


## Chapter 12

# Google Play Store Apps: Data Analysis and Popularity Predictions Using Artificial Emotional Intelligence

**Parvathi R.**

*Vellore Institute of Technology, Chennai, India*

**Pattabiraman V.**

 <https://orcid.org/0000-0001-8734-2203>

*Vellore Institute of Technology, Chennai, India*

### **ABSTRACT**

*The Google Play Store is one of the most well-known and widely used Android app stores. On the Play Store, there is a lot of new information not only by the developers of the programme but also by the users who provide reviews and ratings. All of this information may be used to provide valuable insight into app popularity, which can be quite beneficial to app creators. The authors used a Google Play Store raw data collection from the Kaggle website. The data set includes a variety of features that can be used to forecast app success. Many classifier models are used to predict the popularity of apps in this study and determined which one give the best results. In the classification model, user reviews are added as a numerical feature. This feature has been found to considerably improve classification accuracy. Surprisingly the social aspects have a significant impact on the popularity of an app are also considered in this study.*

### **INTRODUCTION**

With around 5 million apps, the Google Play Store is said to be the world's largest digital distribution channel for Android apps. User given ratings and reviews are crucial for the feedback and favourable ratings entice people to become more interested in the items or services. In the Google Play Store, the majority of apps have received higher ratings, instilling trust in users. However, one of the key reasons for their success is that approximately 81 percent of the apps are free.

DOI: 10.4018/978-1-6684-5673-6.ch012

## **Google Play Store Apps**

People have been starting to use mobile phones more and more over the years, which is another reason why the app development industry is seeing immense success. With all this data available in the Google Play Store, there is enormous scope for data related research.

This work contains feature extraction from a longitudinal app analysis in this study to determine whether an app will be successful or not. Data extraction, data cleaning, data visualization, feature extraction, and prediction utilizing various models are the five steps of our analysis. To begin with, we extract the data from the Kaggle website and do the necessary cleaning. After this process, and visualize this dataset using various plots to better understand it. The feature extraction stage is the next critical step in determining which features assist us in predicting the app's popularity. Finally, several classification algorithms are applied to the dataset to evaluate which algorithm or machine learning model gives the highest percentage of accuracy (Chowdhary, 2011; Chowdhary & Channi, 2021). Finally, there is a discussion on the reasons for the highest accuracy.

Huge amounts of data get added to the app stores everyday. This includes not only the information about a given app contributed by the developers, but also the reviews and ratings contributed by users. It is quite interesting to conduct analysis on this data as it can give important insight about the popularity of an app launched on the play store. This kind of analysis was seen in the following studies.

In their study, Businge et al. (2019) and others observed that not only social but also technical factors played a major role in determining an app's popularity. They tried to find relationships between the code available on GitHub for these apps and the ratings available for these apps. It was, however, observed that these technical factors had little role in the prediction of App popularity. The ratings available in the Google Play Store still play a major role in evaluating the success of the app. Overall, it was concluded in this study that the available social factors are a much better feature for App prediction than the technicalities of an App.

In other different kinds of studies done by researchers, including the one by Monett & Stolte (2016), they try to evaluate different prediction models available for predicting App success. These models, however, use the user response available in the form of rating out of 5 from the available dataset of customer reviews of mobile apps. This numeric attribute plays a major role in determining App success. These prediction models use ratings with other attributes available in the dataset to make predictions for App success. All of these studies have revealed a key conclusion - rating out of 5 is an important feature and is also closely related to user reviews as observed in performing the sentiment analysis of these textual data.

This work categorized as follows: Chapter 1 discussed about the Introduction about the problem motivation, problem statement, Literature survey with various National and International publications related to the problem statement are discussed in the Chapter 2. Chapter 3 introduces about the different algorithms used in the work and Chapter 4 elaborates about the system architecture used in this work. Chapter 5 discuss about the implementation like preprocessing, feature extraction, prediction, sentiment analysis and Chapter 6 deals with result and discussion of the implementation. Chapter 7 describes about the conclusion.

## **LITERATURE SURVEY**

Sentiment Analysis is an important attribute as it gives more insight into customer behaviour and a subjective review of the customer to the App (Philip et al., 2003). Similar to this work, was the work done by Suresh and others (Chumwatana, 2015; Suresh & Urolagin, 2020; Kumari & Singh, 2016; Hanyang,

11 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/google-play-store-apps/313351](http://www.igi-global.com/chapter/google-play-store-apps/313351)

## Related Content

---

### Neural Networks and Equilibria, Synchronization, and Time Lags

Daniela Danciu and Vladimir Rasvan (2009). *Encyclopedia of Artificial Intelligence* (pp. 1219-1225).

[www.irma-international.org/chapter/neural-networks-equilibria-synchronization-time/10395](http://www.irma-international.org/chapter/neural-networks-equilibria-synchronization-time/10395)

### Stock Market Responses to Interest Rate Changes: An Indian Market Perspective

Rohit Sood (2024). *Perspectives on Artificial Intelligence in Times of Turbulence: Theoretical Background to Applications* (pp. 99-118).

[www.irma-international.org/chapter/stock-market-responses-to-interest-rate-changes/334038](http://www.irma-international.org/chapter/stock-market-responses-to-interest-rate-changes/334038)

### Analysis of Older Users' Perceived Requests and Opportunities with Technologies: A Scenario-Based Assessment

Mari Feli Gonzalez, David Facal, Ana Belen Navarro, Arjan Geven, Manfred Tscheligi, Elena Urdaneta and Javier Yanguas (2013). *Pervasive and Ubiquitous Technology Innovations for Ambient Intelligence Environments* (pp. 40-50).

[www.irma-international.org/chapter/analysis-older-users-perceived-requests/68923](http://www.irma-international.org/chapter/analysis-older-users-perceived-requests/68923)

### A Fuzzy-Based Recommender System for Electronic Products Selection using Users' Requirements and Other Users' Opinion

Bolanle Adefowoke Ojokoh, Olatunji Mumini Omisore, Oluwarotimi Williams Samuel and Temidayo Otunniyi (2015). *International Journal of Fuzzy System Applications* (pp. 76-87).

[www.irma-international.org/article/a-fuzzy-based-recommender-system-for-electronic-products-selection-using-users-requirements-and-other-users-opinion/126200](http://www.irma-international.org/article/a-fuzzy-based-recommender-system-for-electronic-products-selection-using-users-requirements-and-other-users-opinion/126200)

### Exploring Cryptocurrency Sentiments With Clustering Text Mining on Social Media

Jiwen Fang, Dickson K. W. Chiu and Kevin K. W. Ho (2021). *Intelligent Analytics With Advanced Multi-Industry Applications* (pp. 157-171).

[www.irma-international.org/chapter/exploring-cryptocurrency-sentiments-with-clustering-text-mining-on-social-media/272783](http://www.irma-international.org/chapter/exploring-cryptocurrency-sentiments-with-clustering-text-mining-on-social-media/272783)