



e-ISSN: 2319-8753 | p-ISSN: 2320-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 10, Issue 4, April 2021

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 7.512

9940 572 462

6381 907 438

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App Recommendation System by Learning User's Interest from Social Media

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ABSTRACT: Smart devices and mobile applications have transformed human life drastically in prevalence and growth. Due to the huge and increasing number of smartphone applications, it is also a challenging challenge to help users locate applications that meet their requests and needs. We suggest a custom mobile framework recommended to deal with this issue based on textual information of the consumer Social Media, i.e. public tweets, which can also indicate the user's interest and make up for the sparseness of the application use data. The theme modelling methods are used to derive user data from social media and to represent the application's characteristics through the probability distributions of subjects. The user profile is then built on the curiosity of the user to record user interests. In order to create recommendations for intended customers, both the theme distributions of applications and user interests are taken into account. We use social media to assess success across real-world data sets. The experimental findings indicate that tweeting, i.e. user social data, will help derive the user engagement and the suggested recommendation mechanism increases the efficiency of the current approaches.

KEYWORDS: App recommendation, social media, transfer learning, collaborative filtering..

I. INTRODUCTION

The success and progress of Smartphones and mobile applications has provided human life with tremendous comfort. A large number of smartphone applications have been created to support users in different categories of activities, including manufacturing, entertainment, inspiration, exercise, etc. Apps from Apple App Store and Google Play Store are available for free for millions of people. For such an enormous and already the number of smartphone applications, consumers are having trouble identifying suitable applications, with just a few applications being exposed to users and many valuable applications being unaware otherwise. Therefore, it is a crucial concern to help consumers find applications that suit their needs.

Recommender systems have been widely adopted by many online websites to help customers overcome the information overload problem and make their purchase decisions. Popular recommendation techniques, such as collaborative filtering (CF) and content-based filtering, can be utilized in app stores for users to search relevant apps. CF makes recommendations based on the assumption that customers with similar ratings and interests for some items are likely to have similar preferences for other items. Content-based filtering assumes that the user's interests are able to be represented by the content of items they have shown interest in, and those items that have content descriptions similar to the target user's favourite items are recommended.

This article takes advantage of user feedback to consider the user's features of applications and leverages user reviews to create a framework that recommends applications. A typical representation of the application functions may be the topics concealed in the analysis texts. We gather user feedback from app stores to model the subject and represent the probabilities of the topic distributions for each use. Then, the user choice for building the user profile is inferred from the subject distribution of the user applications. Since the user wants to or does not want any functionality, we also accept feelings about topics that allow users to locate favourable apps and prevent misapplications. The topic distributions of apps and user preferences are both considered when producing recommendation scores of the relevant apps for the user to make personalized recommendations

Paper is organized as follows. Section II describes the various studies done regarding the App Recommendation system and various modules used to develop a effective and helpful application. Section III represents the flow diagram of the system architecture of the proposed system and the steps for the implementation of the same. Section IV represents

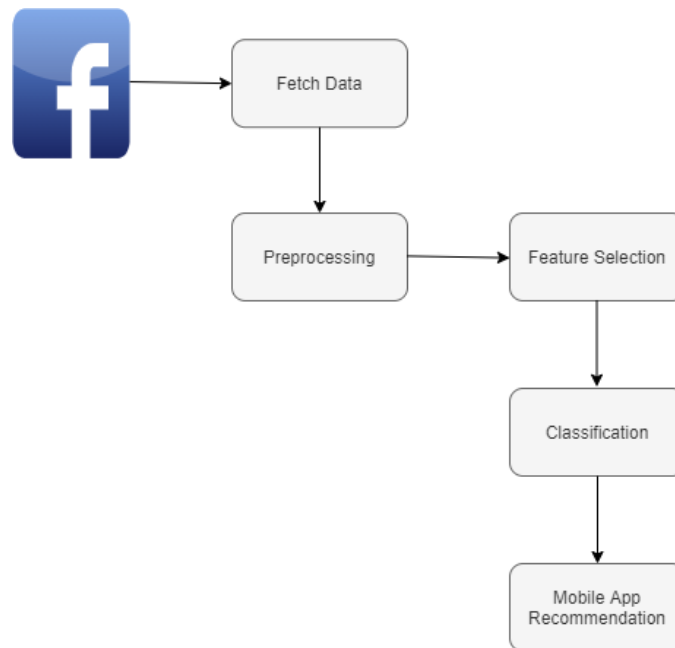


some of the approaches which have been implemented to achieve the same purpose are mentioned . Finally, Section V presents conclusion.

II. RELATED WORK

Personalized Mobile App Recommendation by Learning User’s Interest from Social Media[1] In this paper author demonstrate that it is possible to make personalized app usage estimation by learning user’s app preference from the social media, i.e., public accessible tweets, which can also reflect user’s interest and make up for the sparsity of app usage data. By proposing a novel generative model named IMCF+ to transfer user interest from rich tweet information to sparse app usage, authors achieve personalized app recommendations via learning the interest’s correlation between apps and tweets. In[2], the author propose DPLink, an end-to-end deep learning based framework, to complete the user identity linkage task for heterogeneous mobility data collected from different services with different properties. In [3], the author present the first population-level, city-scale analysis of application usage on smartphones. Using deep packet inspection at the network operator level, we obtained a geo-tagged dataset with more than 6 million unique devices that launched more than 10,000 unique applications across the city of Shanghai over one week. We develop a technique that leverages transfer learning to predict which applications are most popular and estimate the whole usage distribution based on the Point of Interest (POI) information of that particular location. In [4] the Author proposes to use the linked users across social networking sites and e-commerce websites (users who have social networking accounts and have made purchases on e-commerce websites) as a bridge to map users’ social networking features to another feature representation for product recommendation. In specific, we propose learning both users’ and products’ feature representations from data collected from e-commerce websites using recurrent neural networks. In [5], the author propose a generic graph based embedding model, called GE, in this paper. GE jointly captures the sequential effect, geographical influence, temporal cyclic effect and semantic effect in a unified way by embedding the four corresponding relational graphs into a shared low dimensional space. Then, to support real-time recommendation, authors develop a novel time-decay method to dynamically compute the user’s latest preferences based on the embedding of his/her checked-in POIs learnt in the latent space.

III. PROPOSED SYSTEM/METHODOLOGY



(a) Figure. System Architecture



Step 1: Facebook Data collection using Facebook streaming API and Facebook comments collection using online tools like extract comments.com, etc.

Step 2: Data preprocessing like removal of duplicate posts, stop words.

Step 3: Data normalization using porter stemming algorithm.

Step 4: Data loading on Dataset.

Step 5: Design and Implementation of program for per day frequency of posts.

Step 6: Design and Implementation of program for feature selection.

Step 7: Facebook post Classification.

Step 8: Mobile app recommendations.

IV. OPEN ISSUES

Lot of work has been done in this field because of its extensive usage and applications. In this section, some of the approaches which have been implemented to achieve the same purpose are mentioned. These works are majorly differentiated by the algorithm for Mobile App Recommendation systems. The popularity and advancement of smartphones and mobile apps have brought considerable convenience to human life. A substantial number of mobile apps have been developed to assist users in various types of tasks, such as production, entertainment, and exercise. Millions of apps are available for downloading from the Apple App Store and Google Play Store. With such a tremendous and still rapidly growing number of mobile apps, users face difficulty in finding appropriate apps, and only a few apps have the chance to be exposed to users. Hence, helping users to find apps that meet their demands is a critical issue.

V. CONCLUSION

In this article, we use consumer social media knowledge to design a customized framework for the recommendation of applications. This subject modelling technique is used to derive topics from the enormous volume of consumer social media textual data to model apps' functionality and to build up a user profile to model user interests by selecting installed applications. Along with the user expectations and software functionality, the results of the custom application recommendation are estimated. Real-world data was used to conduct tests and test results prove that user ratings are useful for customized interface suggestions.

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