BUS 256 - MARKETING ANALYTICS

Google Play Store App

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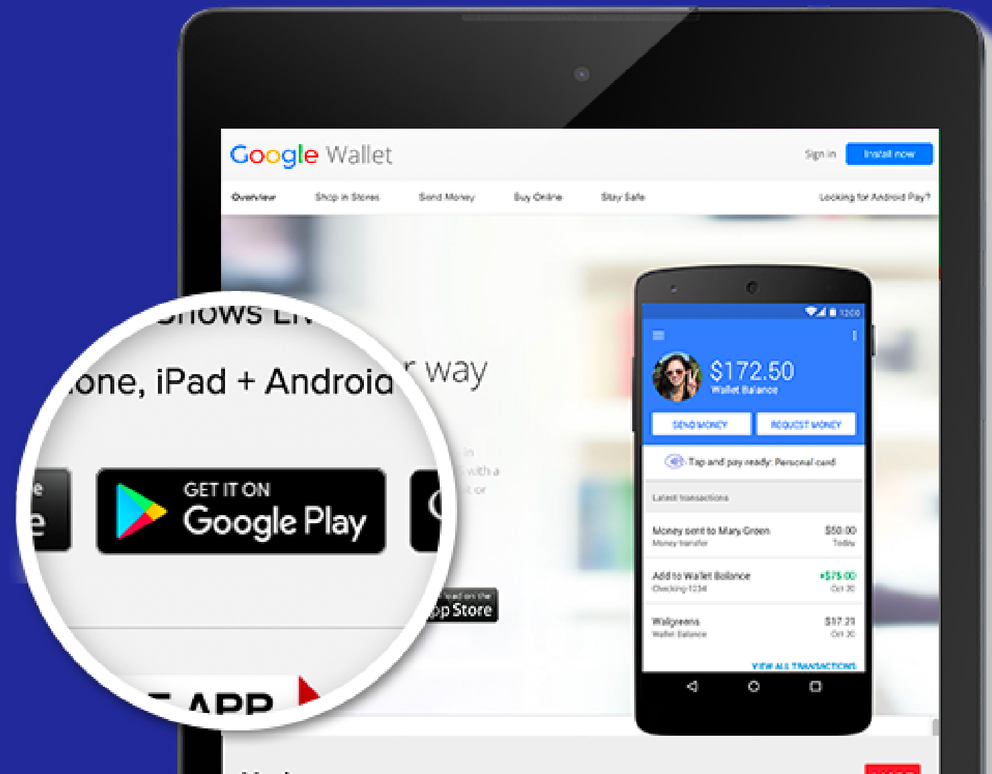
In this Presentation

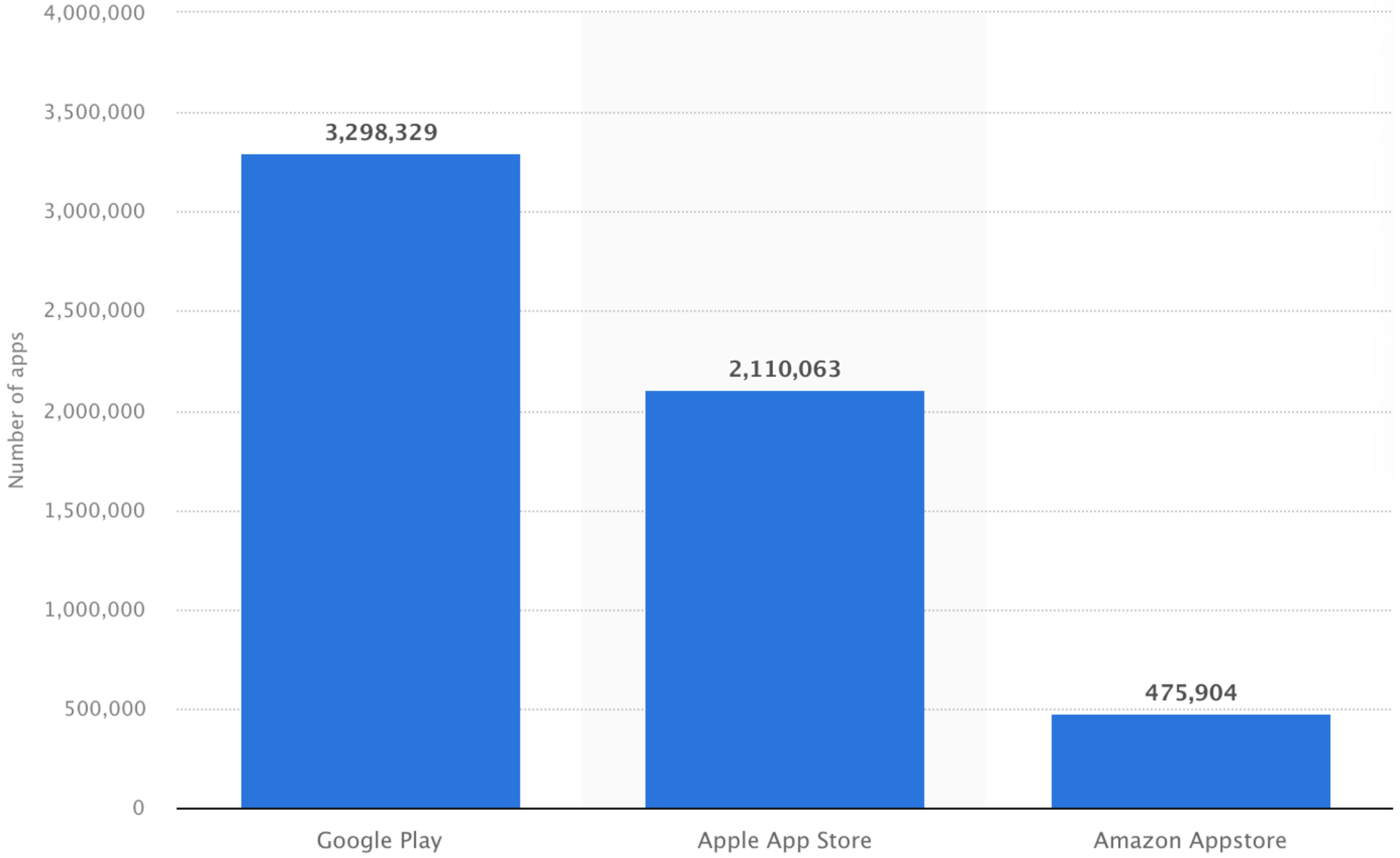
Overview

Google Play Store

- Official app store for Android devices
- Digital media store (music, books, movies, and TV shows, etc.)
- First launched in 2008 as Android Market



Google Play Store has the biggest number of apps (Q1, 2022)



Source: Statista

Project Overview

- Goal: **To identify the features attributable to an app's success.**
- Dataframes:
  Google Play Store Apps
  Google Play Store User Reviews

Hypotheses

- The category, genres, content rating, size, type, and price of an app all have an influence on its success or popularity.
- Users are more likely to leave reviews for apps that they have negative experience with.

Metrics

App (Dimension)

- App ID (Pk)
- App name
- Category
- Genres
- Content rating
- Size
- Type
- Price

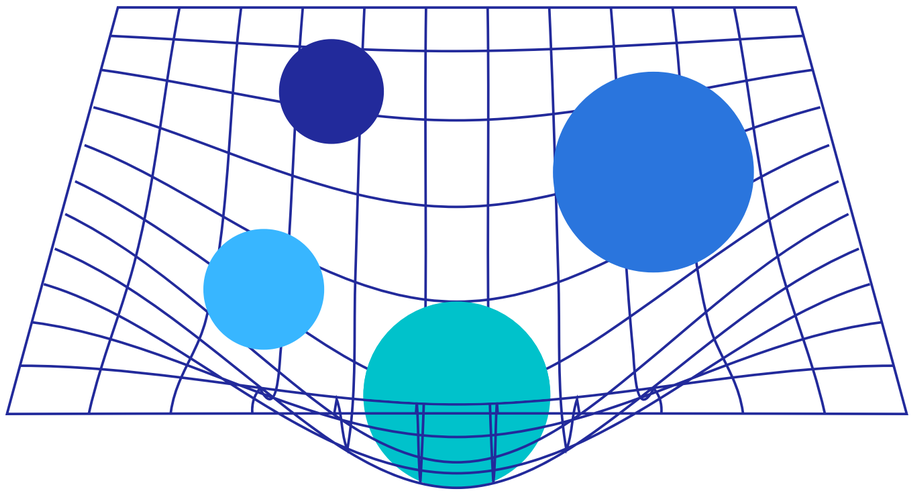
App success (Fact)

- Installs
- Ratings
- Reviews
- App ID
- Review ID

Review (Dimension)

- Review ID (Pk)
- Review sentiment
- Sentiment polarity
- Sentiment subjectivity

Data Cleansing & Standardization



Step 1 Metadata Explanation

Understand each feature

Step 2 Standardize Field Names

Rename column names and check index

Step 3 Keep Relevant Data Fields

Drop NaN values and duplicates

Step 4 Correct Feature Type

Clean the column data and Convert each column to the wanted data type

Step 5 Adjust / Add Necessary Columns

For simpler and quicker analysis purposes

Comparison before and after data cleansing

Before

```
df_1.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10841 entries, 0 to 10840
Data columns (total 11 columns):
 #   Column          Non-Null Count  Dtype
---  ------          --------------  -----
 0   App             10841 non-null  object
 1   Category        10841 non-null  object
 2   Rating          9367 non-null   float64
 3   Reviews         10841 non-null  object
 4   Size            10841 non-null  object
 5   Installs        10841 non-null  object
 6   Type            10840 non-null  object
 7   Price           10841 non-null  object
 8   Content_rating  10840 non-null  object
 9   Genres          10841 non-null  object
 10  Last_updated    10841 non-null  object
dtypes: float64(1), object(10)
memory usage: 931.8+ KB
```

After

```
df_1.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8892 entries, 0 to 8891
Data columns (total 12 columns):
 #   Column                   Non-Null Count  Dtype
---  ------                   --------------  -----
 0   App                      8892 non-null   object
 1   Category                 8892 non-null   object
 2   Rating                   8892 non-null   float64
 3   Reviews                  8892 non-null   int32
 4   Size                     8892 non-null   int32
 5   Installs                 8892 non-null   int32
 6   Type                     8892 non-null   int32
 7   Price                    8892 non-null   float64
 8   Content_rating           8892 non-null   object
 9   Genres                   8892 non-null   int32
 10  Last_updated             8892 non-null   datetime64[ns]
 11  Days_after_last_updated  8892 non-null   int64
dtypes: datetime64[ns](1), float64(2), int32(5), int64(1), object(3)
memory usage: 660.1+ KB
```

Data Description

Valid Data - Play Store App Features

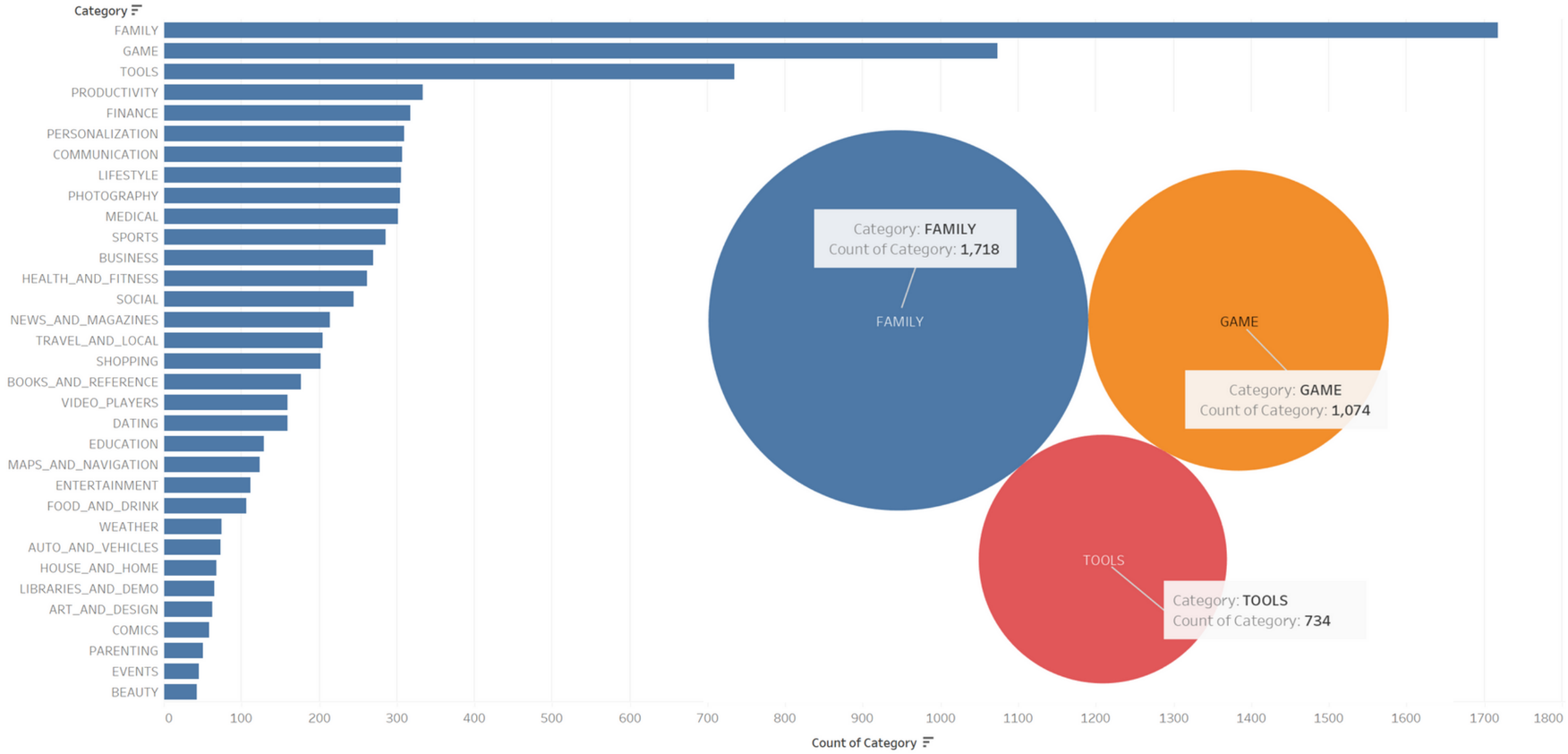
- 8,892 entries
- Total 12 columns

Valid Data - App Actual Reviews

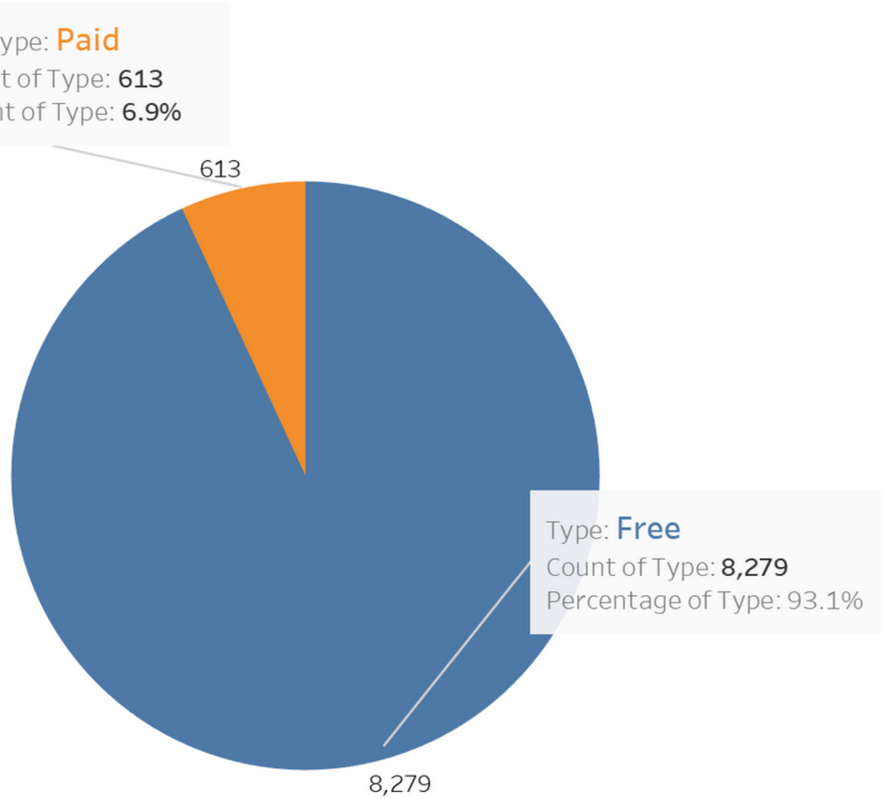
- 40,376 entries of Reviews
- 816 unique apps

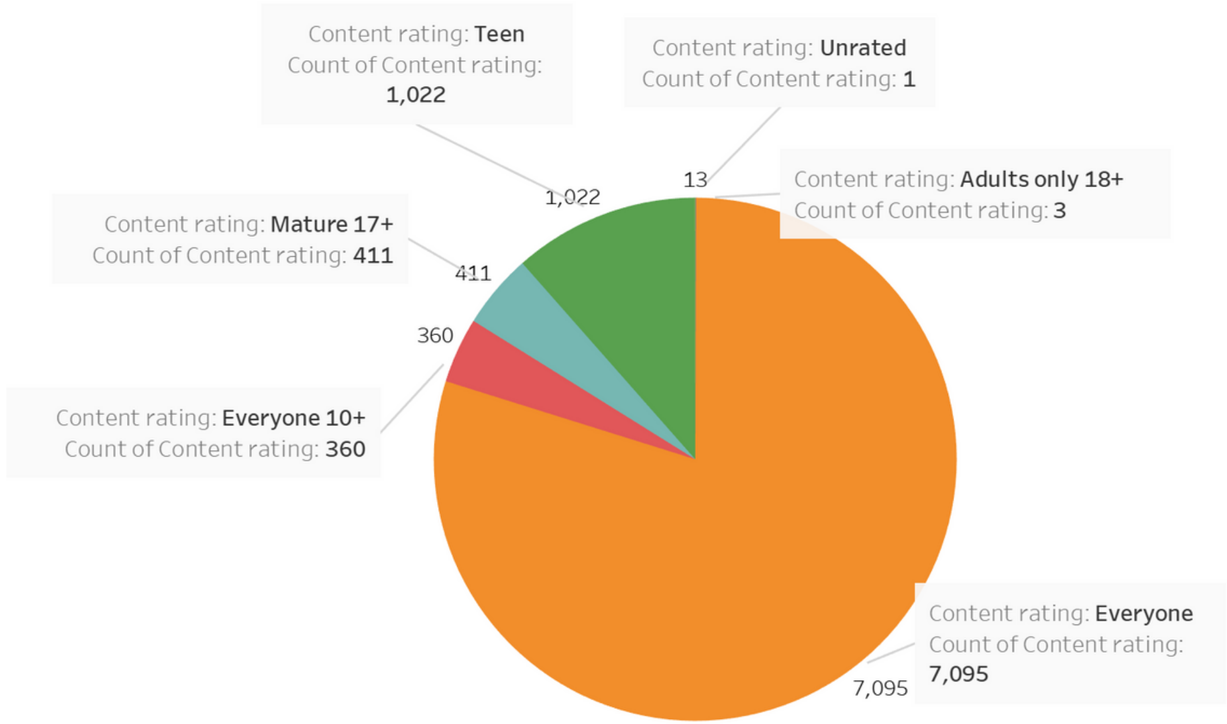
Unique Values

- App: 8,196
- Category: 33
- Type:
  - Free
  - Paid
- Content_rating:
  - 'Everyone'
  - 'Teen'
  - 'Everyone 10+'
  - 'Mature 17+'
  - 'Adults only 18+'
  - 'Unrated'

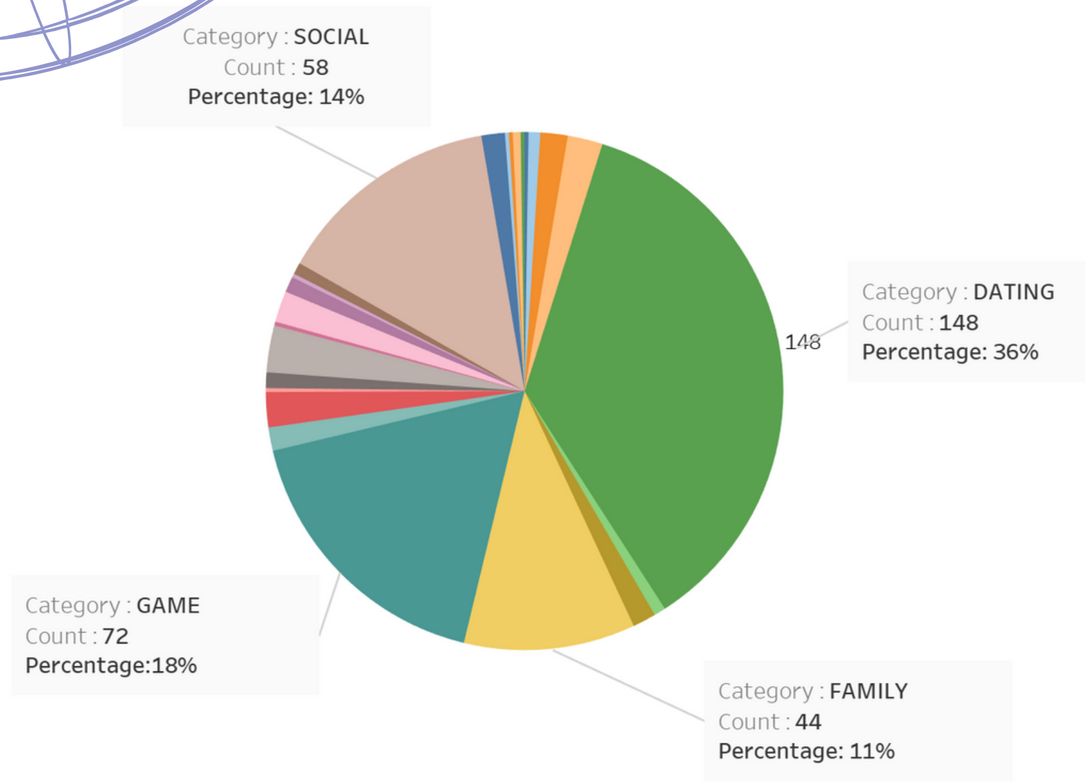


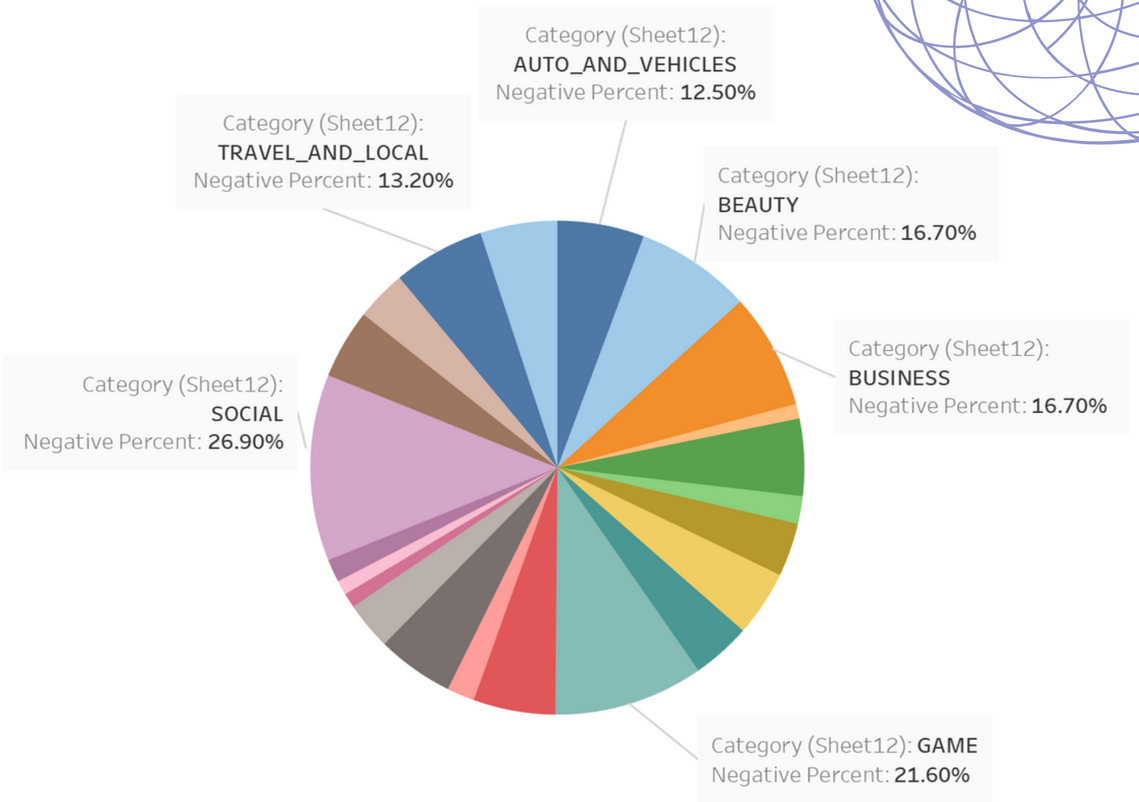
Types and Content Ratings





Category Marks in Different Fields



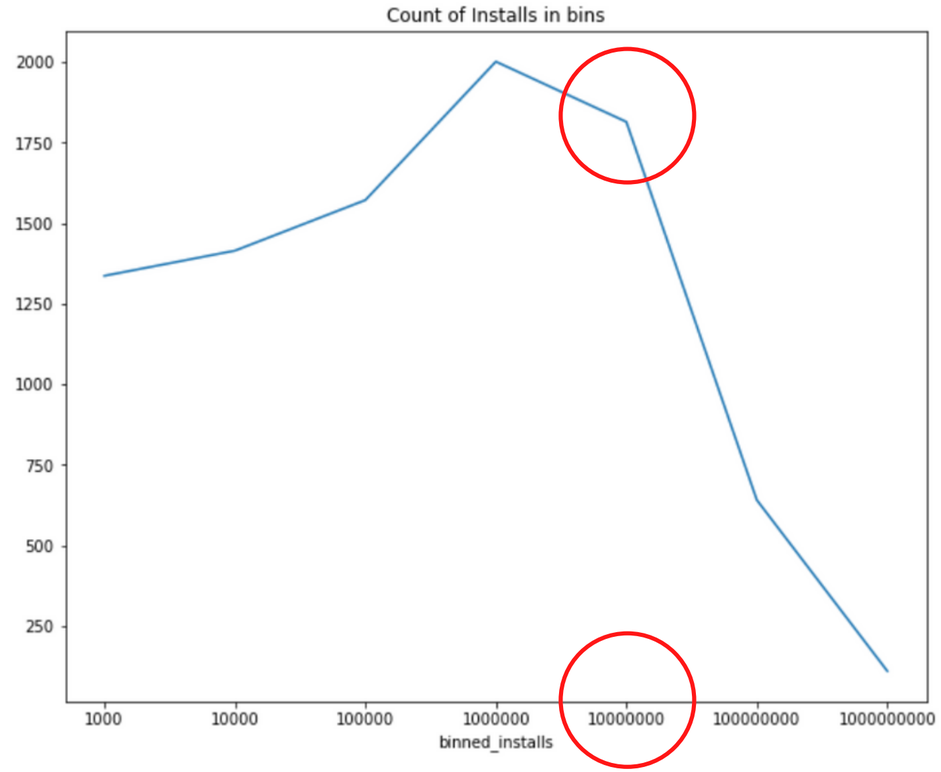


Categories rated Mature 17+

% of apps in different categories that are reviewed negatively

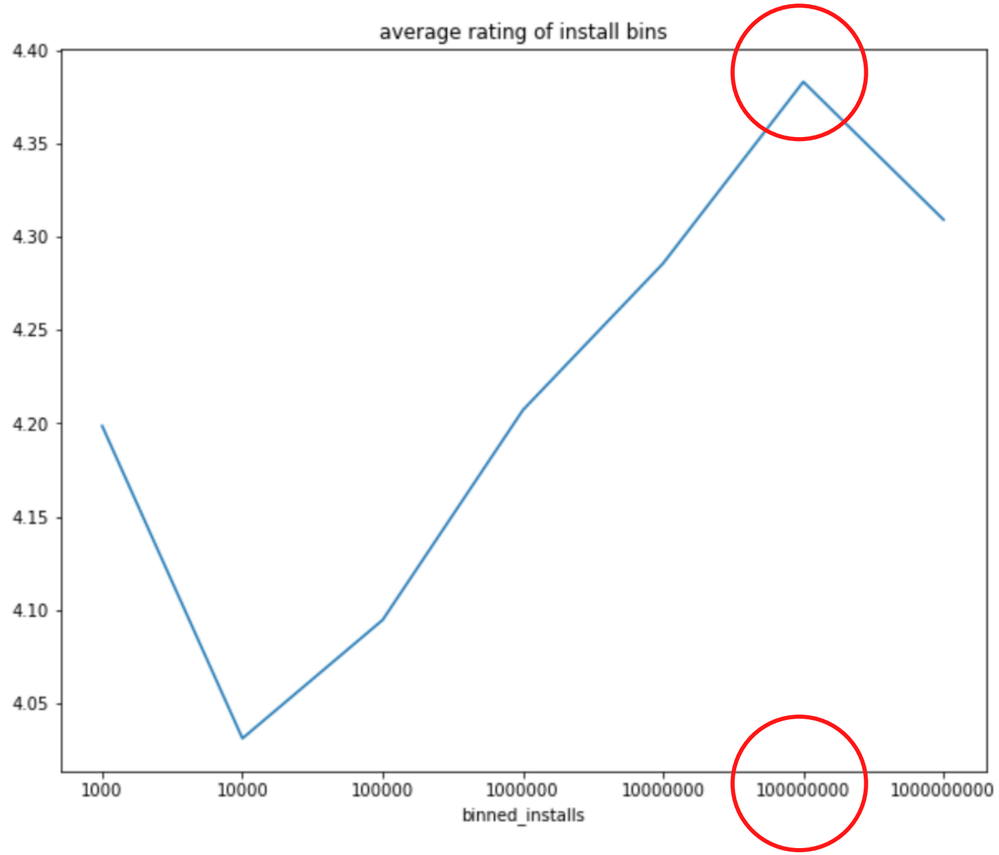
Bins: Installs - Count & Average Rating

<AxesSubplot:title={'center':'Count of Installs in bins'}, xlabel='binned_installs'>

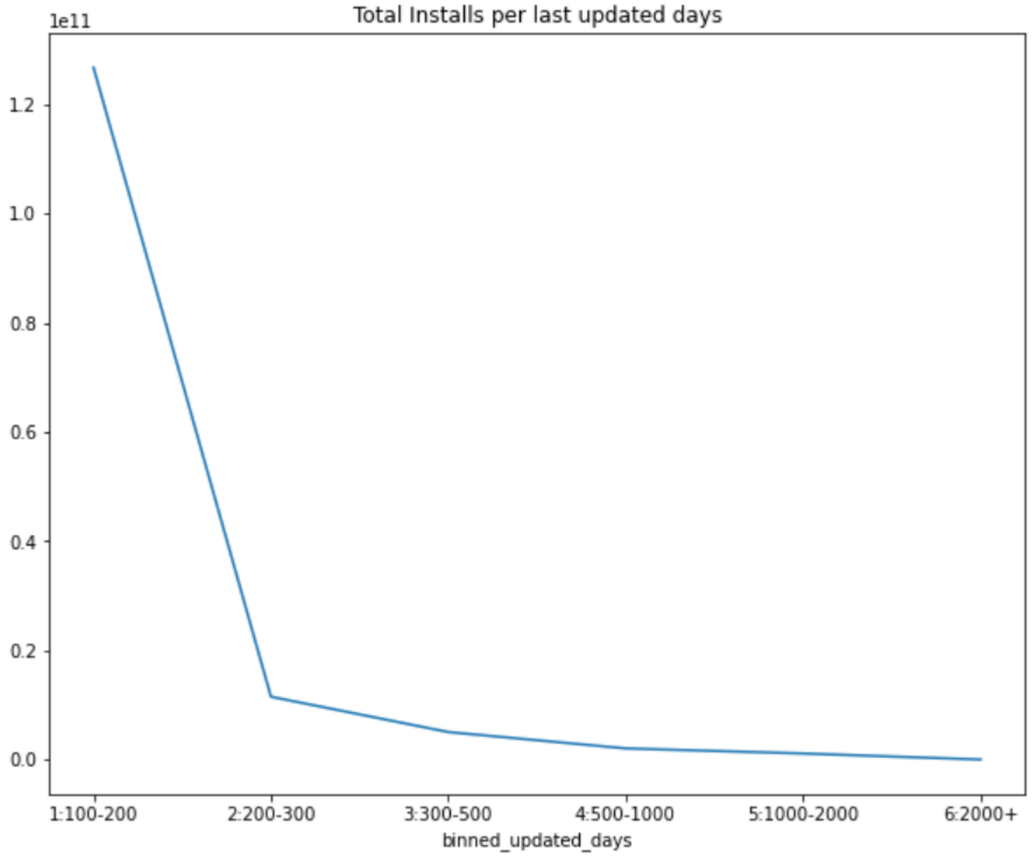


Highest Point: 1,000,000
Turning Point: 10,000,000

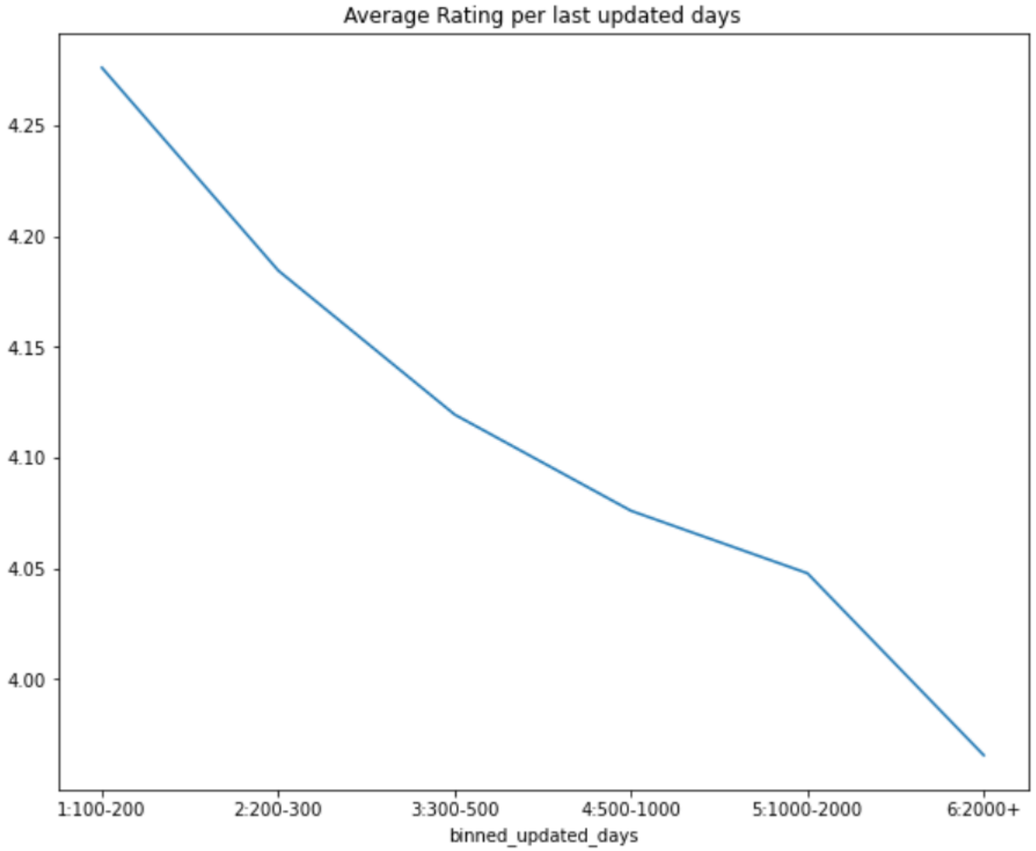
<AxesSubplot:title={'center':'average rating of install bins'}, xlabel='binned_installs'>



Highest Point: 10,000,000
Increasing trend between 10,000-100,000,000

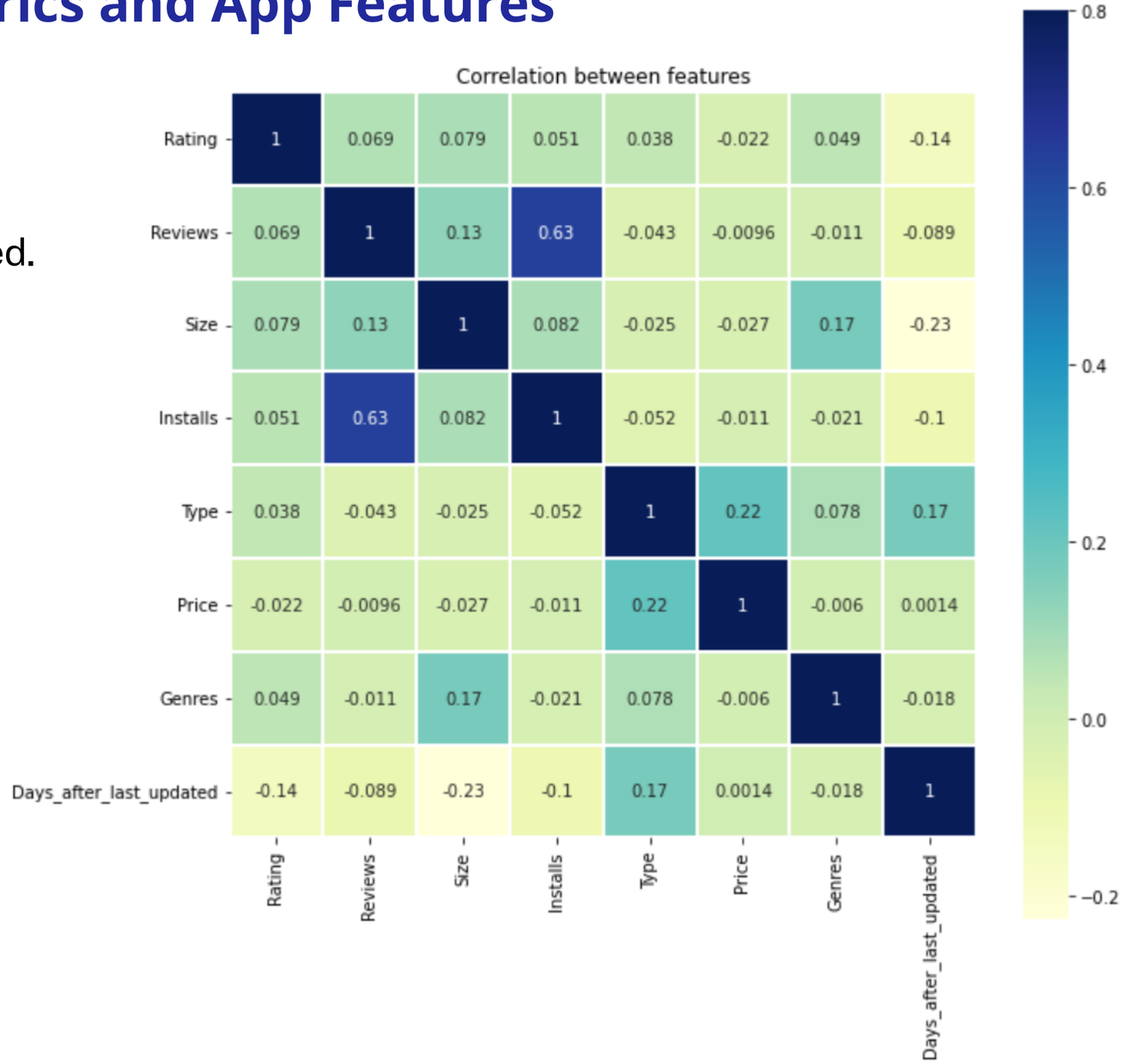


Recently updated apps have more installs and higher ratings.



Correlation among Success Metrics and App Features

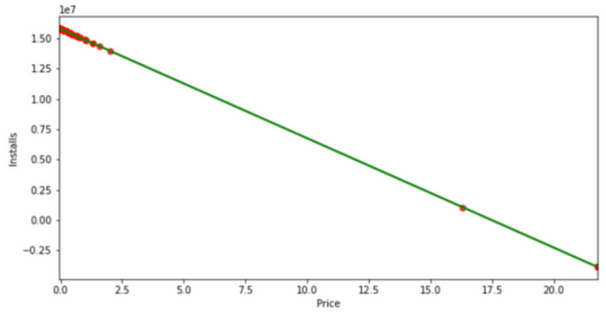
Installs and reviews are moderately correlated.



Simple Linear Regression

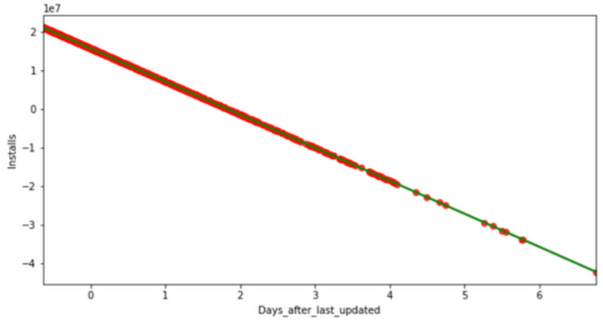
- **Price & Installs**

  As price increases, installs decrease.



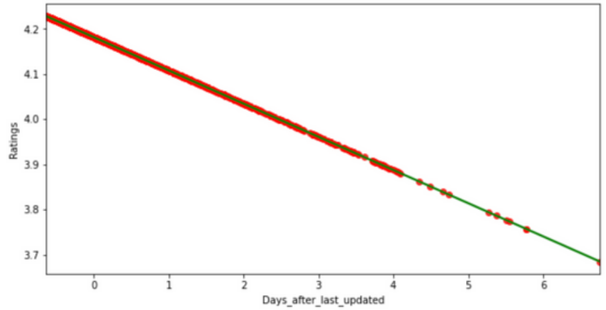
- **Days after last updated & Installs**

  More recently updated apps show a higher installs rate.



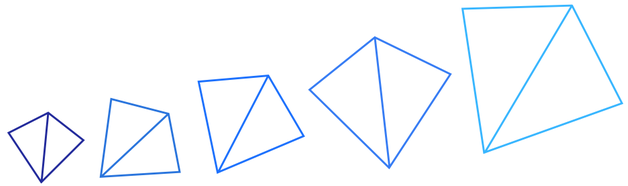
- **Days after last updated & Rating**

  The more recent the update, the higher the rating.



Multiple Linear Regression - Rating

	Coefficients	
Size	0.028	Bigger size, higher rating
Price	-0.011	Larger price, lower rating
Content rating	-0.0095	Larger availablity, lower rating
Days after last updated	-0.068	Recent update, higher rating



Multiple Linear Regressions

- **Installs** with **Rating**, **Size**, **Reviews**, **Price**, **Content Rating**, and **Days after Last Updated**

R2: -0.0296
(+) Rating and Reviews
(-) Size, Price, Content Rating, Days after Last Updated

- **Review Number** with **Sentiment Polarity** and **Subjectivity**

R2: -15.86
(+) Subjectivity
(-) Sentiment Polarity

Conclusion & Recommendations

01

Categories with more content violations and more negative reviews:
- 'Social'
- 'Game'

02

Frequent updates

-> Constantly maintain the app, fix bugs, and add new features

03

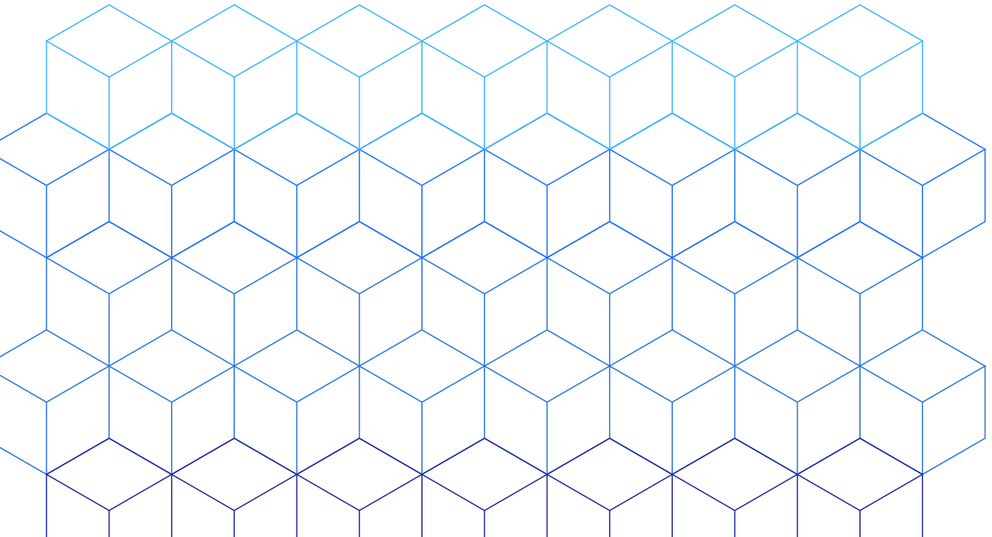
Size, price, and content rating

-> For niche apps with strong value propositions only.

04

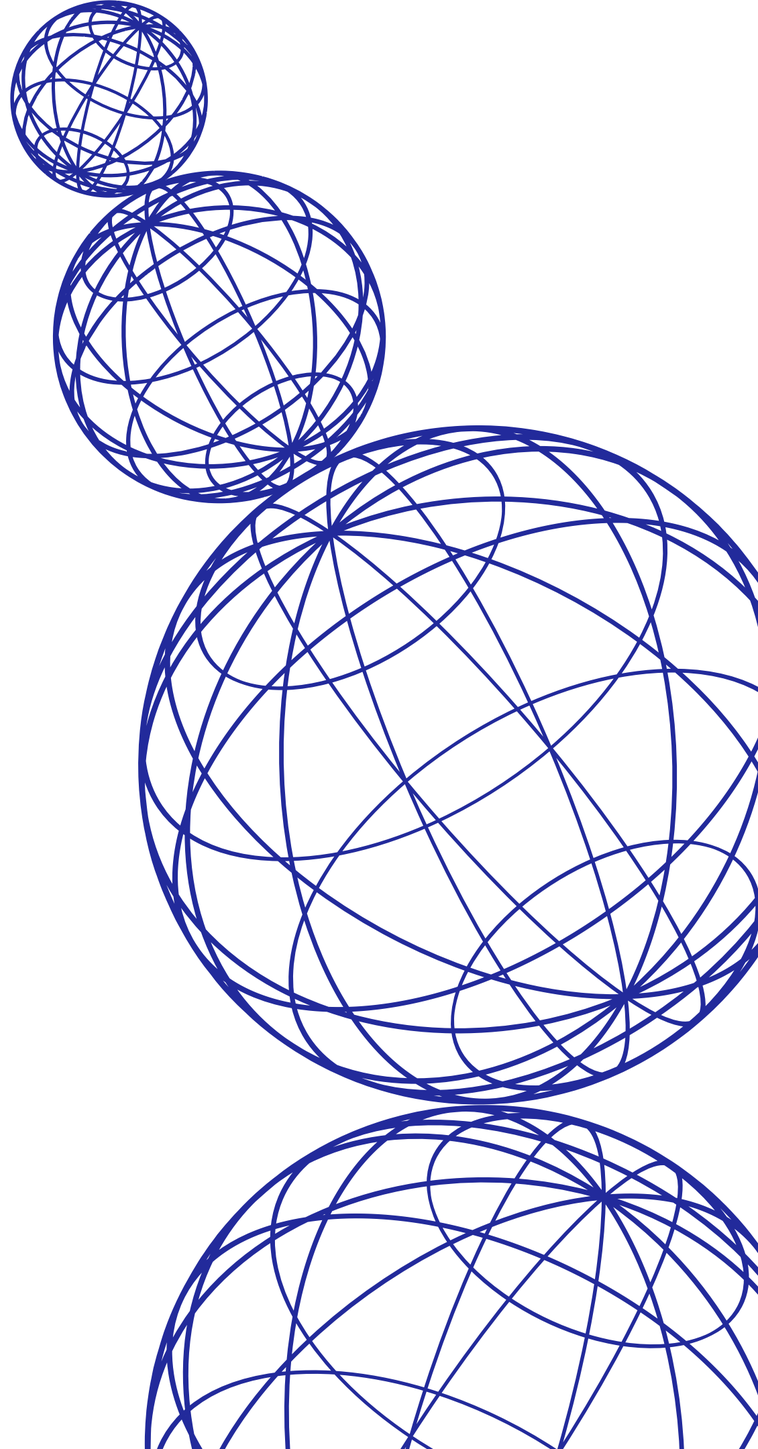
Most reviews are negative

-> Be responsive to negative reviews and try to address users' concerns as soon as possible



Thank you for listening

Questions?



References

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“What Is Google Play Store? Everything You Need to Know.” Lucic, Kristijan. Android Headlines, April 3, 2020.
"Google Play Store Apps" and "Google Play Store User Reviews." Lavanya. Kaggle, 2019.