# An Android SDK for Referral Marketing: A Review

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**Abstract:** This paper proposes the idea of Android SDK for referral marketing. Many application developer creates their app for that they need to write code for the application, after that developer again has to spend time in creating the referral integration programs for the marketing and campaigns of their app. Our SDK provides referral marketing feature to the application developer and it saves the precious time of developer. This android SDK provides a generic platform for such referral marketing which can very easily incorporate new android applications as well as existing application and help in their referral to users. Also, it will keep a track of no of clicks and installs of the referred app for better earnings.

**Keywords:** Referral Marketing, SDK-Software Development Kit, Android Applications, Plug and Play, Open Source.

## I. INTRODUCTION

There are millions of applications on the Google Play store. Also there are developers who develop applications professionally or as a hobby like college students. After the development of the mobile app the process of launching and marketing of the app using Google Play store takes a longer time. Play store also recommends those apps to end users who have a higher ratings and good reviews. Here the generic Android SDK proposed in the paper comes in picture.

It provides the developer a generic platform to promote and market the application using various referral marketing techniques. This Android SDK is a growth hacking toolkit for mobile applications which helps developer to integrate all kinds of apps (gaming, e-commerce, communication, entertainment etc.)

A developer usually spends some time to write the referral code for his app. This Android SDK helps developer save this time and reduce the cost and effort of additional coding by providing Plug and Play integration to its app. It allows the developer to create different kinds of campaigns for the app promotion over a period of time.

## II. LITERATURE SURVEY

There are some reasons why social media is used for selling the app.

1) **Inexpensive source of marketing:** The social media offer a free platform thus making it inexpensive source of marketing.

2) **Measurable metrics:** If an app developer launches his app on the social media for paid marketing he can keep a track of the app and the reviews of the user. If he thinks the app is not appealing to the user he can halt the marketing of the app in the midway

3) **Sustained Relationship:** Most of the users talk about an app on the social media when the use it and they have a good experience about the app. Most recommendations take place due to the positive experience of the app users.

4) **Personal Touch:** Social media platforms are quite responsive to our issues or queries regarding the application and add a personal touch to the communication.

5) **Global Platform:** Social media is not bounded to just a particular location. It is widespread through the globe and is the best way to reach the masses.

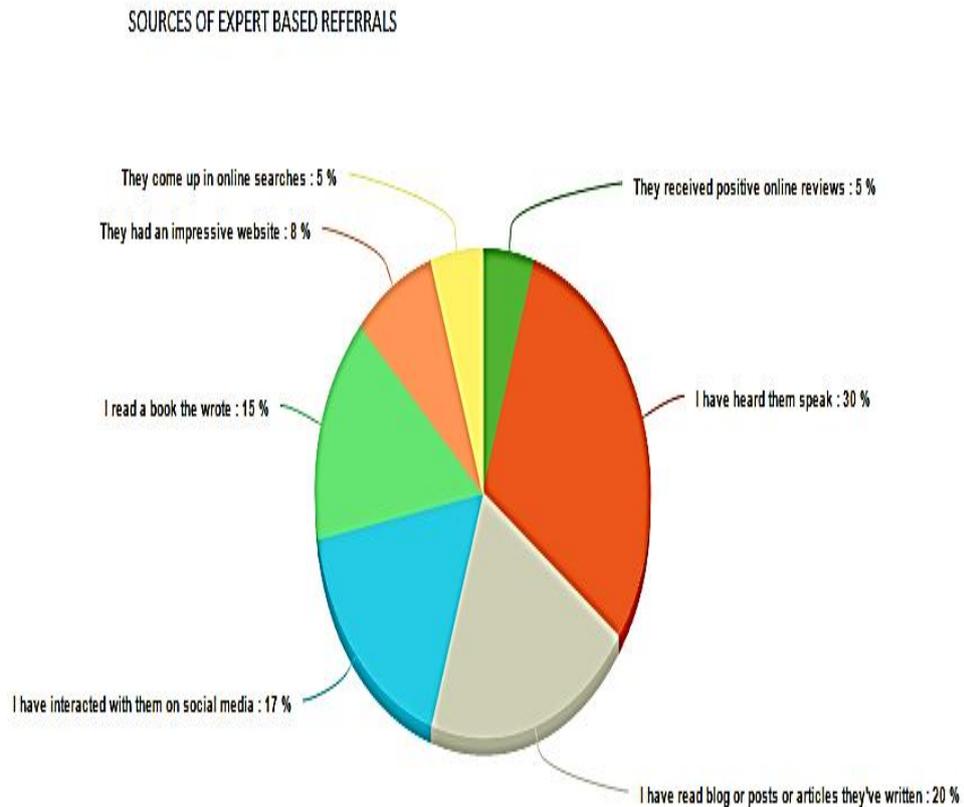The figure below shows which are referral marketing sources.



SOURCES OF EXPERT BASED REFERRALS

They come up in online searches : 5 %

They had an impressive website : 8 %

They received positive online reviews : 5 %

I read a book the wrote : 15 %

I have heard them speak : 30 %

I have interacted with them on social media : 17 %

I have read blog or posts or articles they've written : 20 %

*Figure 1. "Sources of Expert Based Referrals"*

There are a few techniques listed below which help in the referral marketing [1].

1.  **App Store Optimization:** This technique is based on recommending app on the playstore based on the user ratings and downloads and reviews. The main goal is to optimize the mobile apps to rank in the top apps list in the playstore. It directs more people to the app's page for more downloads.
2.  **Paid Advertisement:** This technique is based on the concept of pay per click in Google AdWords or Bing Ads. It aims to reach the targeted audience in a small amount of time. It is done on various applications as well as different social media. There are ads which are popped up by this 3rd party to alert user to download the app in exchange of some rewards or update of the apps. This 3rd party is then paid a commission whenever a user clicks on the ads popup.
3.  **Fresh content:** This technique is to keep the existing users of the app intact. Many users use an app for a month and are likely to abandon it over time. So to keep users use the application more often we need to provide fresh content of the application. This technique is to provide the frequent and acceptable updates of the application so that the user does not get bored of the app.
4.  **Loyalty programs:** In loyalty programs the users are given some rewards or incentives which will help them to stay connected to the apps. In gaming, a user can be given extra lives on a completion of certain level or some user may get a discount in shopping online if he recommends an app to 5 users etc. These are some examples of how a user will constantly use the app and also promote it.
5.  **Usability and visual design:** The application users focus more on the user interface of the app. It was found that an app utility is more when the application is good in terms of appearance. The

app crash is one of the main reasons of uninstalling it. So the usability and appearance of the application plays and important role the installing the app.

6. **Push Notifications:** They are the notifications send to the users on a timely basis. They usually have the parameters whom, when and how often you message. E.g.  a pizza chain may send push notifications to younger people on Fridays. So this makes the user to go the pizza shop and thus the business is increased.

7. **Personalized message:** It is based on one-to-one  marketing . The system may send some message to user based on his likes, dislikes and opinions.

8. **Social Media:** It deals with the usage of variety of social media like twitter, Facebook, Pinterest or WhatsApp. The advertising can be done with 'share via' feature also known as social media integration with our app. This promotes the app to reach to various users that the end user selects.

9. **Internet Forums:** This is another way of promoting an app. It uses the forums or Q/A sites. The opinions are mined and thus the apps are promoted to a large set of users. It provides a friendly interaction to the user regarding the utility and features of the app.

## III. PROPOSED SYSTEM

Referral marketing is a method of promoting products or services to new customers through referrals, usually word of mouth. [3] However a correct business strategy can increase our profit manifolds. Considering the existing systems, we propose a combination of all the various modules discussed above. We will create an SDK for android Operating system. The reason we chose android is because it is widely used android flavor and there are hundreds of applications developed every day for android phones. With the decreasing usage by 14% every year of laptops and computers, the consumers are using mobile more faster and the businesses have to develop their strategy accordingly. 71 % of the social media users are using mobile devices for accessing applications.[4] The development environment consists of Android Studio and Windows 10. The database of the system is unstructured so we will be using MongoDB. We also have kept the SDK at a website which is being developed in JSP.

The main aim of the system is to provide application developers a growth hacking mobile toolkit. This SDK will provide him a utility called "Refer" in his application. We act as 3$^{rd}$ party to the application users as well as developer.

According to a research here are some facts which happen to favor referral marketing: [2]84% of consumers say they either completely or somewhat trust recommendations from family, colleagues, and friends about products which makes these recommendations the information source ranked highest for trustworthiness. Nielson reported 88% of people trust online reviews written by other consumers as much as they trust recommendations from personal contacts. [BrightLocal].

In the Hinge Research Institute it was found that in the year 2015 referral marketing was the top marketing strategy which was conducted in the same year.

81.4 % referrals are received from the people we know or have met at least once.

Today, as the developing of hardware of mobile is getting better, the performance index is much higher than the actual requirements of the software configuration. Phone's features more depend on software. As the Android operating system is getting more popular, the application based on Android SDK attracts much more attention [5]. Looking at these statistics we propose a platform for application developers to boost their     app utility by providing an SDK which is configured dynamically. This SDK will be integrated into wide variety of apps including shopping, gaming, surfing or traveling apps. Any and every app can be integrated with this SDK.

The SDK will have 4 modules. It consists of Campaigns, Email Configuration, Coupon Configuration and User targeting. The Campaigns module will provide the developer to customize his campaigns from time to time. Email Configuration will send Emails to friends with a template created by app developer. Reward Configuration distributes rewards to friend or referrer. It checks of the transaction is done properly and then only distribute rewards. Coupon configuration module

generates coupon code dynamically and is assigned to each referrer. The modules are discussed below in detail.

## (A) Integration of SDK:

This module follows a series of steps which will help developer to integrate the SDK with his app. The various steps are listed below.

1) **Download the SDK:** Initially the developer downloads the SDK from the website**.**
2) **Set Up the application key:** The application key is given to each user after downloading the SDK. This app key is added in  assets  folder in android.
3) **Configure the manifest file:** In this file the developer gives the necessary permissions about the network settings.
4) **Initialize   the   SDK :** The SDK is initialize by init function in the onCreate () method of the splash activity of the android app that the developer wants to integrate.
5) **Set User Details:** The user details like username, password, location, profile picture and other data are set and are helpful in locating the information of the existing users.
6) **Launch   the  referral program:** The referral program is now launched at the app of developer in the form of 'invite' utility. It may provide a toast message saying "Invite and earn rewards" This message is sent from referral to friend whenever a referral clicks on invite. The developer may set a default text or may also customize it.
7) **Referral Transaction Confirmation:** The referral transaction is confirmed on when the friend install an app from the given referral link. The complete referral program is executed when it is successfully installed from a link that a referral sends.
8) **Register Events:** This can be said the last process of integration. In case of a successful event the redemption of rewards has to take place. The referral or friend has to be successfully rewarded with the points given by the developer.

## (B) Campaigns:

This module gives the platform to the developer to set up the campaigns for promotion of the app. The developer customizes the data related to campaigns and this landing page is provided to the end users. In this system the following modules are part of the campaign section.

**1) Reward Configuration:**
This utility helps to choose the developer a required campaign name and the reward units. The reward units may be points, rupees, discounts or any other unit for different applications.

**2) Social Media Selection**
This module helps to integrate the various social media like twitter, Facebook, hike, WhatsApp, Gmail and messaging.
It is the media through which the referral can send the message to friend about the app or recent offers. It will contain a message
created by developer. On clicking the toggle button a window will pop up which will ask for the message to be sent if we choose a particular media. The developer can set the message as well as the display order of the particular social media.

**3) Advanced customization**
In this module we will set an image for the campaign, the background color, background image, text color and title color.

## (C) Coupon and reward configuration:

The referral will send a message to the friend through various social media from the campaigns module. Once the message is sent to the friend and if he clicks on the link given, then referral is eligible to redeem rewards. The rewards can be in the form of money discounts using coupons, lives or points in gaming apps ,or free ride for certain kilometers in transport related apps.

In this module the coupons which are to be distributed to the referrals and friends are created dynamically. This module creates coupons which has properties like coupon name, coupon description and coupon URL. The coupon name is the name of the coupon which will be displayed to the user, coupon description is the information that the developer wants to keep and coupon URL is the URL that will be displayed to the referral and friend.

**(D) Email Configuration**

It is the module which sends a message to the friend using email as the social media platform. In this we can customize the email landing page including the subject and the content of the email.

**(E) User Targeting**

This modules in particularly used for actual targeting of the users which means identifying those users who will respond to the campaigns effectively or maximum profit is obtained from such users. Here we consider 2 properties.
1. Target all users
2. Target user based on location.
These two properties use more or less same features which include how often a campaign should be displayed, wait for how many days after the first launch app, wait for how many days after first app install, show notification after how many days, number of times a user can see a notification etc. The target user based on location uses the same features but but the developer needs to set the location of the users and set the properties of ACCESS_FINE_LOCATION and ACCESS_COARSE_LOCATION in the code.

## III. FUTURE SCOPE

The future scope of the SDK can be developing the SDK for IOS platforms as well as maintaining an analysis table of the number of clicks installs and invites of the app. It can be enhanced by using App-store analytics, In-app analytics, Performance analytics and Predictive analytics [6] techniques available for mobile app advertising analytics.

## IV. CONCLUSION

Thus we have proposed a unique way of referral marketing. It will be a plug and play growth hacking toolkit for every android app developer. It will be a ready to use SDK which will save developer's time and also provide him with those utilities that is essential for the right marketing in app development.

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