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Rating forcasting of Apps in Google Playstore using Machine Learning Techniques

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***Abstract*— Consumer decisions are significantly influenced by online reviews. In their reviews, customers share their knowledge about quality and their own experiences. False numerical ratings in the Google Play store can have a significant impact on an app's performance. People frequently assume that a high star rating is inextricably linked to a positive review. However, user star rating data frequently does not correspond to review text format. This study offers a powerful machine learning method for predicting app ratings on the Google Play store.**

Keywords*— *Machine Learning, Google,Play Store, ,Online, Rating
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I. INTRODUCTION

We need to use machine learning techniques to solve several problems. Machine learning has a wide range of uses and has the potential to advance significantly.

It is foreseeable that machine learning could construct perfect hypotheses to illuminate its manifestations. Due to the fact that there is a lot of information on the planet but it is not necessary to give each piece of data a name, its unsupervised learning capabilities will be enhanced in the interim. In order for brain system structures to distinguish the more semantically significant details, it is also expected that they would become more unexpected. Furthermore, deep learning will solidify with improved adaptation support, and we can use these places of interest to complete more assignments.

Figure 1: Mobile App

A designer needs to be aware that he is moving in the right direction in the face of intense competition from all around the world. The application designers may need to find out a way to maintain their current position in order to maintain this money and their position in the market. The largest application platform is thought to be the Google Play Store. Although it generates more than twice as many downloads as the Apple App Store, it only generates a small part of the revenue compared to the App Store, it has been observed. I did this to direct our review of the information I had taken from the Play Store.

Portable applications (MobileApps) have evolved into essential components of our life as a result of the rapid development of modern cells. However, because new applications are constantly being released, it can be difficult for us to keep up with the news and comprehend everything about the apps. Application engineers would benefit from comprehending the vast majority of printed remarks since they have trouble figuring out how to improve the execution of their applications based just on generic evaluations.

II. BACKGROUND

The study of R. Gomes et al. attempts to develop inference engines that make use of KNN and Random Forest regression approaches to predict application ratings. Results were superior with the Random Forest over the KNN [1]. Offline tests conducted on three sizable datasets by C. Zhu et al. validate the higher performance of AIM. [2].

With the PEFR, G. S. Bhat et al. discover a relationship between the particulate matter (PM) observed indoors and the weather outdoors. According to the best peak flow value each person was able to acquire, the PEFR results are divided into three categories: "Green" (Safe), "Yellow" (Moderate Risk), and "Red" (High Risk). PEFR measurements are mapped to the link between indoor PM and weather data using a convolutional neural network (CNN) architecture[3]. Three variables were identified by Z. Wu et al. as being responsible for the discrepancy between descriptions and permission usages: 1) human interaction in the description authoring process; 2) poor permission usage practises; and 3) prolific developers. These results will make it easier for app developers to improve permission usage in the apps and app descriptions.

The research by Z. Shen et al. seeks to anticipate which apps a user will launch on her mobile device next. Such information is necessary for various smartphone functions, such as content pre-caching and app pre-loading, in order to enhance user experience [5]. For the goal of cross-app JIT bug prediction, Z. Xu et al. present a new cross-triplet deep feature embedding technique known as CDFE. The CDFE method uses a deep neural network and a cutting-edge cross-triplet loss function to develop a high-level feature representation for the cross-app data [6].

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According to trials done by K. Zhao et al. on 10 Android mobile apps, SDF performs noticeably better than comparable approaches in terms of 3 performance indicators [7]. A state-of-the-art ML predictor (Random Forest Regressor) with performance comparable to it is shown by G. Aceto et al. in their comparison of the findings from several ML techniques. With this study, we also offer a workable and theoretically solid set of tools for traffic analysis to aid in the improvement of ML evaluation (and perhaps its design), as well as a reasonable and comprehensible baseline [8].

By combining the module outputs, Y. Zhang et al. create multi-level modules based on recurrent neural networks with attention mechanisms and produce multi-step time series forecasts. DeePOP beats cutting-edge techniques in prediction accuracy, effectively lowering [9].

Fairness-aware APP recommendation algorithm FARM is presented by Q. Zhu et al. The fairness issue surrounding the suggestion process is emphasised in the main study of this methodology. This approach implements a recommendation algorithm that divides APP candidates into high visibility and low visibility APPs [10].

Using either a posteriori probability (APP) or expectation propagation (EP) based soft feedback, S. Sahn et al. present and apply a novel method for estimating the reliability of decision feedback through online prediction for SISO FIR DFE. Comparing this new strategy to other existing alternative methods, it is demonstrated to increase detection performance [11]. In this paper, S. Rezaei et al. offer a deep learning model for mobile app identification that is capable of identifying traffic that is encrypted. The suggested approach is useful for early prediction-based applications like routing and QoS provisioning because it only requires the content of the first few packets for classification [12].

III. METHODOLOGY

The methodology or the flow of the work is as followings-

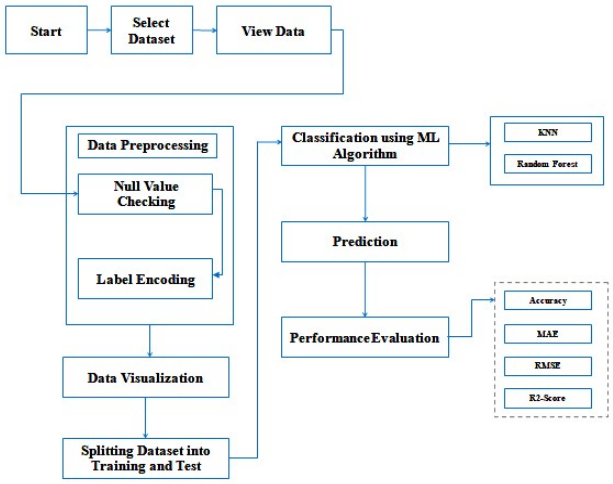

Figure 2: Proposed Metholdology

The proposed model is presented to eliminate all the drawbacks of the current system. By categorising the data based on the googleplay apps, this approach will improve the accuracy of the classification findings. The data gathered from the Google Play store is semi-structured or unstructured and contains a lot of extraneous information (information that does not significantly contribute to the prediction process). Textual materials must be vectorized in order to train supervised machine learning algorithms. Textual data must be transformed into numbers for this purpose without losing any information. Utilise regressors (KNN and Random Forest) to estimate the app's rating using machine learning methods. Finally, accuracy, MAE, RMSE, and R2-Score are used to evaluate the performance of classifiers.

IV. CONCLUSION

This study offers a powerful machine learning method for predicting app ratings on the Google Play store. Many Android app developers have been drawn in by the growing number of apps on Google Play Store that offer advantages to creators. Knowing the traits of highly rated apps on the Google Play Store is necessary for designing Android apps. The new method achieves an overall accuracy of 95.41% compared to the prior method's 93.8%. The suggested work's error rate is 4.59%, while the prior work's error rate was 6.2%. As a result, the efficient methodology that was suggested archived better results than the old method.

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