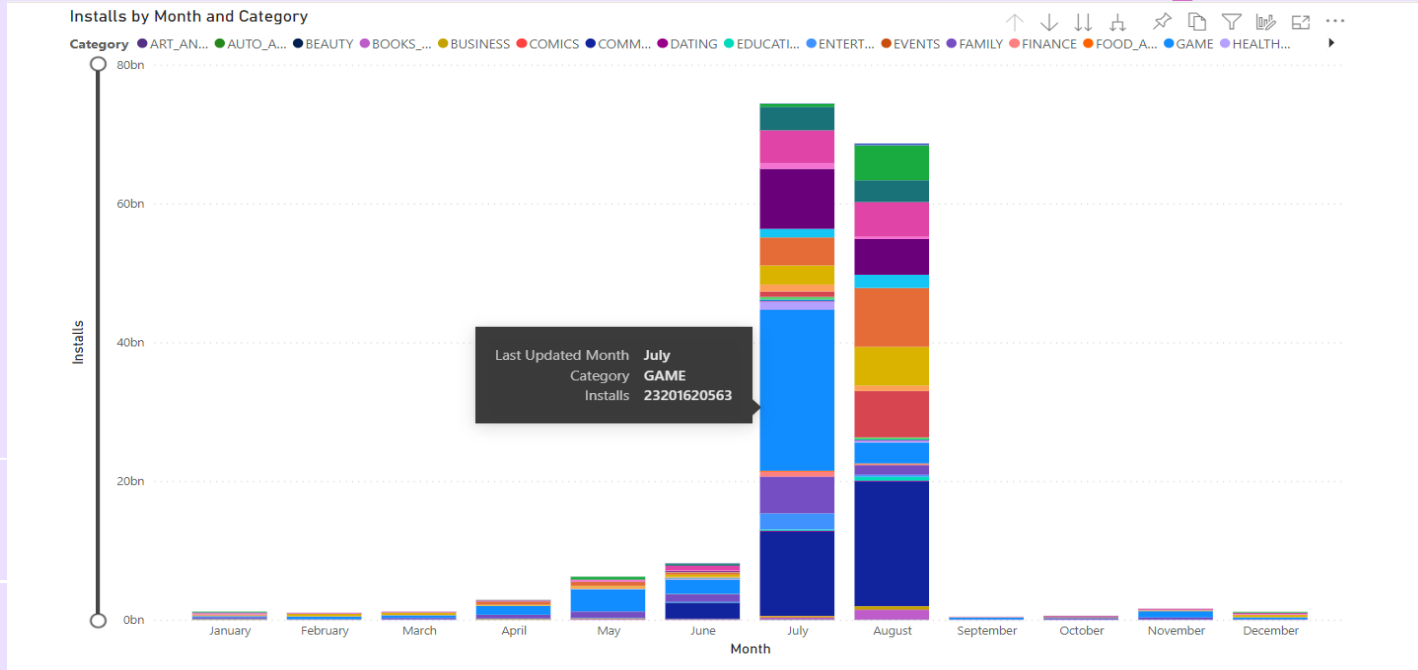
- “This bar chart demonstrates number of applications per Category”
- We can see that Family has highest number of apps ,followed by Games, Tools and so on.



# AREA CHART

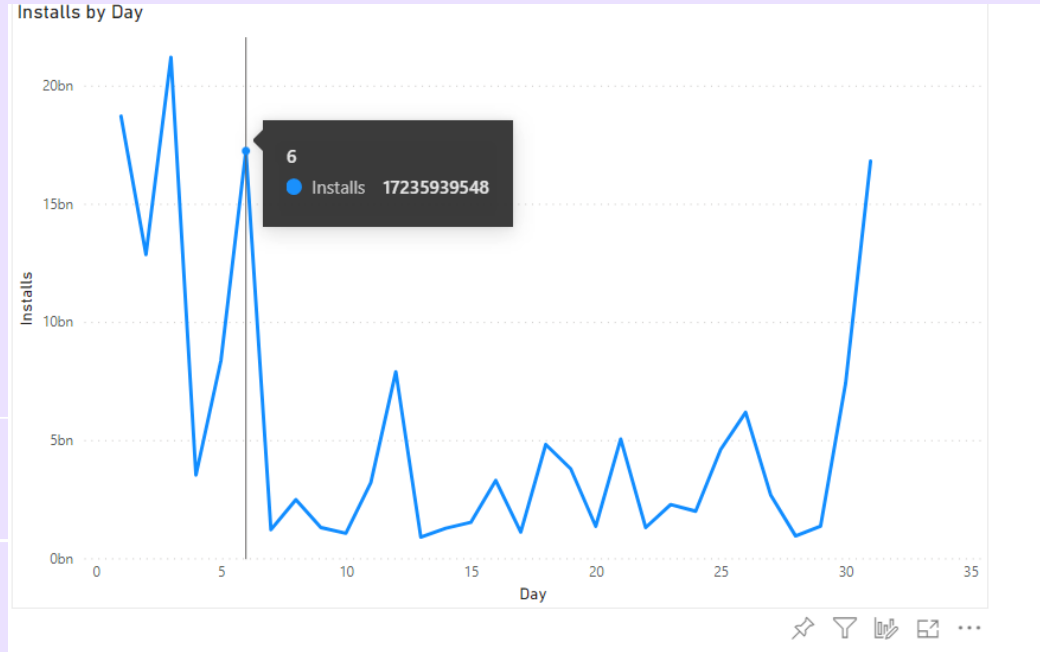


# STACKED COLUMN CHART

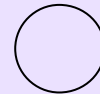
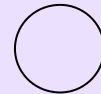
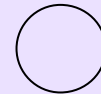


- This Stacked column chart demonstrates total number of installs per months with respect to Category of apps.
- From the above chart we can conclude that July has the highest number of installs around 80 Billion ,in which Games Category is leading followed by communication.

# LINE CHART

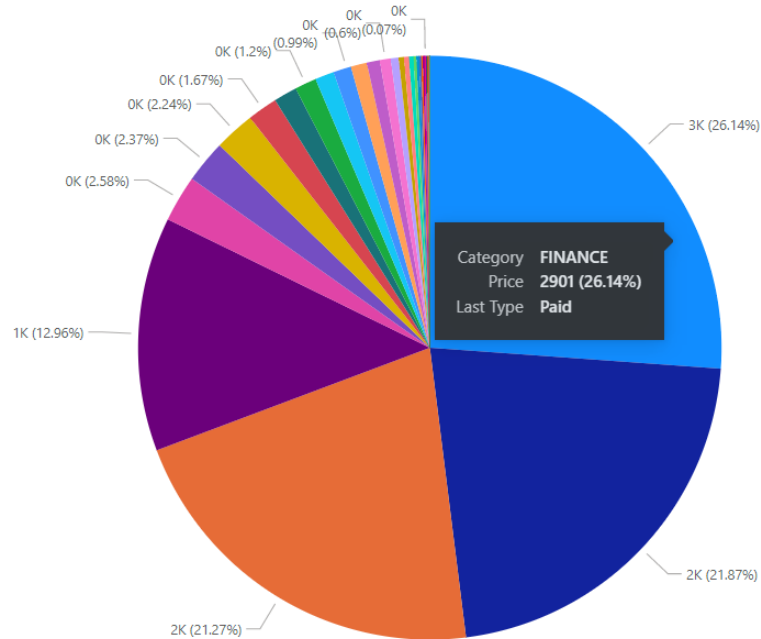


- This Chart shows the variation of installs per day.
- From the above graph we can see that on day 6<sup>th</sup> there were about 17 billion installs.



# PIE CHART

Price and Last Type by Category



## Category

- FINANCE
- FAMILY
- LIFESTYLE
- MEDICAL
- GAME
- TOOLS
- PRODUCTIVITY
- BUSINESS
- PERSONALIZATION
- PHOTOGRAPHY
- BOOKS\_AND\_REFERENCE
- EVENTS
- SPORTS
- COMMUNICATION
- HEALTH\_AND\_FITNESS
- TRAVEL\_AND\_LOCAL
- WEATHER
- DATING
- MAPS\_AND\_NAVIGATION
- EDUCATION
- SOCIAL
- AUTO\_AND\_VEHICLES
- PARENTING
- VIDEO\_PLAYERS
- ENTERTAINMENT
- FOOD\_AND\_DRINK

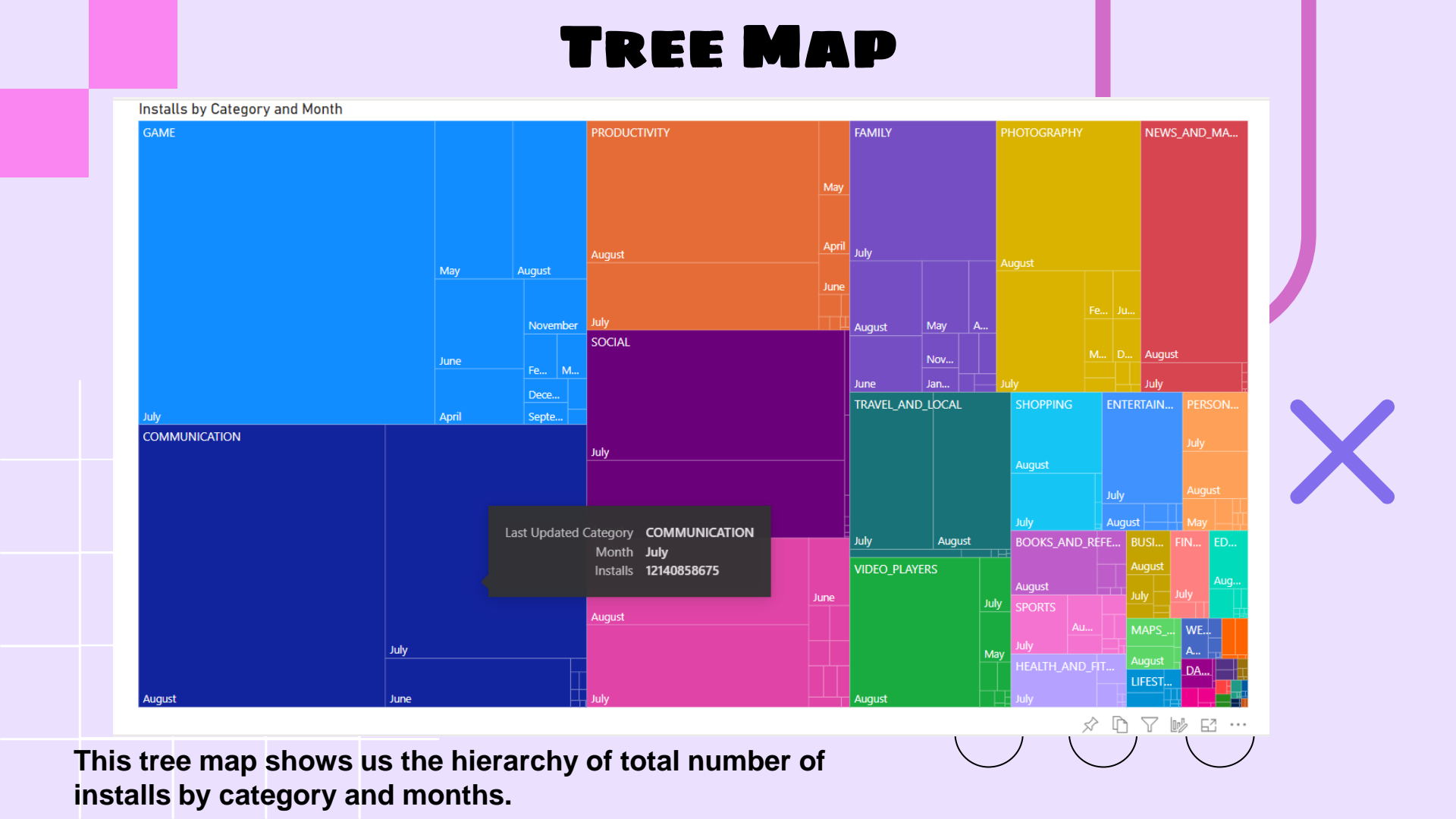


# TREE MAP

Installs by Category and Month

Last Updated Category: COMMUNICATION  
Month: July  
Installs: 12140858675

This tree map shows us the hierarchy of total number of installs by category and months.



# TREE MAP

Installs by Category and Month

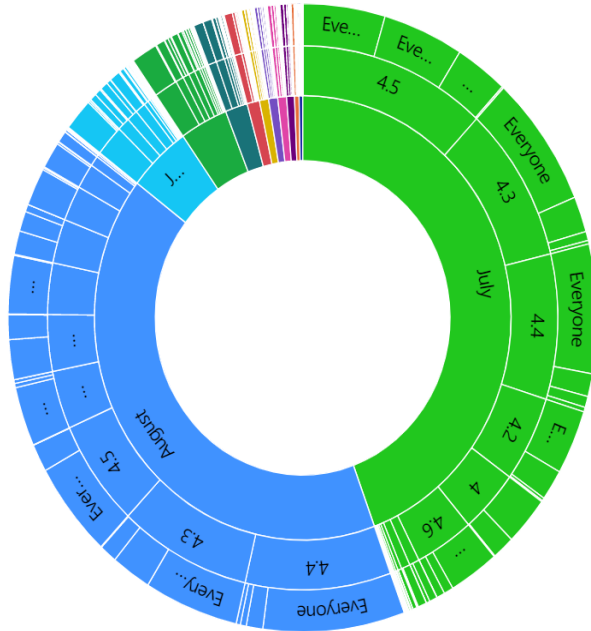
Last Updated Category: COMMUNICATION  
Month: July  
Installs: 12140858675

This tree map shows us the hierarchy of total number of installs by category and months.

# SUNBURST DIAGRAM

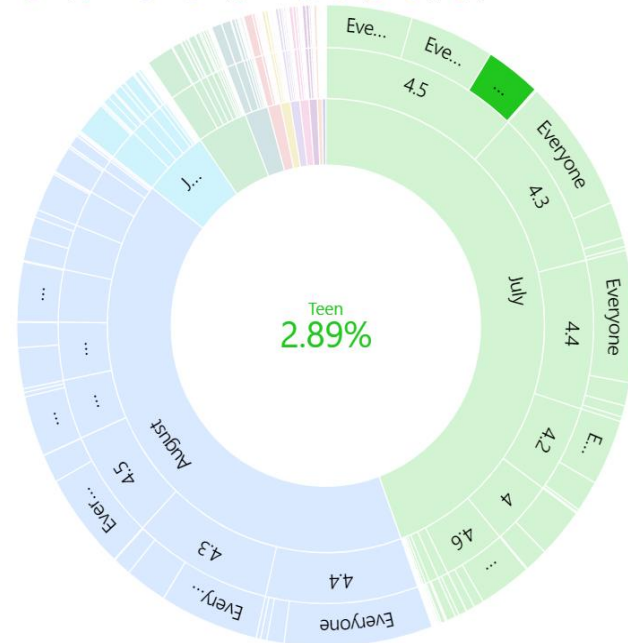
% Installs by Month, Rating and Content Rating

Legend ● September ● October ● February ● December ● March ● January ● November ● April ● May ● June ● August ● July



% Installs by Month, Rating and Content Rating

Legend ● September ● October ● February ● December ● March ● January ● November ● April ● May ● June ● August ● July

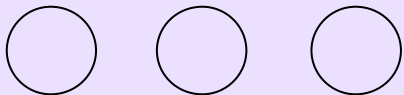


# WORD CLOUD

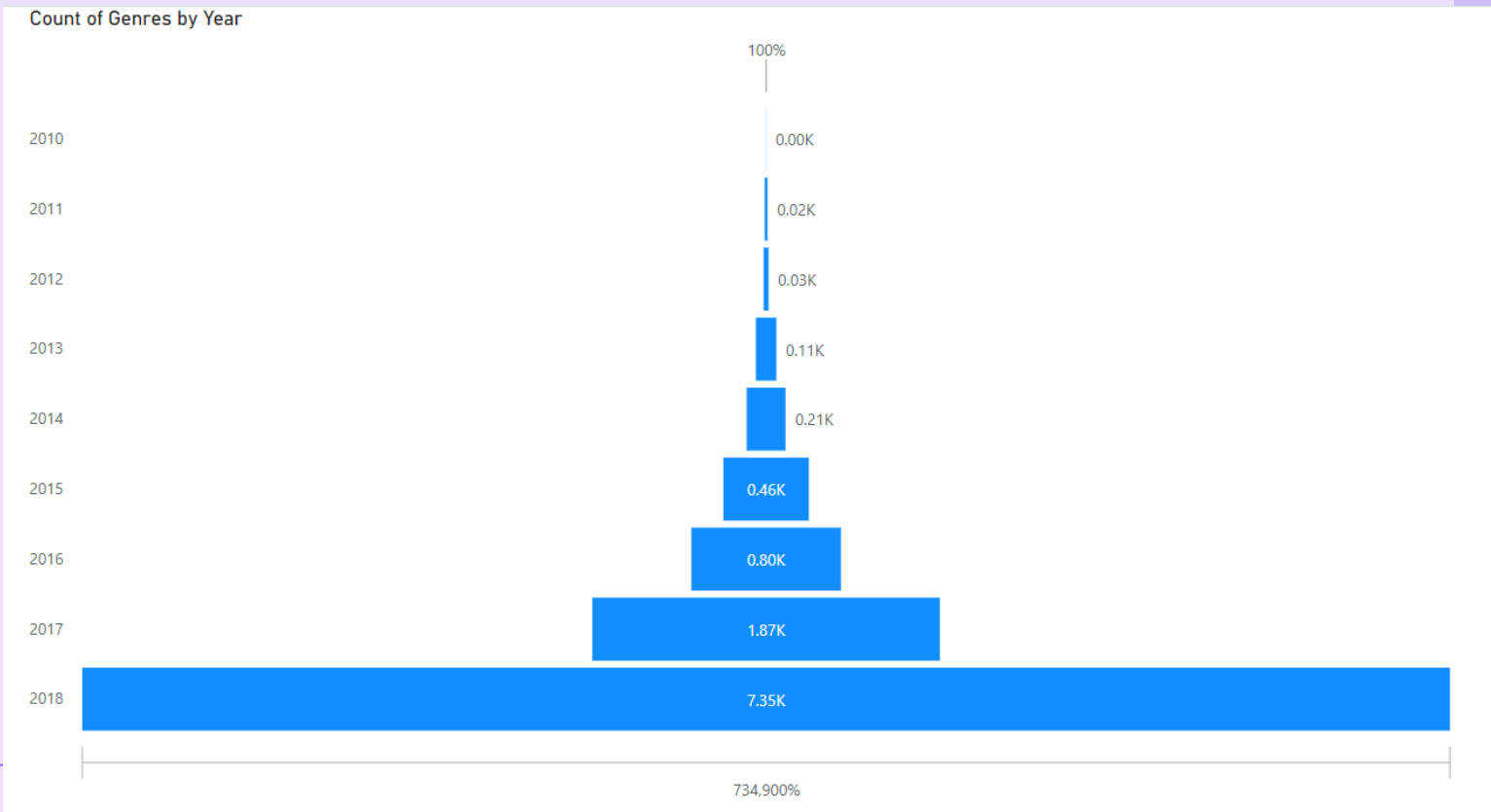
Reviews by Category



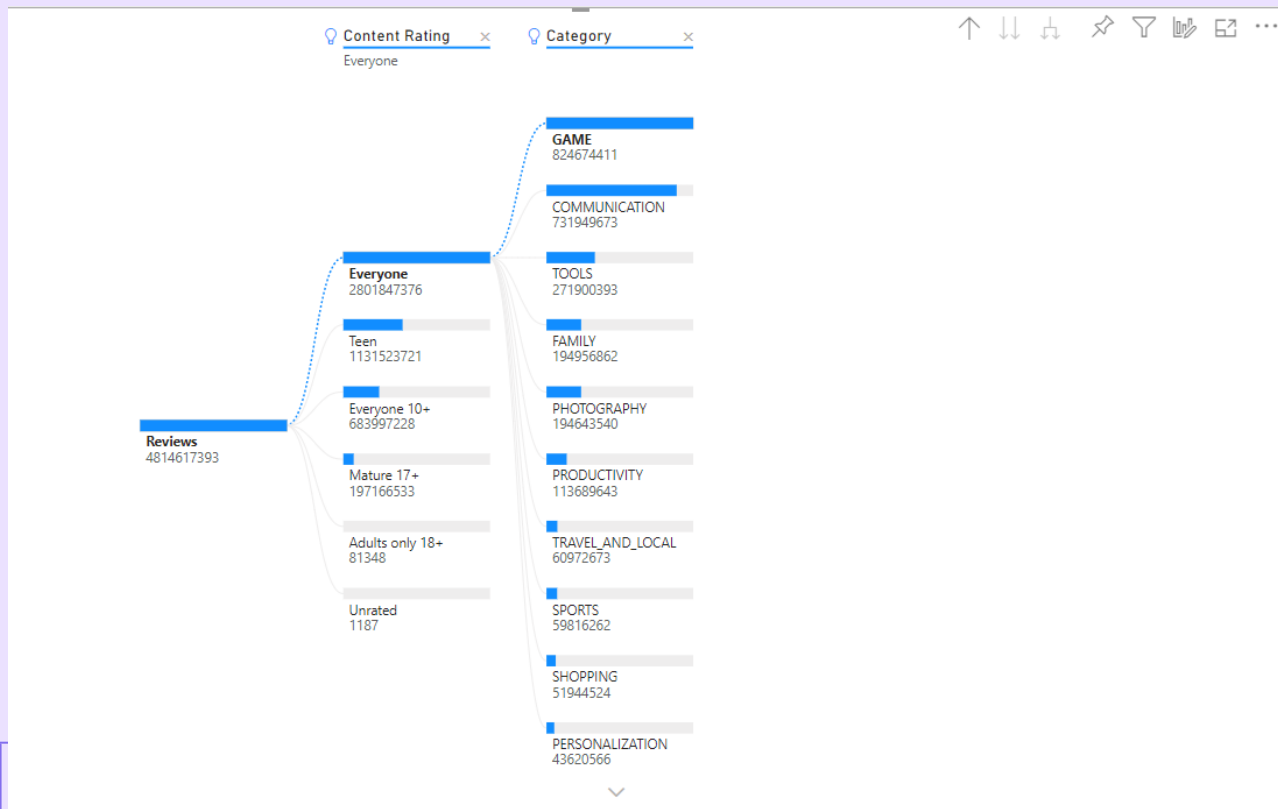


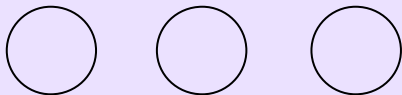


# FUNNEL CHART



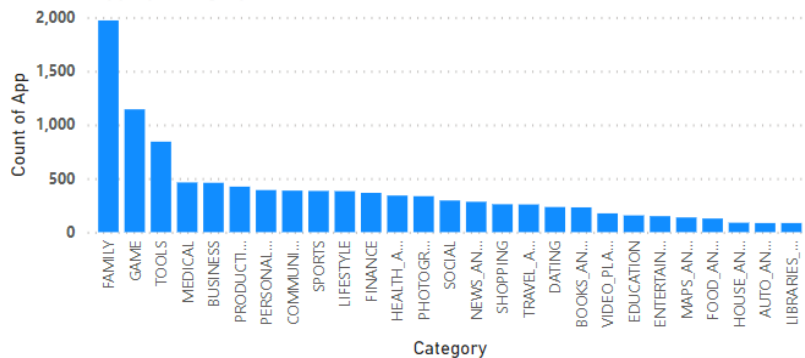
# DECOMPOSITION TREE



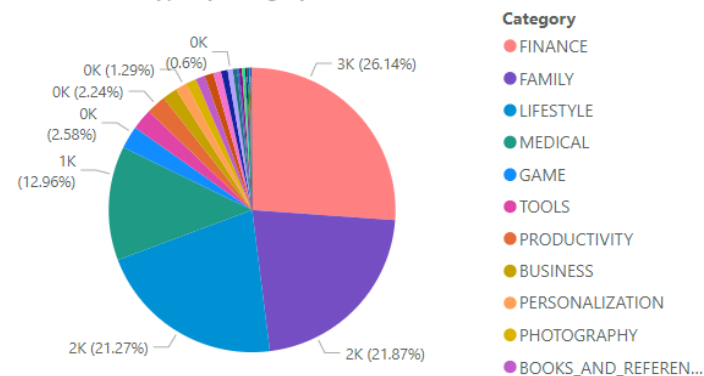


# DASHBOARD - UI

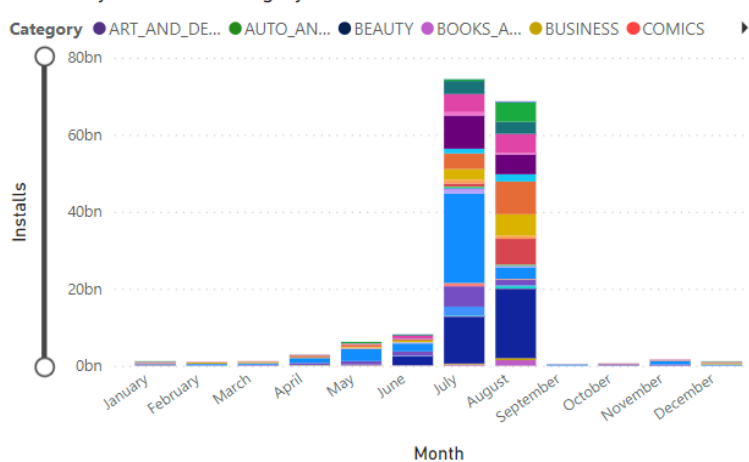
Count of App by Category



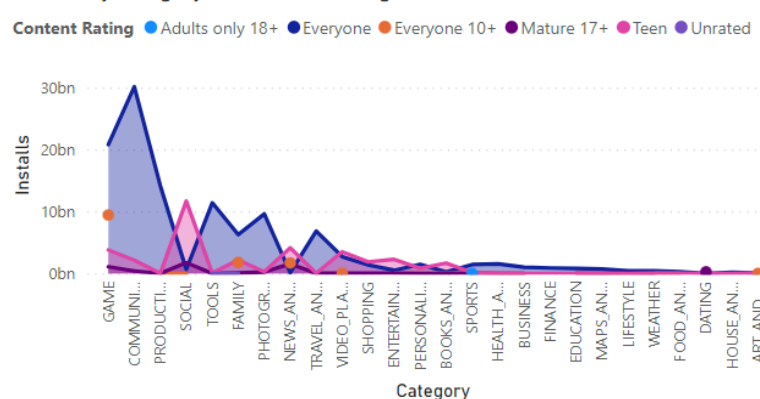
Price and Last Type by Category



Installs by Month and Category



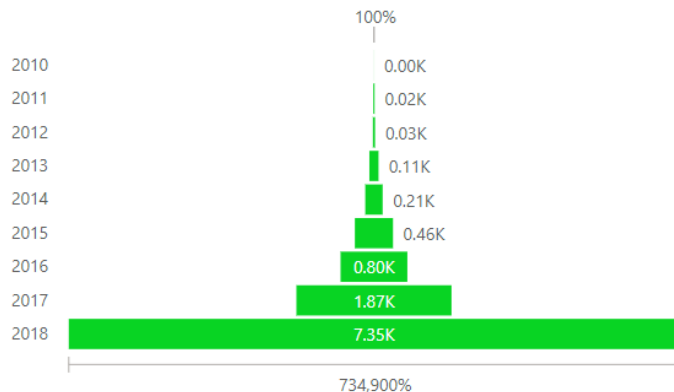
Installs by Category and Content Rating



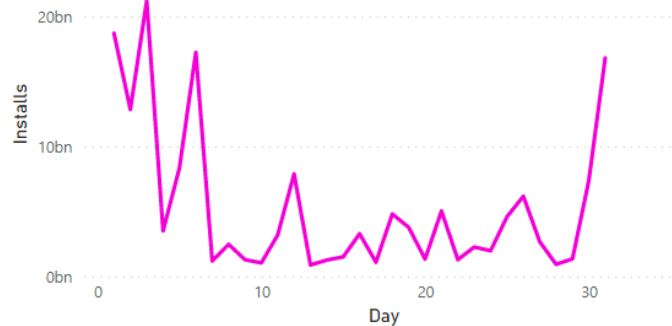


# DASHBOARD - UI

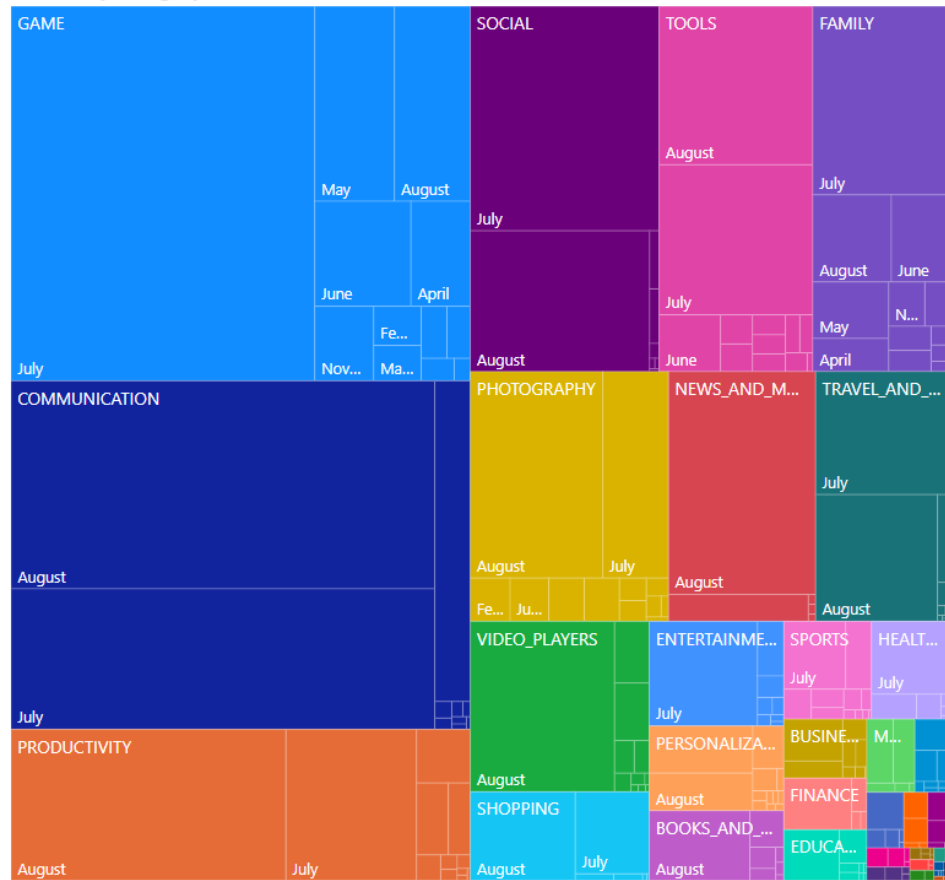
### Count of Genres by Year

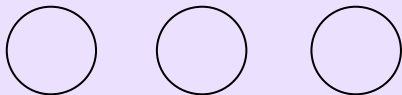


### Installs by Day



### Installs by Category and Month

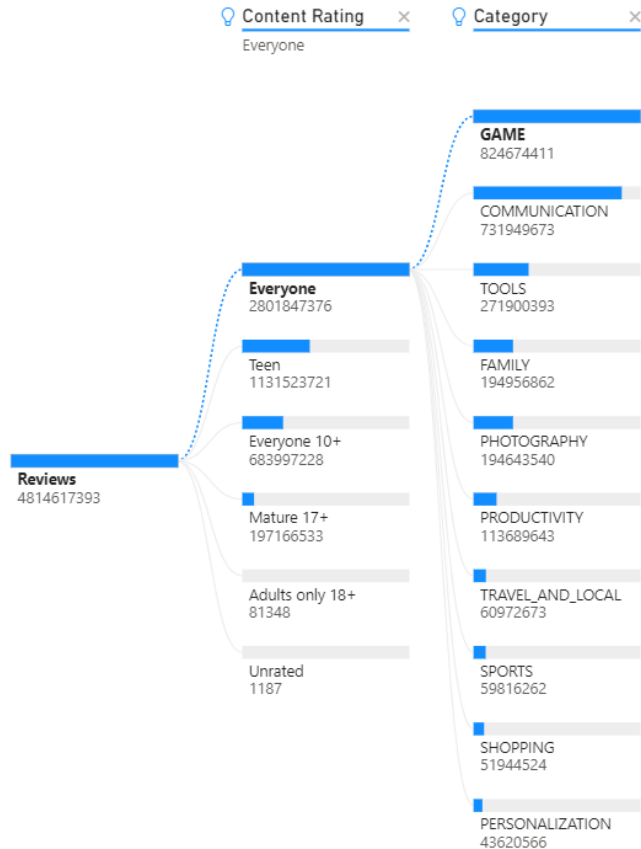
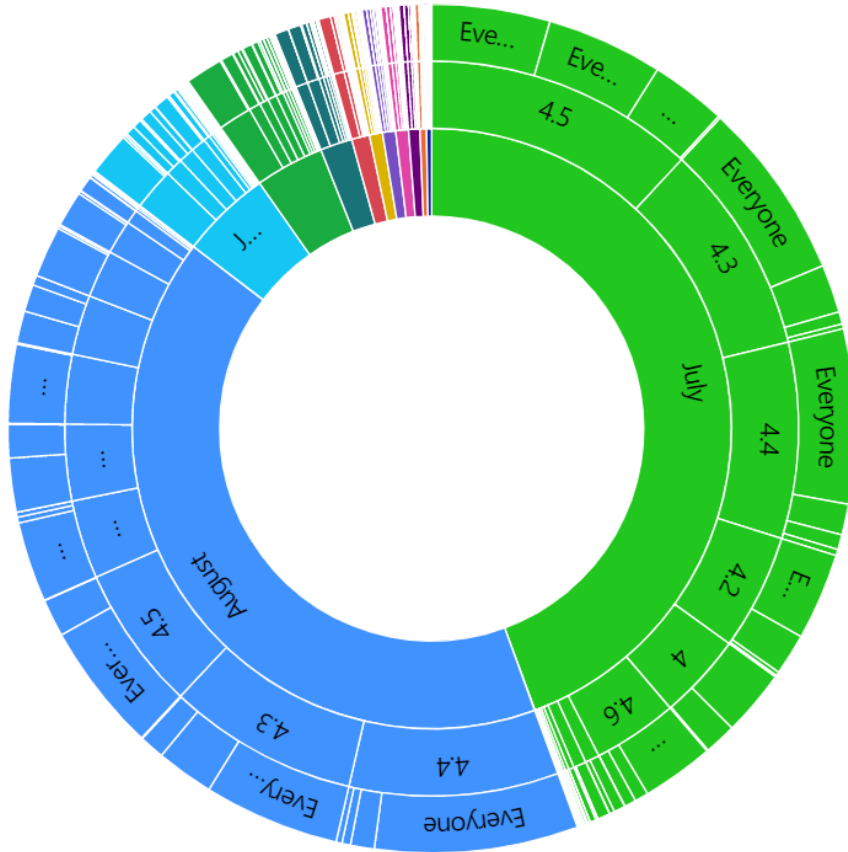


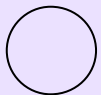


# DASHBOARD - UI

## % Installs by Month, Rating and Content Rating

Legend ● September ● October ● February ● December ● March ● January ● November ● April ● May ● June ● August ● July



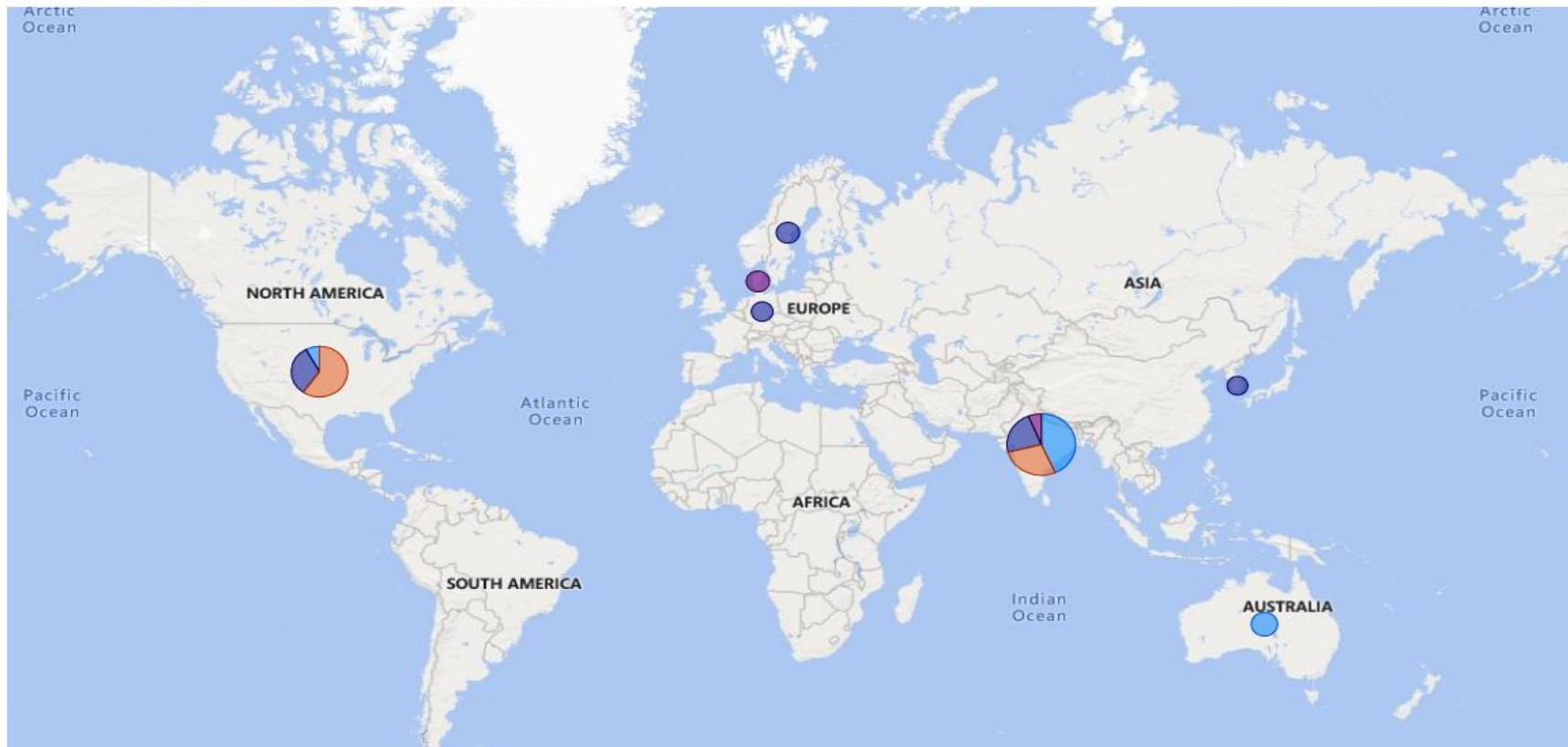


# SAMPLE VISUALIZATION

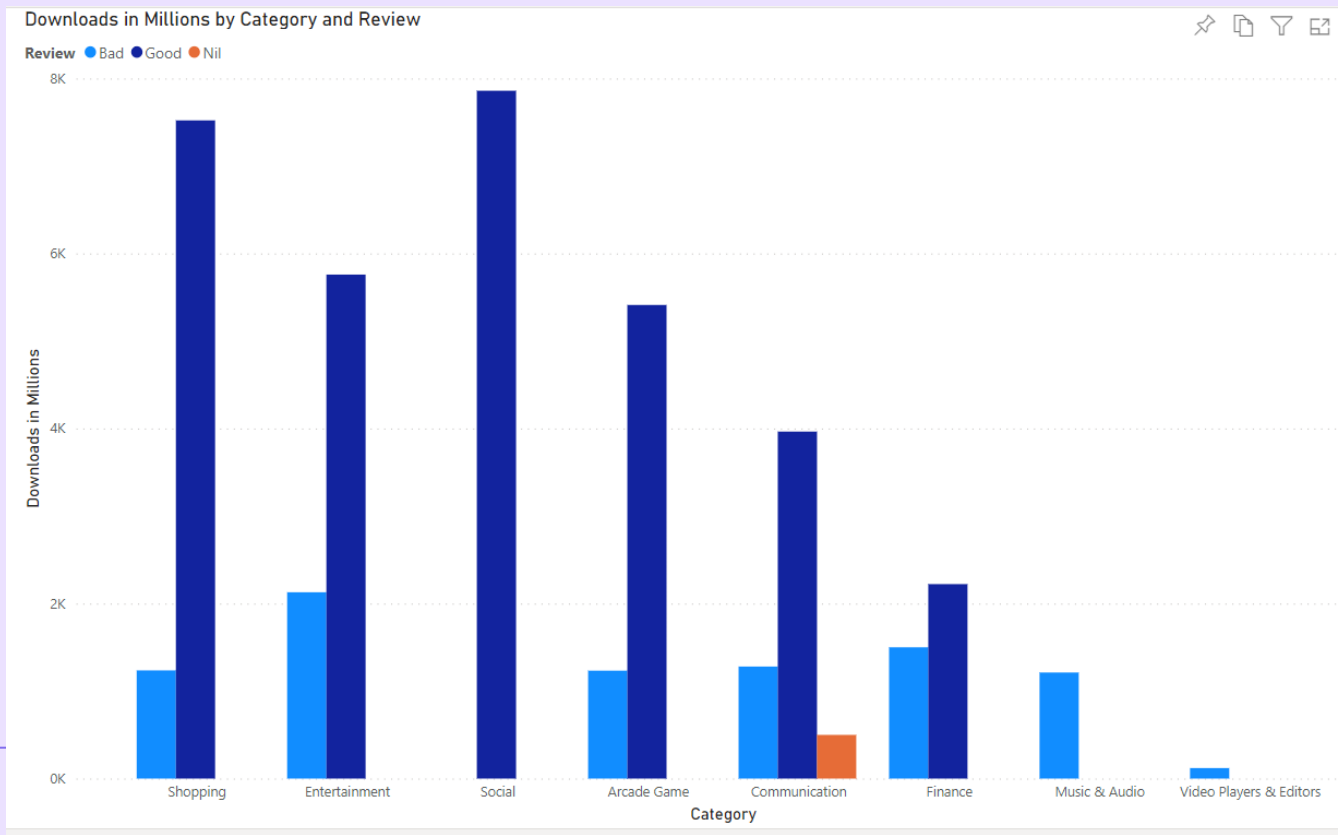
Downloads in Millions by Country and Age Group



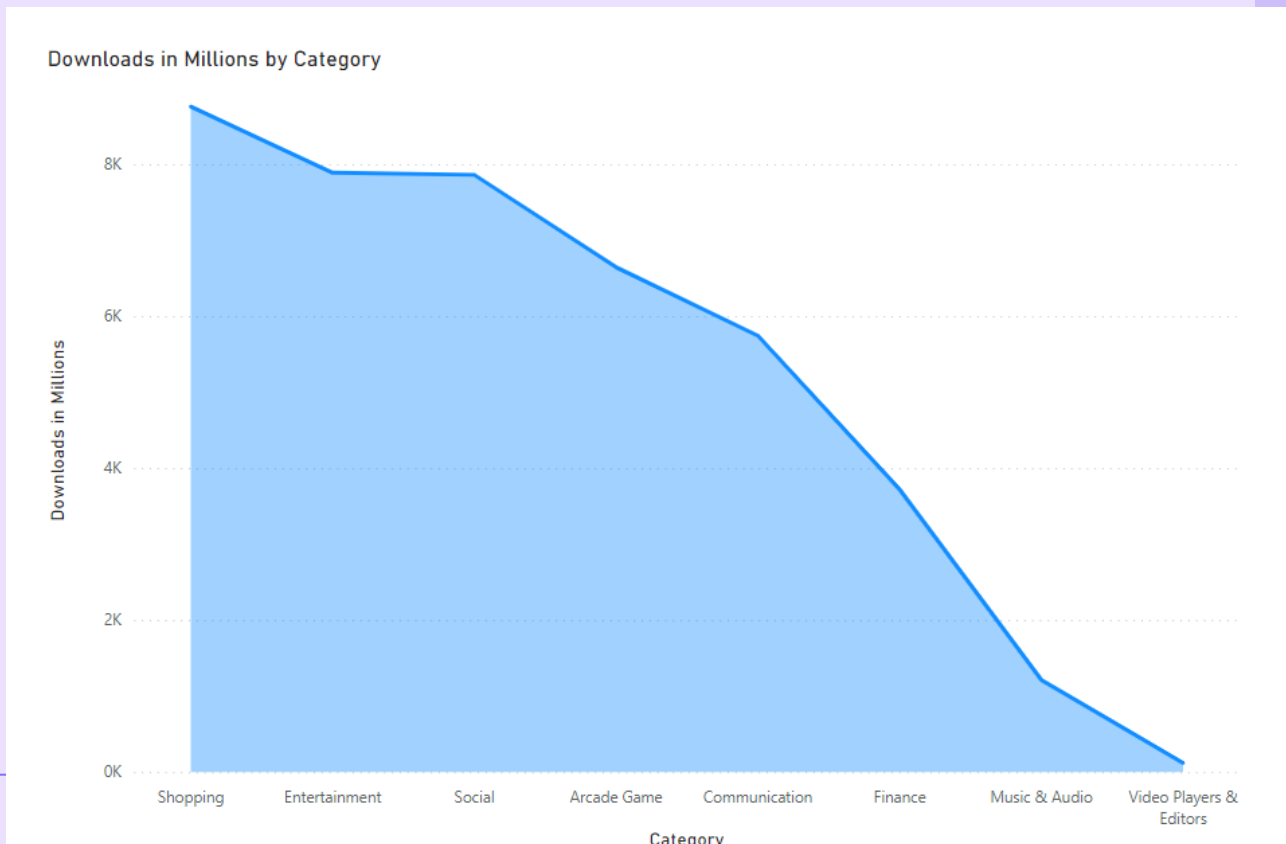
Age Group ● 15-24 years ● 18-34 years ● 25-34 years ● 9-18 years



# SAMPLE VISUALIZATION



# SAMPLE VISUALIZATION





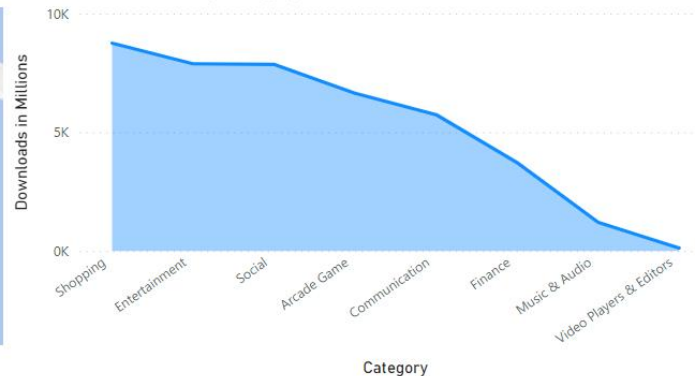
# SAMPLE DASHBOARD

Downloads in Millions by Country and Age Group

Age Group ● 15-24 years ● 18-34 years ● 25-34 years ● 9-18 years

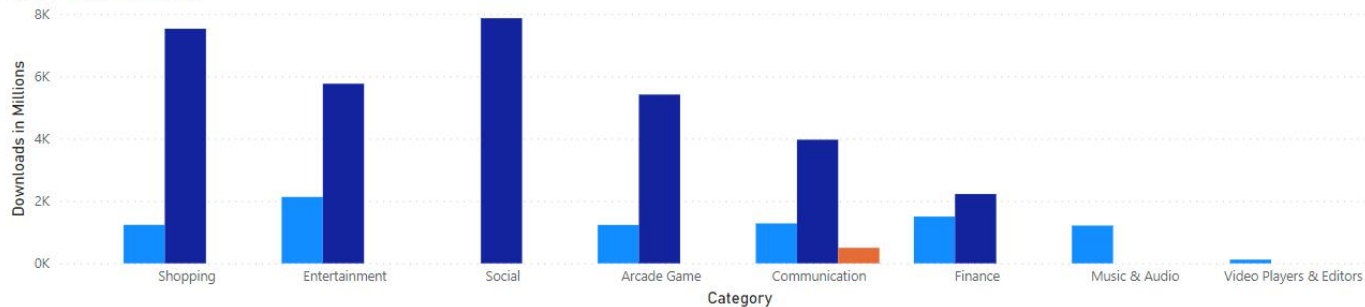


Downloads in Millions by Category



Downloads in Millions by Category and Review

Review ● Bad ● Good ● Nil





# REFERENCES

## LINKS:

- Dataset taken from <https://www.kaggle.com/datasets/lava18/google-play-store-apps?resource=download&select=googleplaystore.csv>
- Visualisations done on <https://powerbi.microsoft.com>
- <https://docs.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-types-for-reports-and-q-and-a>

## BOOK:

- Interactive Data Visualization Foundations, Techniques, and Applications

By Matthew Ward, Georges Grinstein & Daniel Keim.





# THANKS

