



INNOMATICS

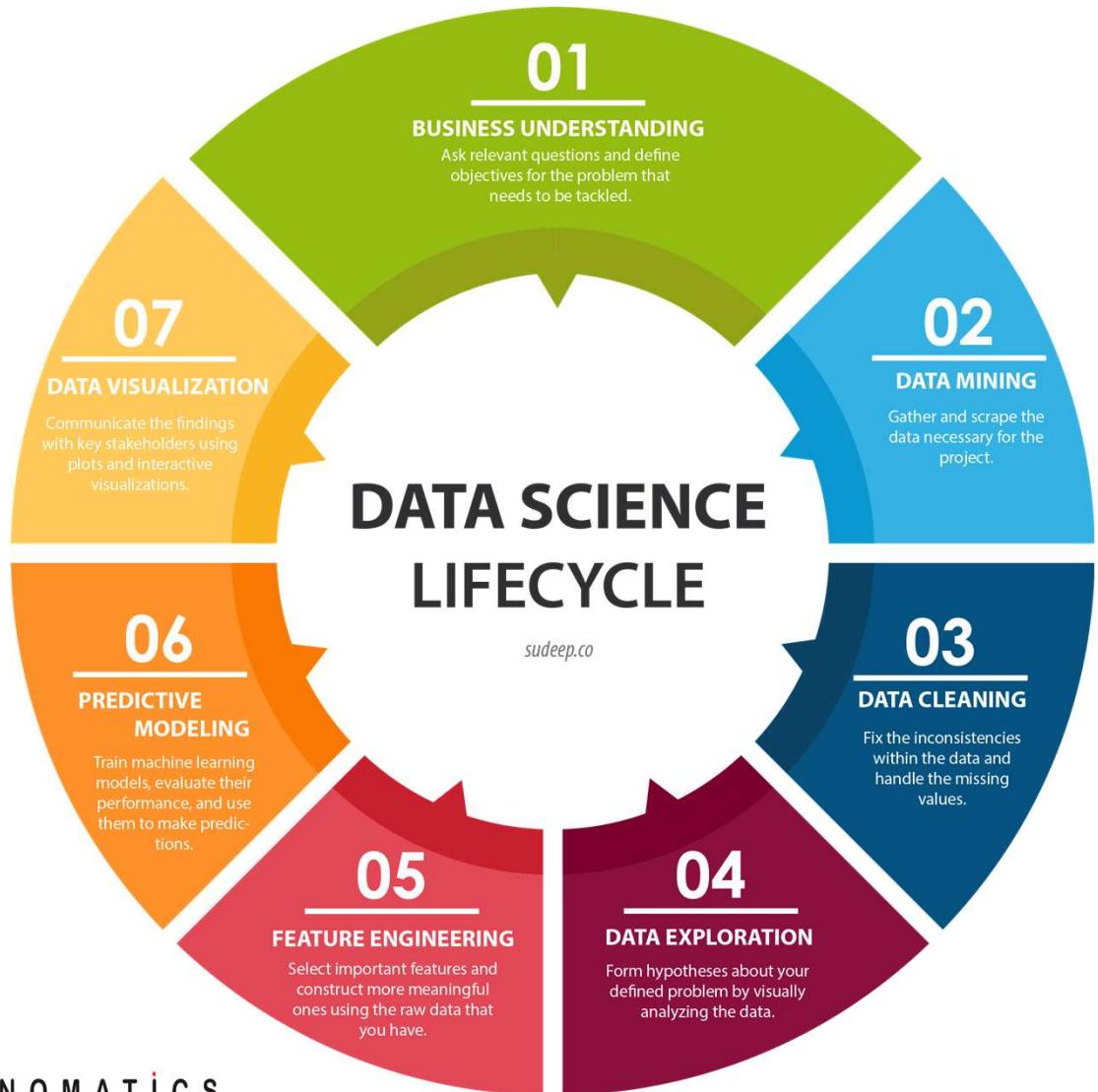
RESEARCH LABS





GOOGLE PLAY STORE ANALYSIS

-By Payal Rajguru
Pravalika Mukalla



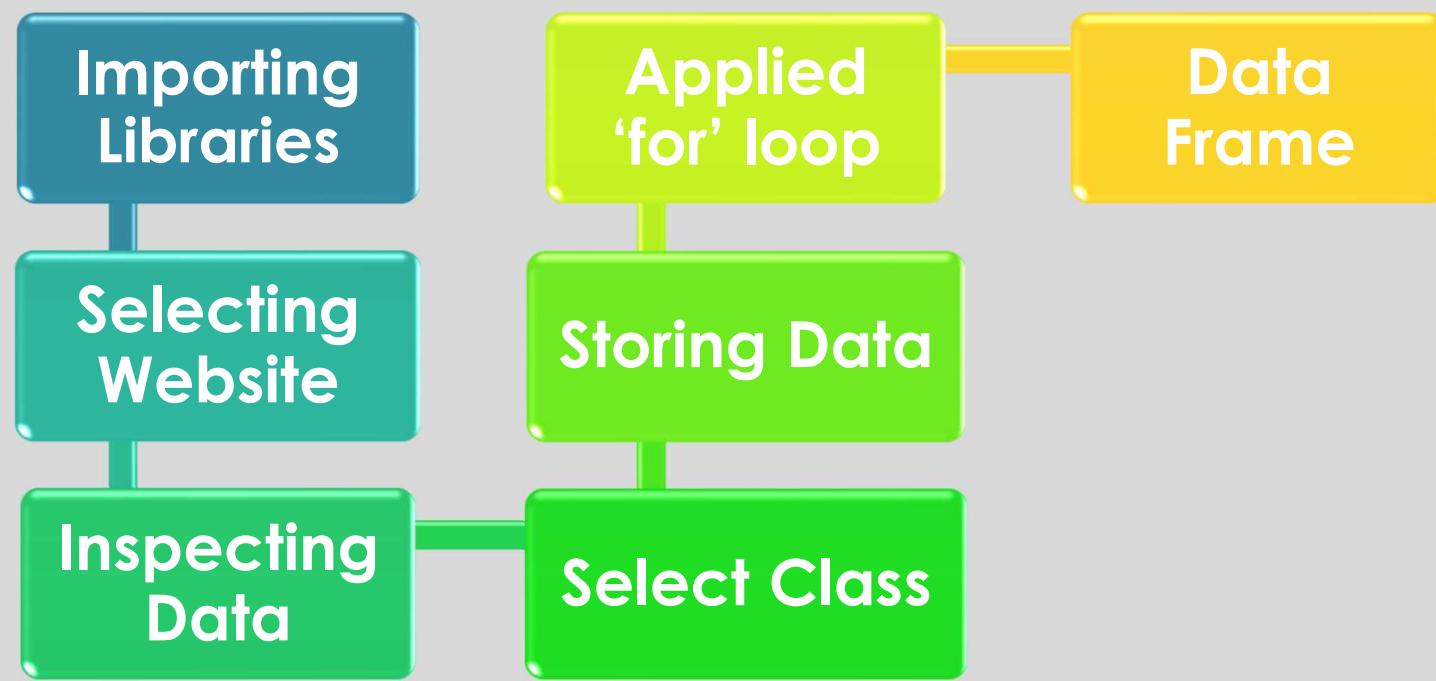
Data Science Life Cycle

- Business Understanding
- Data Mining
- Data Cleaning
- Data Exploration
- Feature Engineering
- Predict Modeling
- Data Visualization

What is Web Scraping



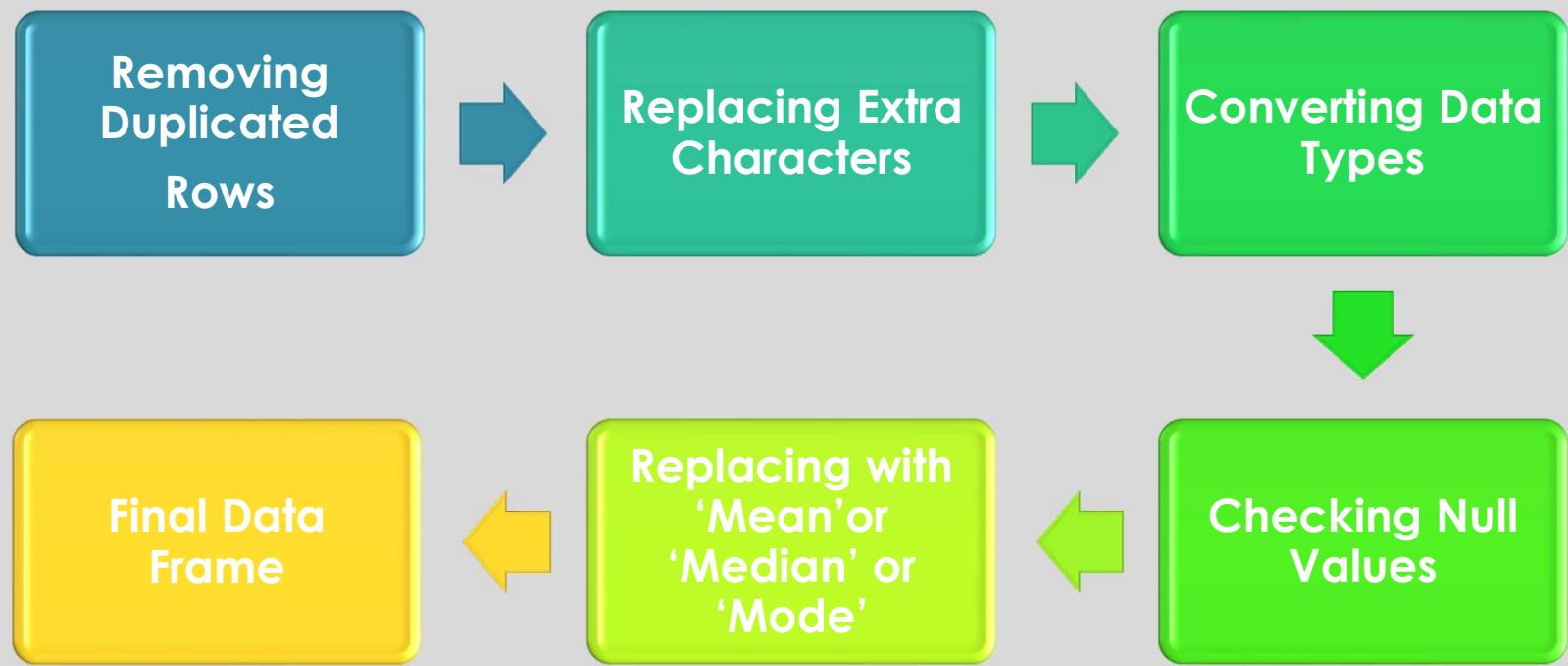
How We Performed Data Scraping



Data Frame Before Cleaning

	App_Names	No_Of_Installs	Rating	Category	No_Of_Review	Size	Last_Update	Developer	Current_Version	Required_Android
0	Women Workout at Home - Female Fitness	50,000,000+	4.8	Health & Fitness	474,119	17M	September 18, 2021	Leap Fitness Group	1.2.5	4.4 and up
1	cult.fit Fitness, Meditation, Healthy food, Do...	5,000,000+	4.6	Health & Fitness	97,727	Varies with device	September 24, 2021	Curefit Healthcare Pvt. Ltd.	Varies with device	Varies with device
2	Google Fit: Activity Tracking	100,000,000+	3.9	Health & Fitness	469,685	Varies with device	September 23, 2021	Google LLC	Varies with device	Varies with device
3	30 Day Fitness Challenge - Workout at Home	10,000,000+	4.8	Health & Fitness	598,899	21M	August 20, 2021	Leap Fitness Group	2.0.14	5.0 and up
4	FitOn - Free Fitness Workouts & Personalized P...	5,000,000+	4.6	Health & Fitness	50,594	50M	September 5, 2021	FitOn	4.2	4.1 and up

Data Cleaning



Data Frame After Cleaning

	App_Names	No_Of_Installs	Rating	Category	No_Of_Review	Size_in_MegaBytes	Last_Update	Developer
0	Women Workout at Home - Female Fitness	50000000.0	4.8	Health & Fitness	474119.0	17.0	2021-09-18	Leap Fitness Group
1	cult.fit Fitness, Meditation, Healthy food, Do...	5000000.0	4.6	Health & Fitness	97727.0	17.0	2021-09-24	Curefit Healthcare Pvt. Ltd.
2	Google Fit: Activity Tracking	100000000.0	3.9	Health & Fitness	469685.0	17.0	2021-09-23	Google LLC
3	30 Day Fitness Challenge - Workout at Home	10000000.0	4.8	Health & Fitness	598899.0	21.0	2021-08-20	Leap Fitness Group
4	FitOn - Free Fitness Workouts & Personalized P...	5000000.0	4.6	Health & Fitness	50594.0	50.0	2021-09-05	FitOn
...
307	Feisar Watch Face	100000.0	4.4	Watch faces	3349.0	17.0	2021-09-26	thema
308	Marine Commander Watch Face for WearOS	500000.0	4.3	Watch faces	7752.0	17.0	2021-01-29	Bosenko

Challenges Faced

While Scraping

- Some URL's are not working properly.
- Removing extra characters
- Merging Data Frames

While Cleaning

- During Data Type Conversion
- While replacing extra characters

Business Idea

C A T E G O R I E S



Health



Travel & Local



Clothing



Finance



Entertainment



Weather



Social

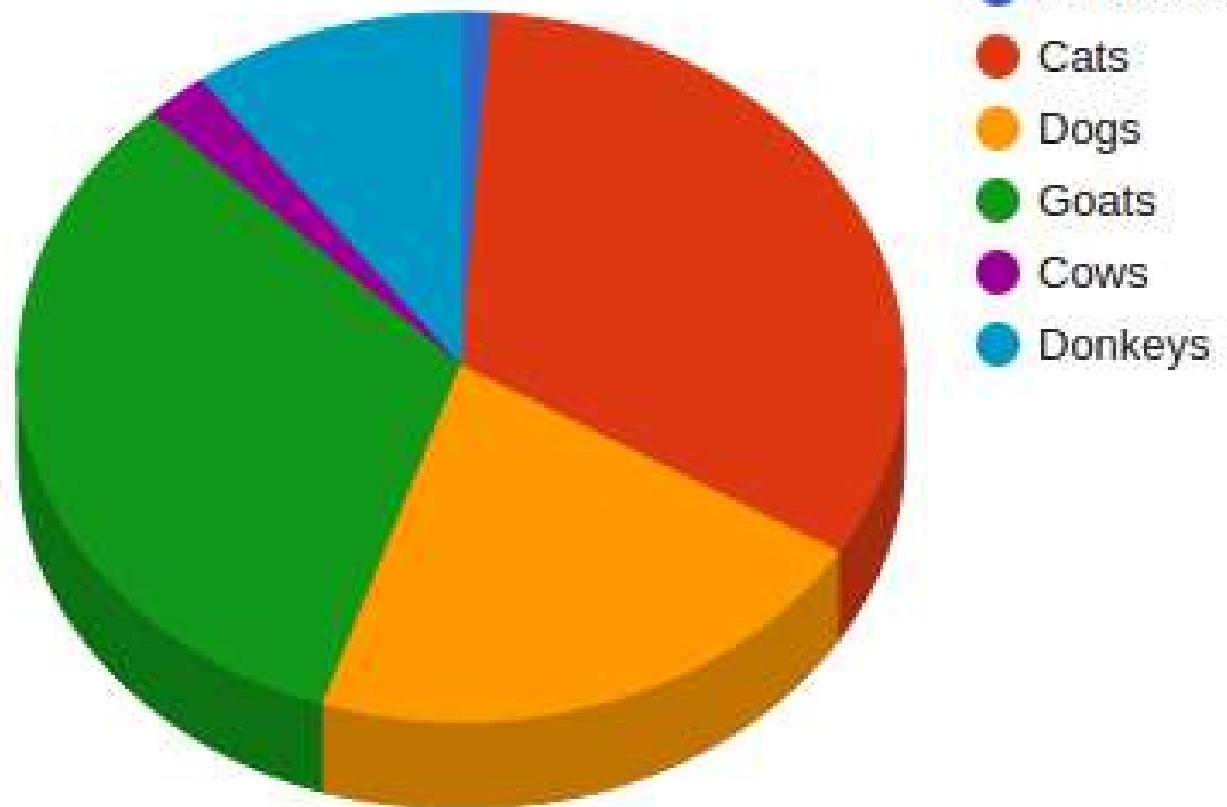


House & Home



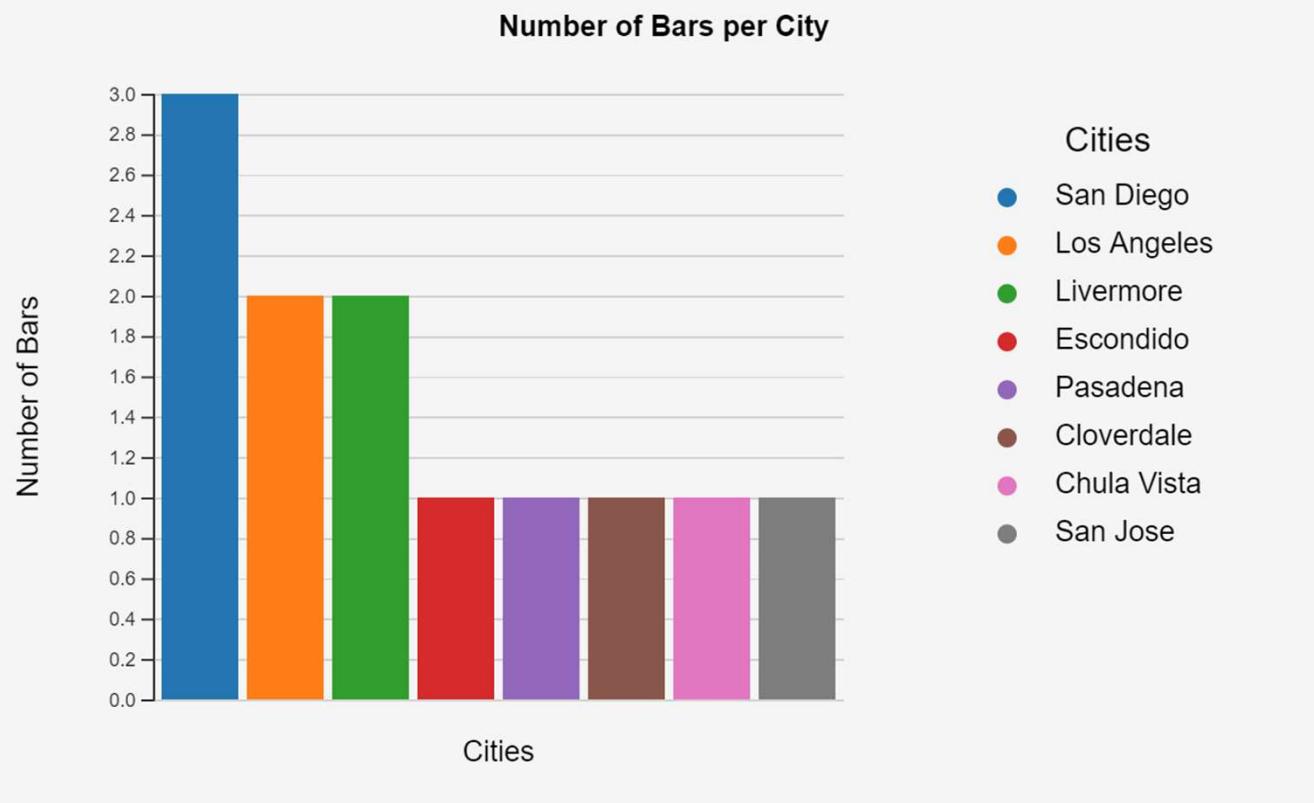
Sports

Animals



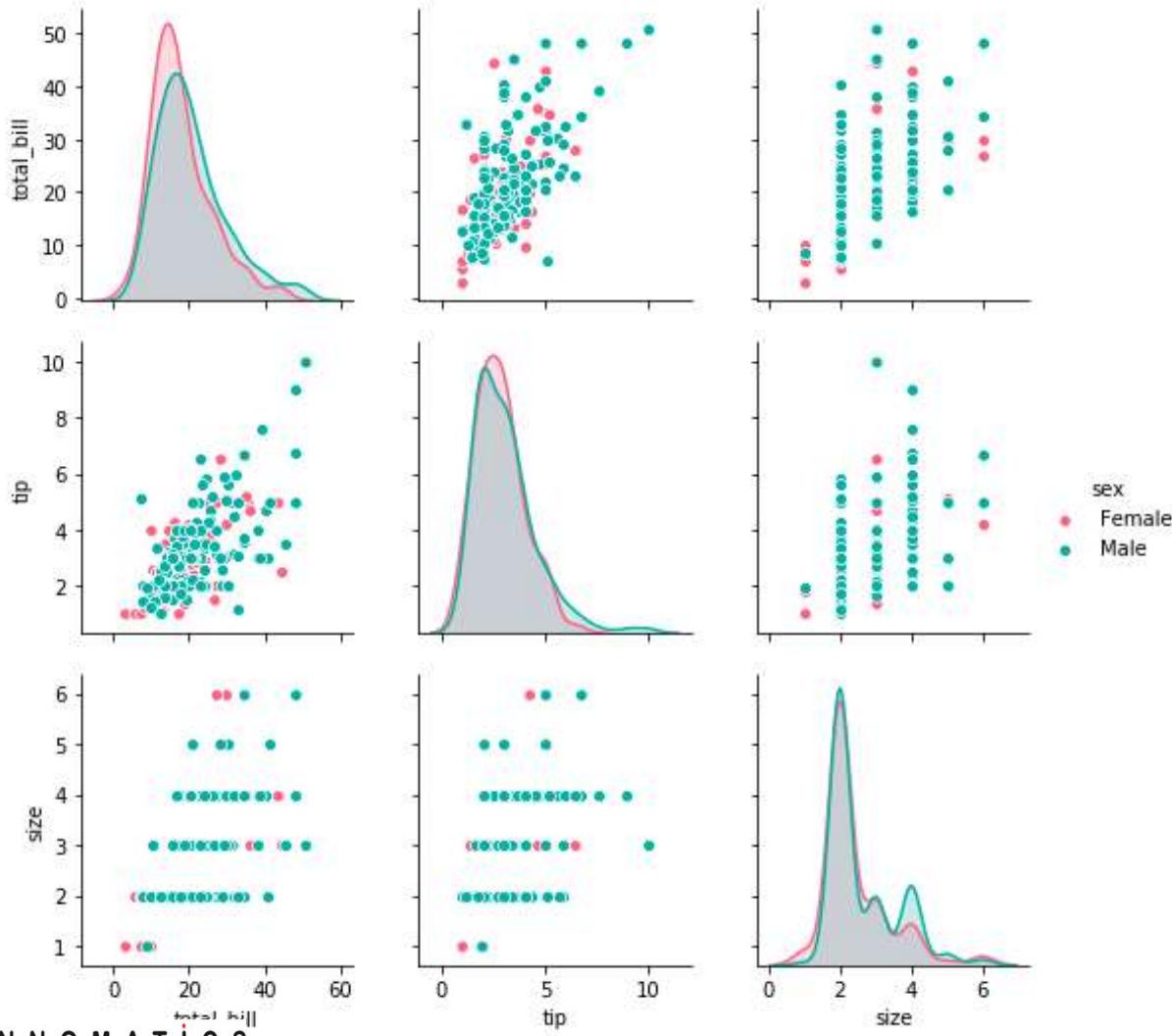
Univariate Graph

- It is visual representation of data whose values depend on only one variable.
- It is used to describe only one characteristics.



Bivariate Graph

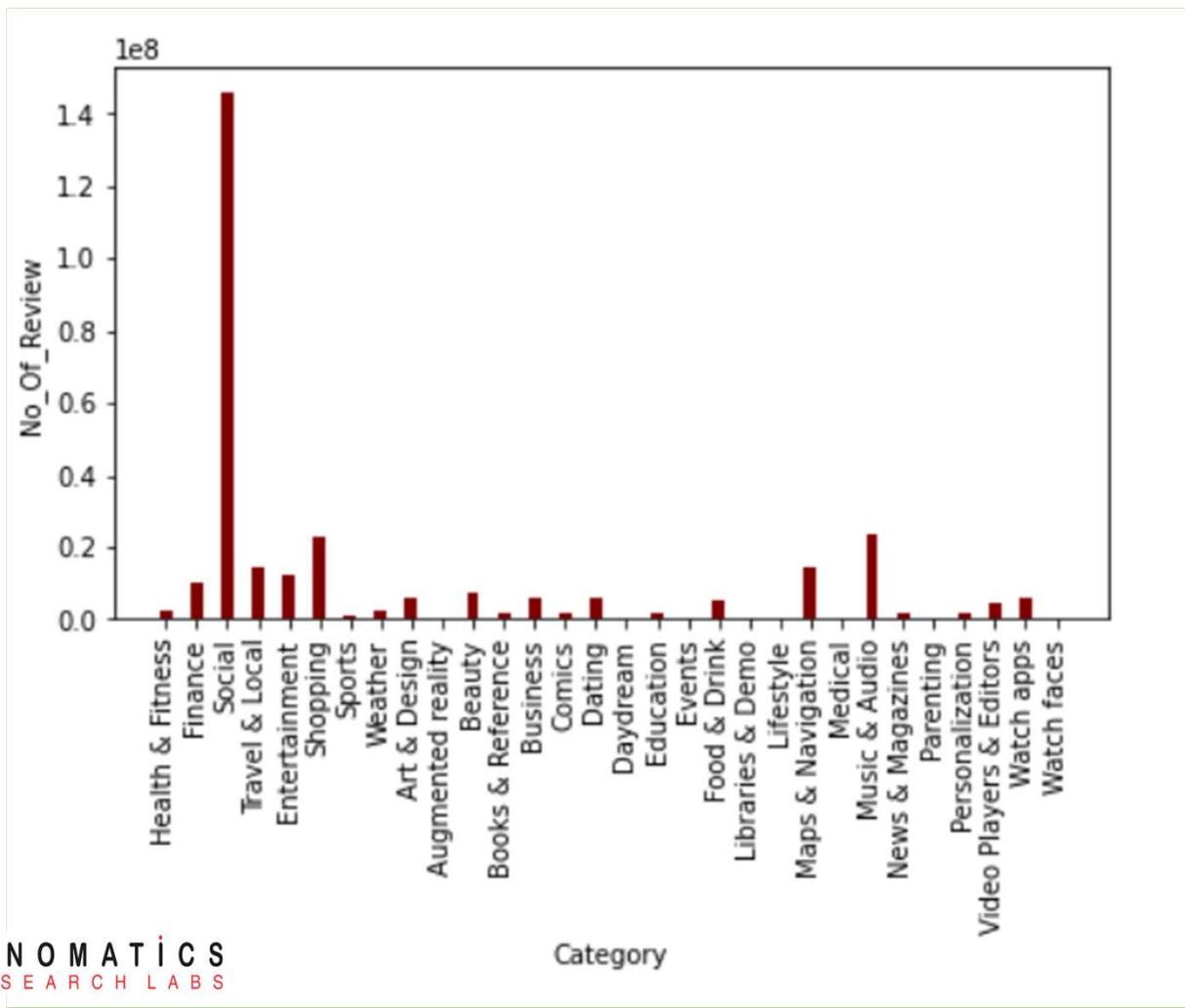
- It is visual representation of data whose values depend on two variables.
- It shows the relation how one variable changes with another variable.



Multivariate Graph

- It is visual representation of data whose values depend on three or more variables.
- It helps us to see correlation between different variables.

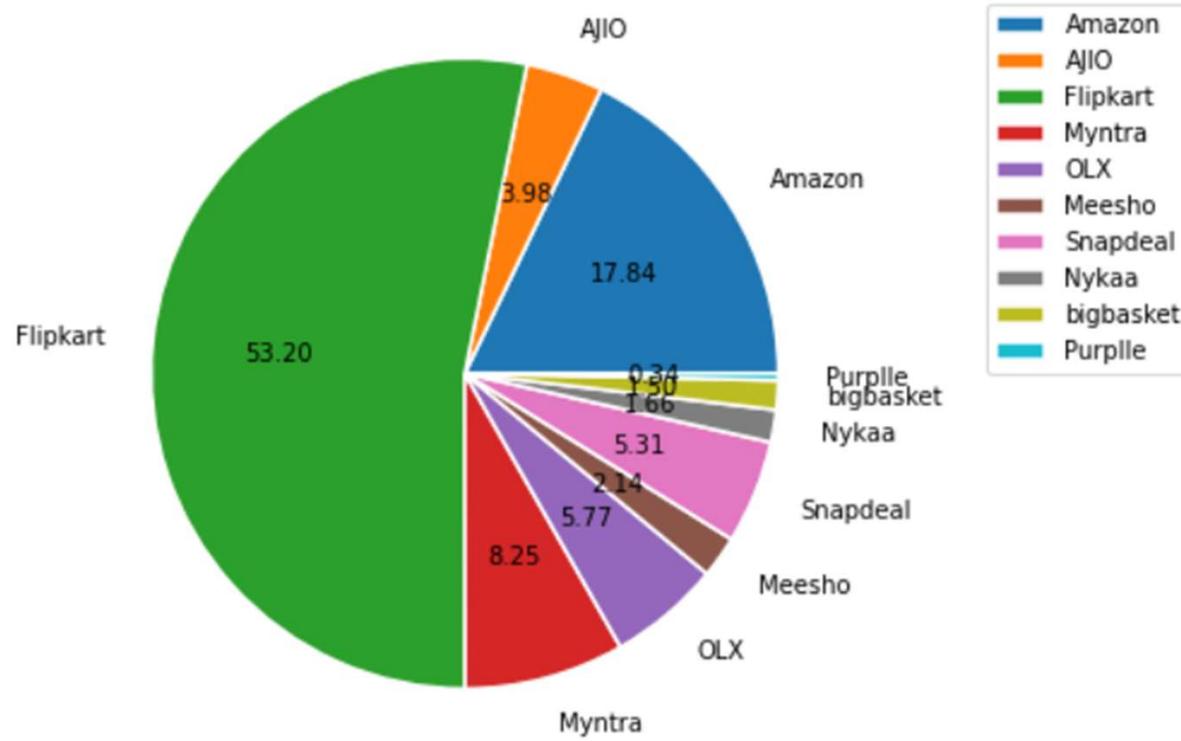
Category Vs Number of Reviews



Review

- 1.Which is Most reviewed category?
- 2.Which is least review category?
- 3.Which app is most reviewed among all apps?
 - **WhatsApp**
4. Which app is least reviewed among all apps
 - **All Sports & Battery Daydream**

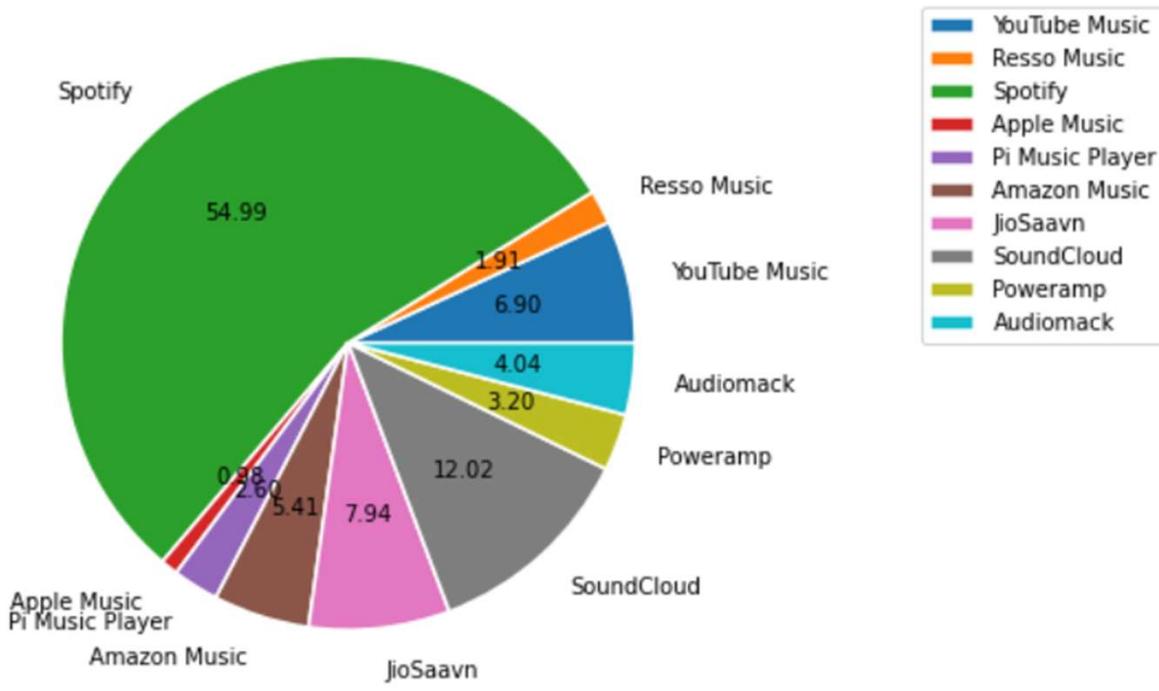
Shopping(Review)



Shopping Category

- 1.Which app has maximum reviews in Shopping category?
 - **Flipkart** has maximum review in shopping.
- 2.Which app has minimum reviews in Shopping category?
 - **Purplle** has minimum reviews in Shopping.

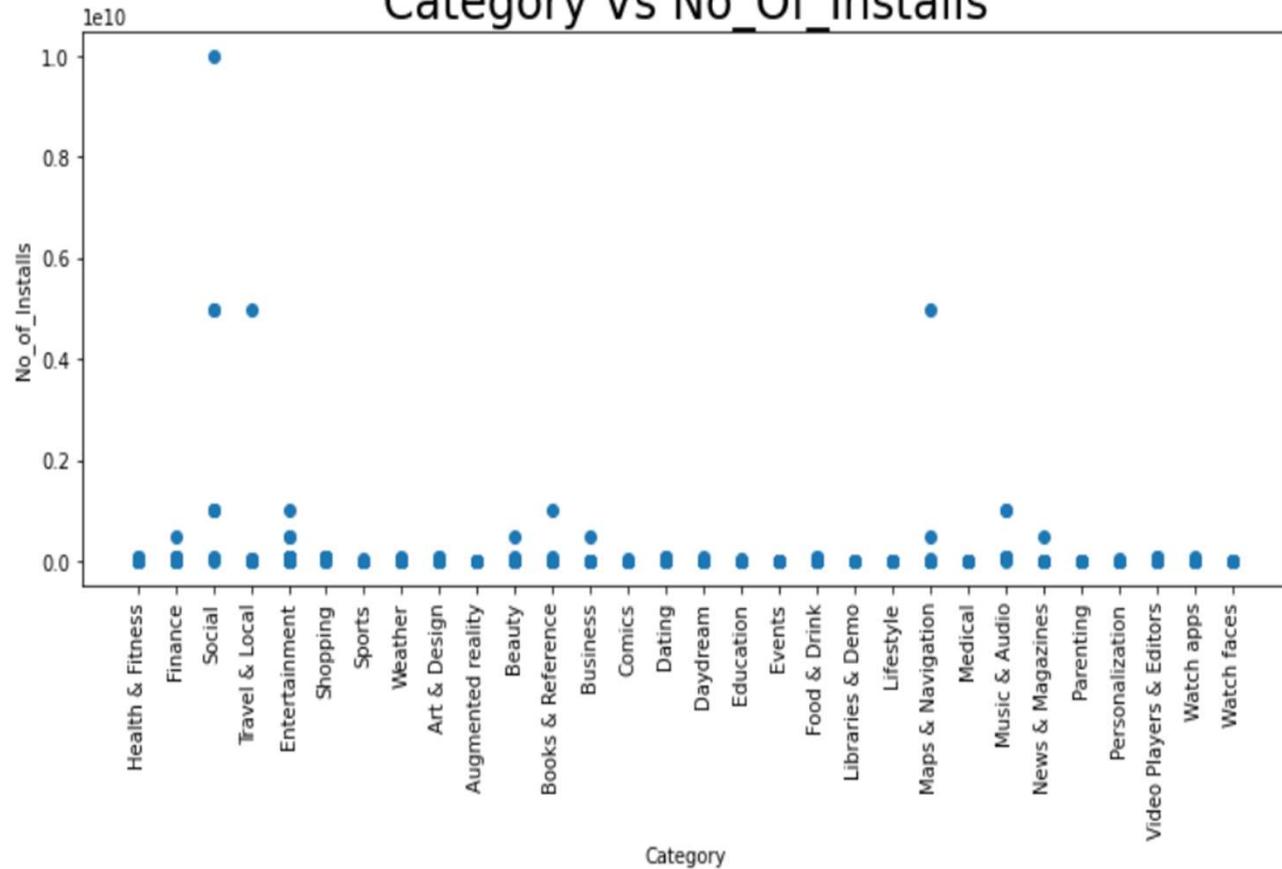
Music(Review)



Music

- 1.Which was the most reviewed app in Music category?
 - **Spotify** is most reviewed Music App.
2. Which was the least reviewed app in Music category?
 - **Apple music** is the most reviewed Music app

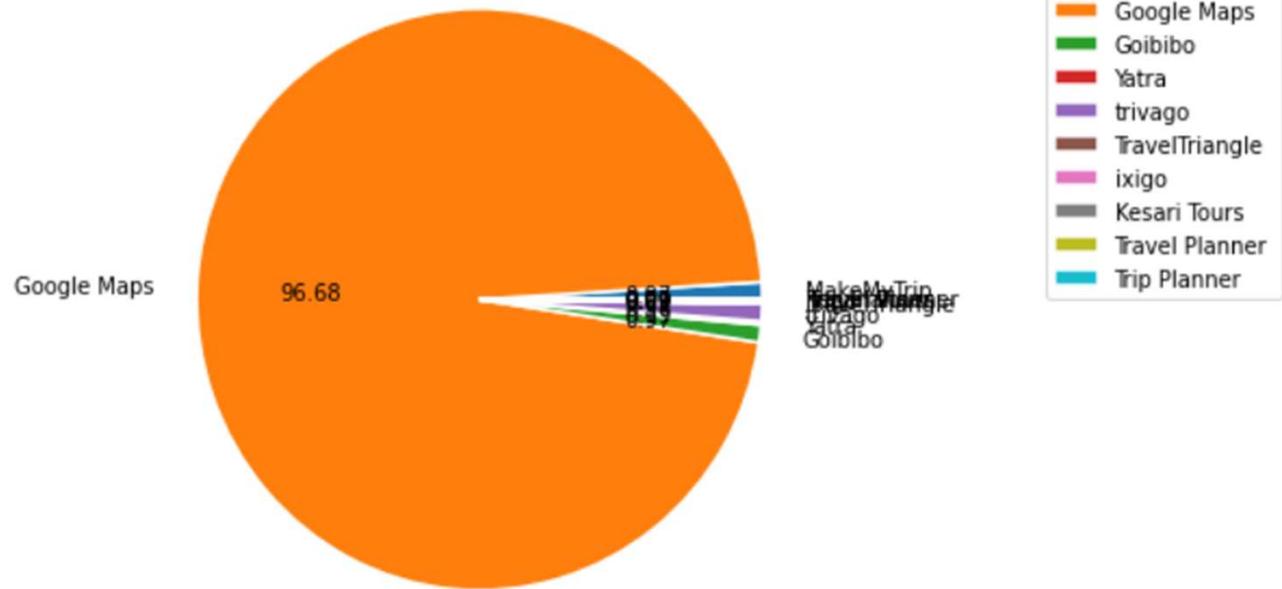
Category Vs No_Of_Installs



Number Of Installs

1. Which is the most installed all categories?
2. Which is the least installed categories?
3. Which is the most installed app among all apps?
 - **YouTube**
4. Which is the least installed app among all apps?
 - **News & Magazines**

Travel and Local (Number of Installs)



Travel & Local

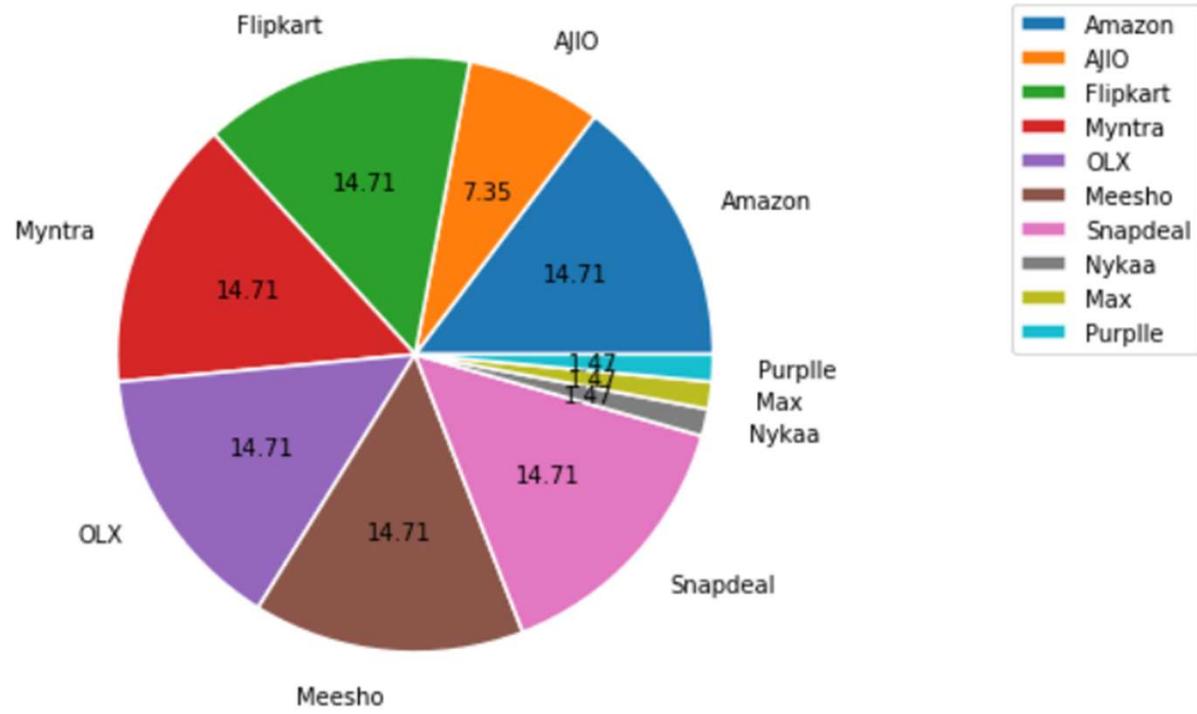
1.Which is most installed app in Travel and local category?

- **Google Maps** is most installed app in Travel and local category.

2.Which is least installed app in Travel and local category?

- **Kesari tour and trip planner** is least installed app.

Shopping (Number of installs)



Shopping

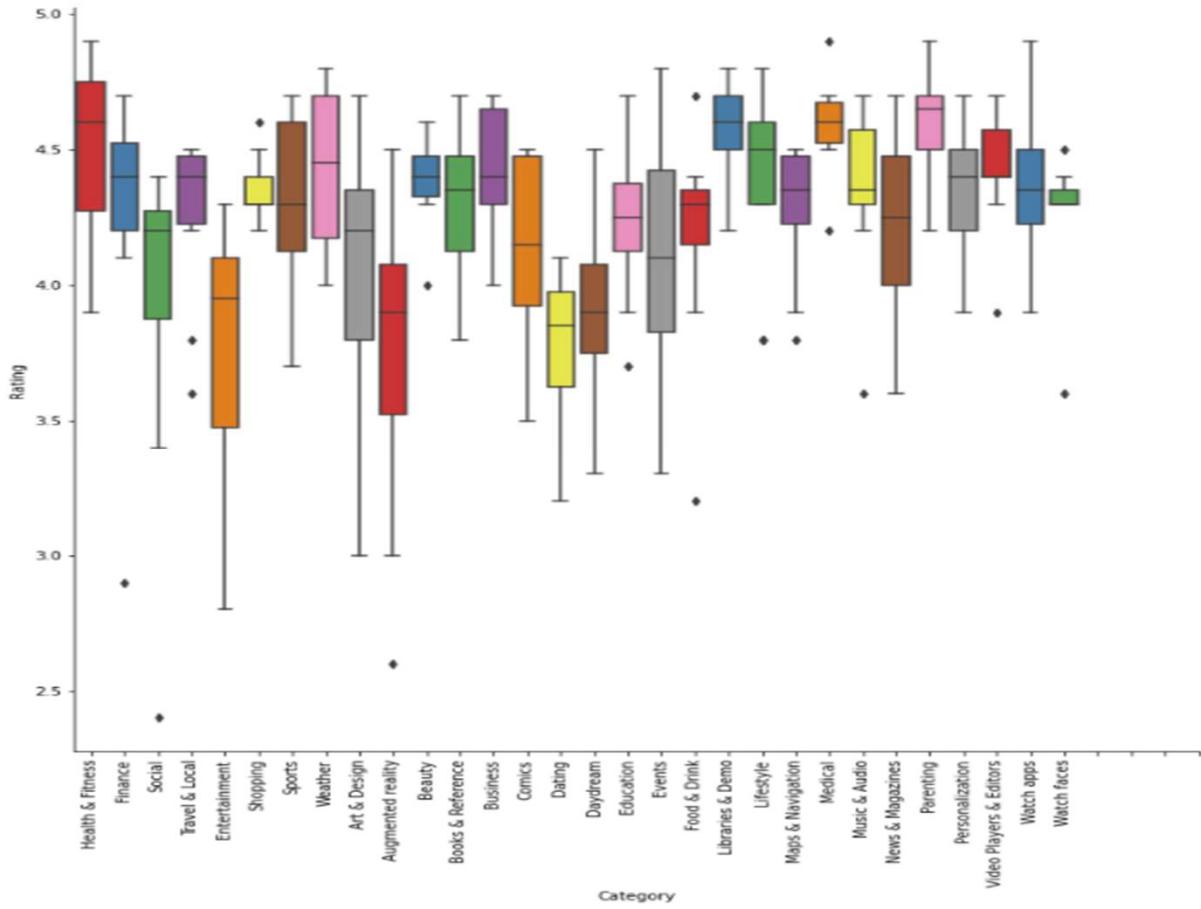
1. Which are most installed apps in Shopping category?

- **OLX , Meesho, Snapdeal** are most installed Shopping Apps.

2. Which are least installed apps in Shopping category?

- **Purple , Max , Nykaa** are least installed Shopping Apps

Rating Vs Category



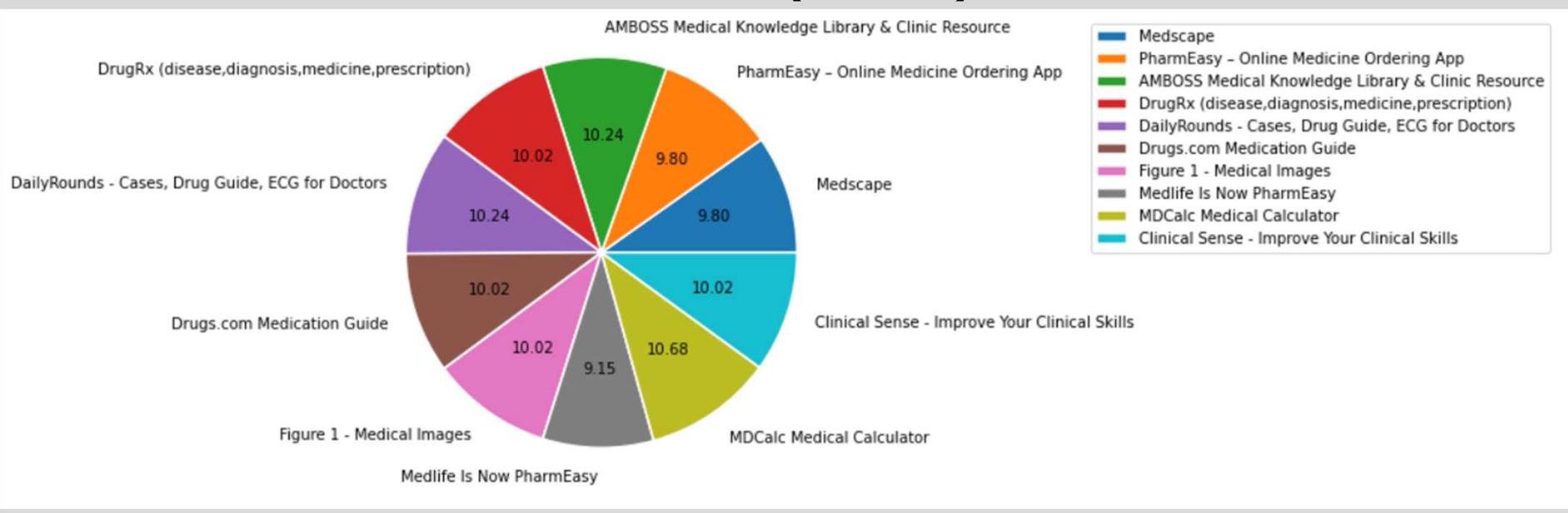
Rating

1. Which Category is most rated Category?
2. Which Category is least rated Category?
3. Which App is most rated app?
 - **HomeWorkout & Medical Calculator**
4. Which Apps are least rated apps?
 - **Facebook**

Medical

- 1.Which is most rated app in Medical Category?
2. Which is least rated app in Medical Category?

Medical (Review)

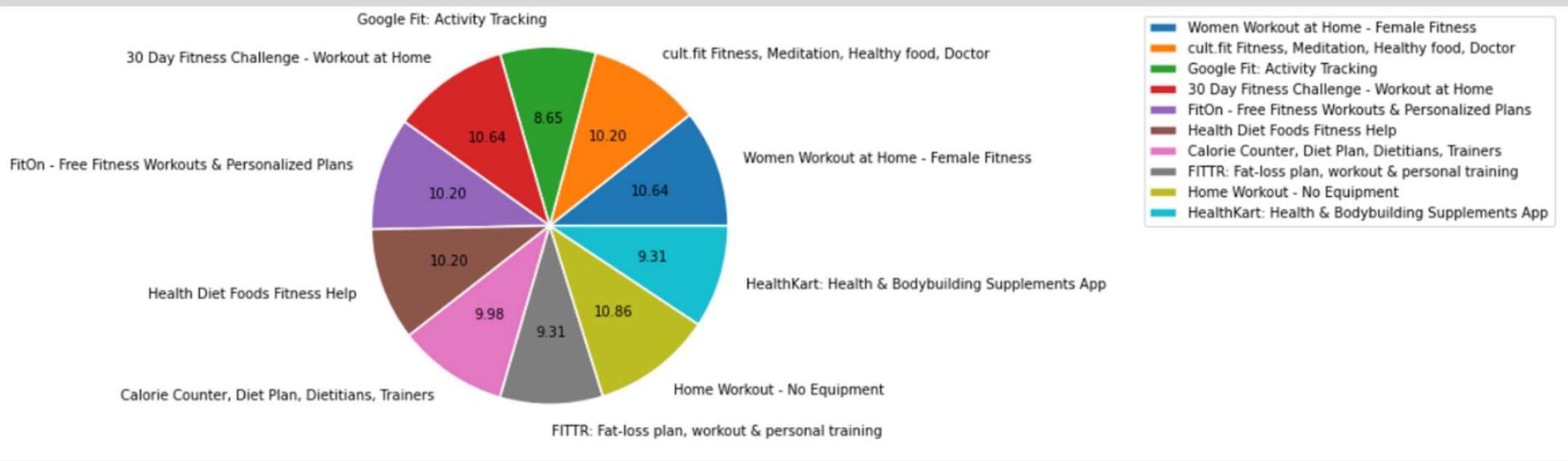


Health & Fitness

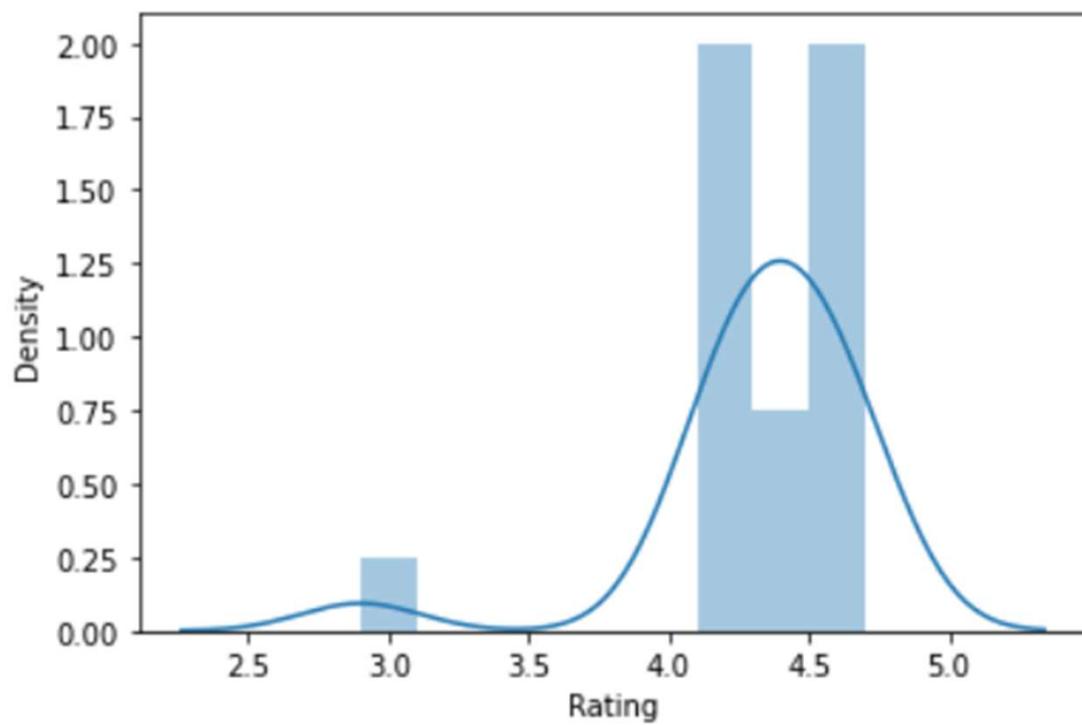
1.Which is most rated app in this category?

2.Which is least rated app in this category?

Health and Fitness (Rating)



Finance(Rating)



Finance

- 1.Which is the least rated app in finance category?
 - **Spendee - Budget and Expense Tracker & Planner** is Least Rated Finance App
- 2.Which is the most rated app in finance category?
 - **CRED is most rated finance app**

Size In MegaBytes

1.Which category has the largest size?

2.Which category has smallest size?

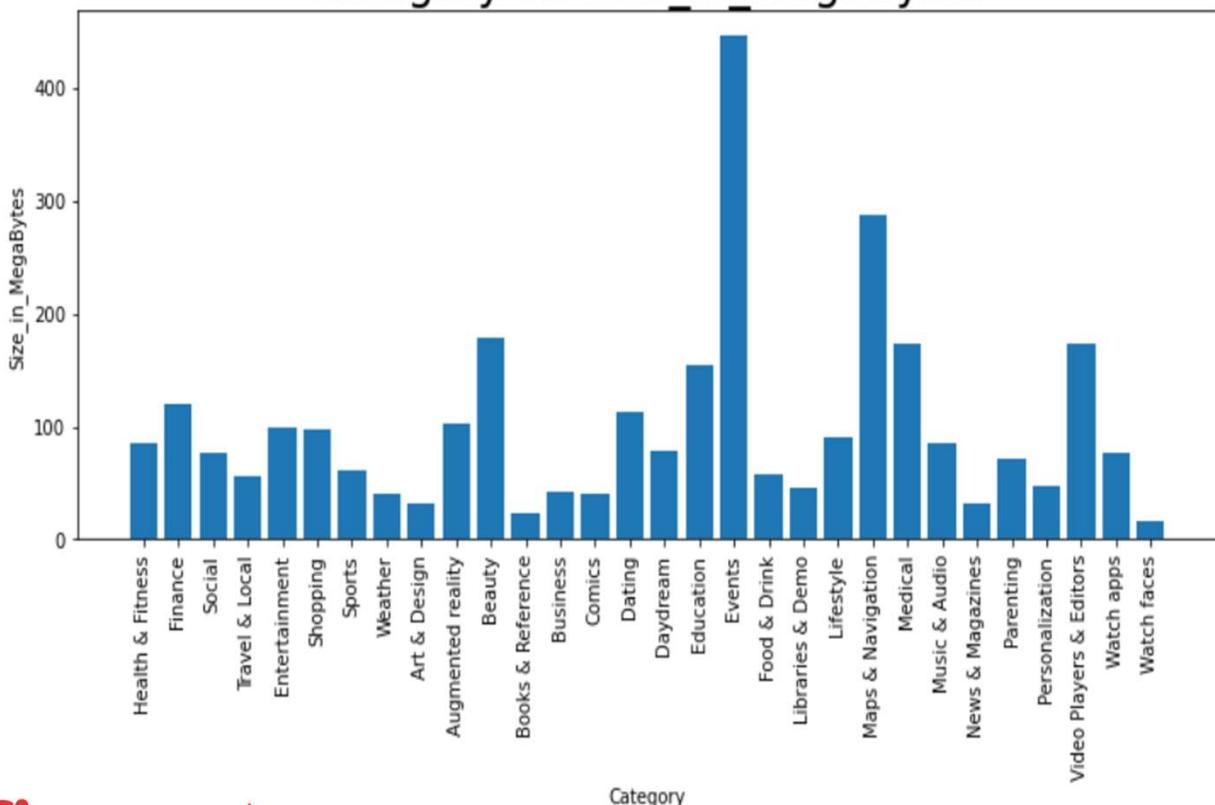
3.Which app has largest size?

- Whova-Event & Conference App**

4.Which app has smallest size?

- Lucid Daydream App**

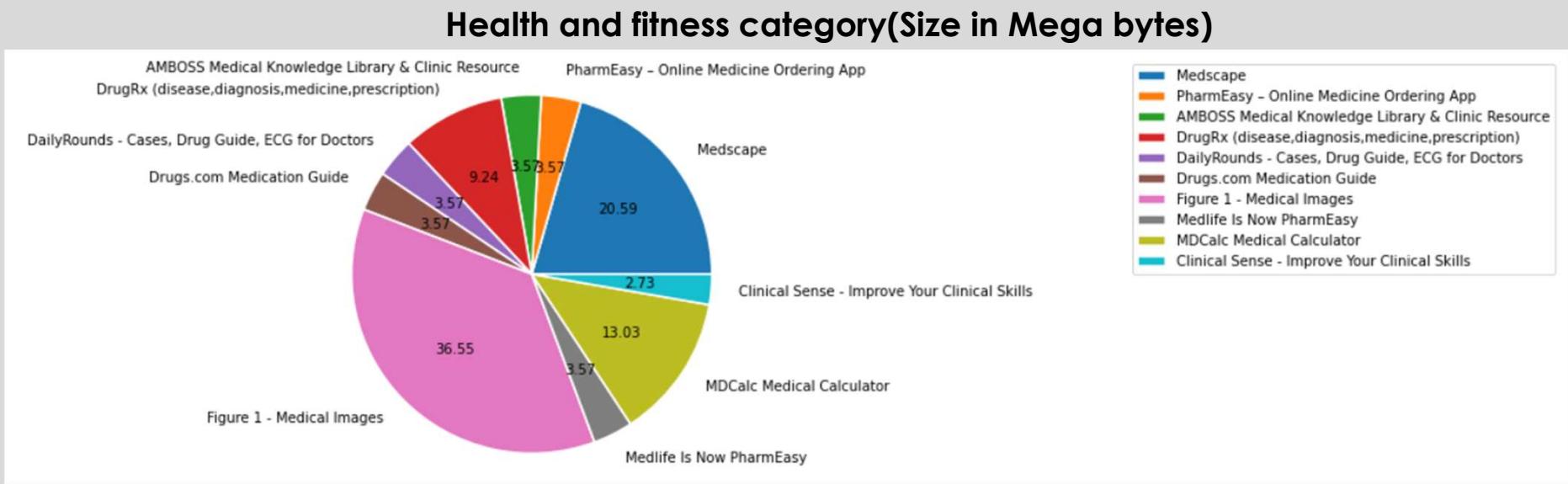
Category Vs Size_in_MegaBytes



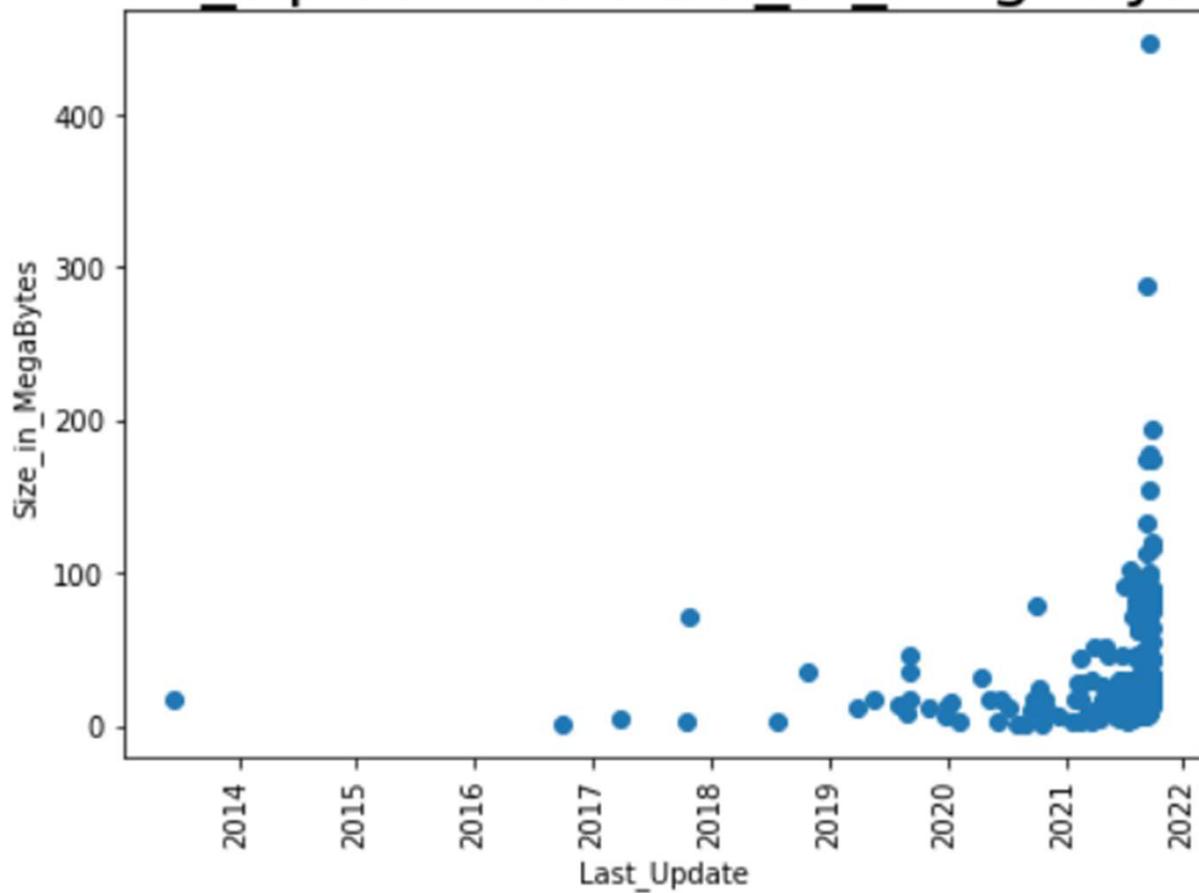
Medical

1.Which app has smallest size in this category?

2.Which app has large size in this category?



Last_Update Vs Size_in_MegaBytes



Last Update

- 1.What do you observe from the graph?
 - The size of app is increased after updating.
- 2.How many apps are recently updated?
 - **13 apps**

	App_Names	No_Of_Installs	Rating	Category	No_Of_Review	Size_in_MegaBytes	Last_Update	Developer
2	Google Fit: Activity Tracking	1.000000e+08	3.9	Health & Fitness	4690885.0	17.0	2021-09-23	Google LLC
11	Google Pay: Save, Pay, Manage	5.000000e+08	4.2	Finance	6743758.0	17.0	2021-09-23	Google LLC
13	PhonePe: UPI, Recharge, Investment, Insurance	1.000000e+08	4.3	Finance	7132435.0	17.0	2021-09-23	PhonePe
15	PayPal Mobile Cash: Send and Request Money Fast	1.000000e+08	4.3	Finance	2174584.0	116.0	2021-09-23	PayPal Mobile
17	Growth - Stocks, Demat, Mutual Fund, SIP	1.000000e+07	4.3	Finance	355781.0	17.0	2021-09-23	Growth - Stock Trading, Demat, Mutual Funds, SIP
19	ETMONEY: Mutual Funds, SIP, Portfolio Tracking...	5.000000e+06	4.5	Finance	123002.0	27.0	2021-09-23	Times Internet Limited
27	MX TakaTak Short Video App Made in India for...	1.000000e+08	4.2	Social	760820.0	17.0	2021-09-23	MX Media (formerly J2 Interactive)
41	ZEE5: Movies, TV Shows, Web Series, News	1.000000e+08	3.4	Entertainment	1147298.0	17.0	2021-09-23	ZEE Global FZ LLC
45	Amazon Prime Video	1.000000e+08	4.3	Entertainment	3004249.0	17.0	2021-09-23	Amazon Mobile LLC
46	Netflix	1.000000e+09	4.3	Entertainment	12101864.0	17.0	2021-09-23	Netflix, Inc.
59	Purple: Beauty Shopping App. Buy Cosmetics On...	1.000000e+07	4.5	Shopping	144828.0	17.0	2021-09-23	Purple.com
83	Canva: Graphic Design, Video Collage, Logo Maker	1.000000e+08	4.7	Art & Design	5971090.0	32.0	2021-09-23	Canva
101	Purple: Beauty Shopping App. Buy Cosmetics On...	1.000000e+07	4.5	Beauty	144828.0	17.0	2021-09-23	Purple.com
148	Woo - The Dating App Women Love	1.000000e+07	4.1	Dating	107227.0	45.0	2021-09-23	DoubleYou Pte Ltd.
161	DIKSHA - Platform for School Education	1.000000e+07	4.3	Education	353659.0	17.0	2021-09-23	Ministry of Education, Govt of India
173	ZEE5: Movies, TV Shows, Web Series, News	1.000000e+08	3.4	Entertainment	1147308.0	17.0	2021-09-23	ZEE Global FZ LLC
203	EatSure - Order Food Food court on an app	5.000000e+06	4.3	Food & Drink	131790.0	18.0	2021-09-23	Rebel Marketplace Private Limited
224	Fabulous: Daily Routine Planner	1.000000e+07	4.6	Lifestyle	426087.0	90.0	2021-09-23	TheFabulous
246	YouTube Music	1.000000e+09	4.3	Music & Audio	2973674.0	17.0	2021-09-23	Google LLC
253	SoundCloud - Play Music, Podcasts & New Songs	1.000000e+08	4.7	Music & Audio	5177074.0	83.0	2021-09-23	SoundCloud
263	Vikatan News App: Magazine & Latest News Publi...	1.000000e+06	4.7	News & Magazines	26235.0	31.0	2021-09-23	VIKATAN.COM PRIVATE LIMITED
287	VN Video Editor Maker VlogNow	5.000000e+07	4.6	Video Players & Editors	957524.0	174.0	2021-09-23	VN, LLC
288	Tempo - Music Video Maker	1.000000e+07	4.4	Video Players & Editors	271644.0	78.0	2021-09-23	Tempo trend video editor with effects & music....
297	Calm - Meditate, Sleep, Relax	1.000000e+07	4.3	Watch apps	436097.0	17.0	2021-09-23	Calm.com, Inc.

Developer

1.How many apps are developed by Google LLC?

- 13 apps.

Final Conclusion

REVIEW

- **Social** is the most reviewed category.
- **WhatsApp** is the most reviewed app.

NUMBER OF INSTALLS

- **Social** is most installed category.
- **YouTube** is most installed app.

RATING

- **Health and Fitness** is the most rated category.
- **Home workout , Medical calculator** are most rated apps.

SIZE

- **Events** is the largest category.
- **Whova-Event and conference** app is the largest app.



THANK
YOU!