Look 360: An android application using Google analytics and firebase with Mobile Cloud Computing.

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Abstract— Look 360 is an Android Mobile Application; the name "Look360" originates by keeping its features in mind and considering its capabilities of storing Events, Seminars, Trade Shows and Conferences all across India on the Basis of different categories which has high search index as well as interest of the Students and Educators. Since, Look 360 handles the storing Events, Seminars, Trade Shows and Conferences Nationwide; filtration plays an important role here. This Android Application is connected with Google Firebase which uses Real Time Database feature. Using Real-Time Database enables the system to make changes with respect to Names of events, Date and Time and Venue of events too as specified by the Organizing Team. In order to make a Fully Dynamic Native Android Application the static contents need to be connected with the Cloud, thus Firebase Remote Config comes in picture to make Text, Colour etc feel dynamic. Look 360 is integrated with Google Action which can be evoked by just saying, "Ok Google, Talk to Look 360" where users can Operates the Application based on Voice Command. Google Action used Artificial Intelligence to get output based on Human Interactions via Keyboard or Voice. This Dynamic Android Application not only have Interesting User Interface (UI) but also it built by keeping User Experience *(UX)* among top priorities. general, is the task of extracting implicit, before unknown, valid and potentially useful information from data. Web mining is the use of data mining techniques to automatically discover and extract information from Web documents and services for obtaining useful information.

Index Terms— Android App, Firebase, Mobile Cloud Computing, Google Analytics, Dynamic Android Application, Android Studio, Google Action

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Keywords: Android App, Firebase, Mobile Cloud Computing

INTRODUCTION

When you are surrounded by the trained professionals and seek information from them, it not only becomes one of the valuable time full of new ideas and experiences but it also sharps and boosts one's professional knowledge & aspects. Such gatherings are difficult to find, Meet up with the professionals/experts of same field of interest, backgrounds & environments are rare to find these days. Hence, Overcoming this genuine challenges Event based an android mobile application is developed. The application has a prior focus on both that is keep updating the user on every small to giant things happening on Online media *(Articles, Blogs, Videos, info graphics & documentaries)* concerning their field of interest and connecting the user to the Events, Seminar, Conferences & gathering holding all over the Nation.

This Event-based android application is named "Look 360" & the tagline is "Grab new Opportunities Daily". The name is based on the capabilities of storing events, trade shows & conference from different educational fields all across India. As per as latest report, India has 93.02% [1] users of mobile have Android OS installed in their device. Hence, to target maximum user and bring them the unique features Look 360 is developed in Android Studio making it fully Native

application. The cynosure of Look 360 is the vast categories is targeted, the fields are: Information & Technology Medical and Health Travel and Tourism Entertainment and Media Science and Research Security and Defence Agriculture and Forestry and Education and Training

LITERATURE SURVEY

There are widely two options available for creating a single platform for multipurpose use. One is a mobile based application and another is website. Both, Mobile application and website have their own advantage and disadvantage.

Mobile application is for specified platform like IOS or Android. A user downloads and installs mobile apps on their devices and generally app offer a faster and more responsive experience compared to websites. Whereas, Websites are available and are accessed by any device regardless of the Operating system as long as an internet connection is available.

Which is the better option? A report from Newzon said that in the year 2018 the mobile application industries generated 92.1 billion in global app revenue. The same report forecasts that by 2021 app revenue will increase by over 50% to 139.6 billion. [2] Hence, numbers do favour mobile apps.

As far as Operating Systems are concerned, Indian users prefer Android devices more when compared to other Operating Systems. [3]
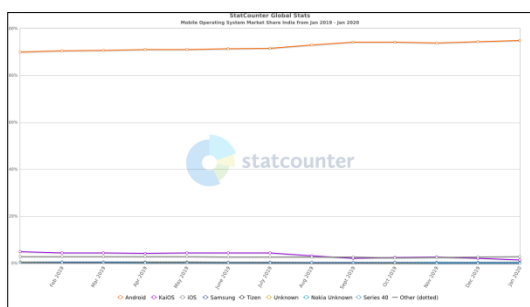

Figure 1:Graph

Now coming to back-end as a service for Android based mobile application, Firebase gives functionality like Analytics, Database, Messaging and crash reporting. Firebase is built on Google infrastructure.[4]

Firebase is well suited for projects with database workloads that require its real-time features. For data that is heavily read in real time.[5]

PROBLEM STATEMENT

Nowadays, In the busy schedule it is very difficult to identify the opportunities of workshop ,Internship ,seminar ,and conference. Such events are very precious for the students to update themselves in their respective filed . So far, there wasn't a single platform which feeds the user with this type of requirements. This application provides a single integrated platform for large categories of educational events, workshops, etc taking place in India. The moment an event is added into the list of the application the challenge was to update the changes which are made by the Organizers later (Changes in Name, date, venue) in order to overcome this issue/ challenge the application functions with the support of Real time Database, So that the changes can be made within a few seconds to large number of Users on all devices.

The platform has to be light in weight to be operational in device of almost every specification; hence the application redirects the user to the official website of the event so that all the process of Registration, Transaction etc can be done safe and secure way.

METHODOLOGY IMPLEMENTED

1. ANDROID STUDIO

Android Studio is the official [6] Integrated Development Environment *(IDE)* for Android app development, based on IntelliJ IDEA. Android Studio provides few important built in Components like Button, Text View, View and etc. Few Components like Card View requires some special Dependencies from where the Card View is made available for future use in the Project.

Android Studio supports Java and Kotlin as major programming language that can be used as language for writing the code. The supportive Integrated Development Environment *(IDE)* of Android Studio provides varieties of Emulators to test the Application/Project. Emulators can be selected on basis of Android Version, Device Name, Pixels & Resolution. This enables the Developer to test the Application/Project in every device (Virtually) possible and understand the behaviour of code with respect of each device. Android Studio enables developers to test the Application/Project in Real Device through USB *(Universal Serial Bus)* in convenient manner. Once done with the Coding and testing, One can get the Application's APK to Publish and Deploy

.

2. AUTHENTICATION

`Authentication is the key for safe and secure Application. Here, in Look 360 authentication plays very crucial role in maintaining a happy relation with User and Developer. The information taken while completing the task of authentication is stored in cloud which then automatically assigns Unique User ID to each and every User. Unique User ID helps in providing a personalized experience across all the devices.

2.1 EMAIL

Authenticating Users through email address is known to be a standard way of Logging in. Here, An email id and password is given in the form of input by the new user, when the data is submitted the inputs are matched with the value which are already stored securely in the cloud, If the inputs are not already present then the user is successfully Register and redirected to Home Page of the Application. Whereas, if the user is known (i.e. whose credentials are stored in the Cloud because He/she is already Registered) then user need to follow back to Sign In Activity and repeat the procedure in same manner.

2.2 OTP

One Time Password (OTP) is the new and easier way to make user authenticate themselves. Here, users need to give the genuine phone number with the country code i.e. +91 and 10 Digit number. The mobile number is send to server and a 6 digit code is generated on each request and the code is sent to mobile number provided as a response. Once the unique 6 digit code is received to the provided mobile number user needs to manually enter the OTP and login theme self or if the Device is using the same Mobile number then the User is automatically i.e. without manually entering the code can be authenticated. The Phone Number is stored safely in the cloud where Unique User ID is automatically generated.

3. FIREBASE SERVICES

3.1 REAL TIME DATABASE

Firebase delivers services like a real-time database. An API is provided to the application developer which allows application data to be synchronized across clients and stored on Firebase's cloud. The client libraries are provided by the company which enables integration with Android, IOS, and JavaScript applications.[7]

3.2 REMOTE CONFIG

Firebase Remote Config is a cloud service[8] that lets you restyle the appearance of application without requiring users to download an app update. Remote Config requires creating an in-app default values that control the behaviour and appearance of application. Later by using the Firebase console to override in-app default values for all app users or for segments of user base. The app controls when updates are applied, and it can frequently check for updates and apply them with a insignificant impact on performance.

3.3 FIREBASE CRASHLYTICS
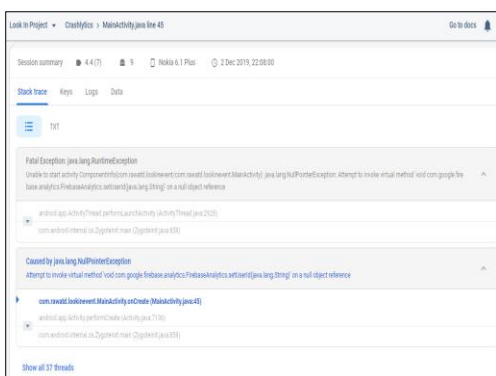
Figure 2: Firebase Crashlytics

When an application get crash in user's device, many user directly uninstall the application rather than reporting the developer about the problem they faced during using the application and thus, the problem remains the problem for long period of time. To overcome this is concern, Firebase Crashlytics is used. IT is a lightweight, real-time crash reporter that helps you track, prioritize, and fix stability issues that erode your app quality. Crashlytics saves you troubleshooting time by intelligently grouping crashes and highlighting the circumstances that lead up to them.[9]

4. GOOGLE ANALYTICS

Google Analytics is used to measure and optimize user acquisition and engagement with mobile application. With easy-to-use SDKs and reports designed with app developers in mind[10].

Google Analytics for Mobile Application enables the developer to:

1. Understand the number of users in app, their characteristics, and where they come from. [10]
2. Measure what actions users are taking. [10]
3. Customize reports specific to the business. [10]
4. Visualize user navigation paths. [10]
5. Sliced and diced data to understand different user groups' behaviour. [10]
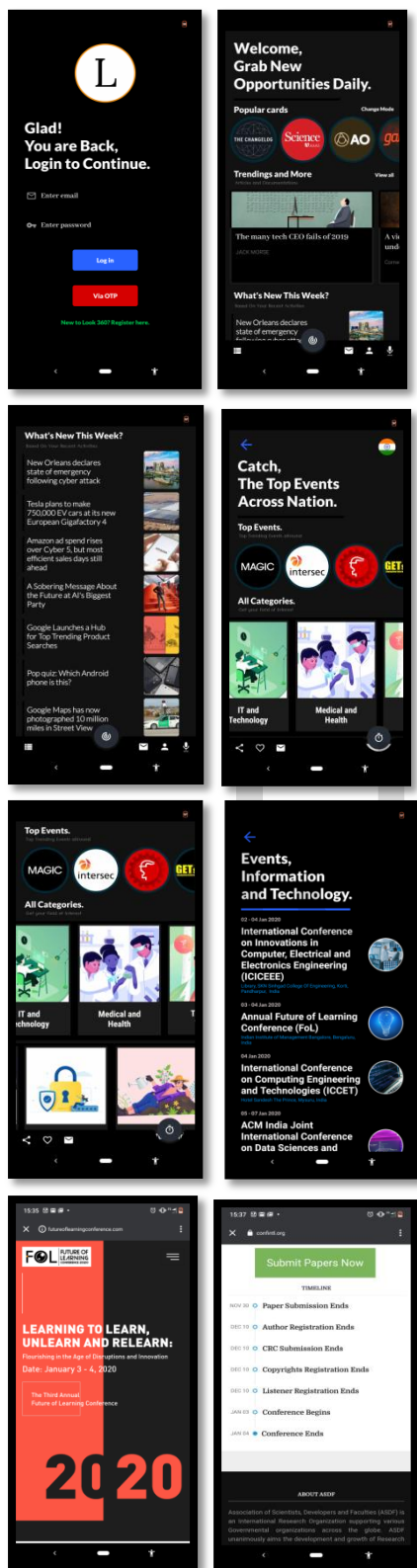
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SCREENSHOTS

Figure 5: Screenshot
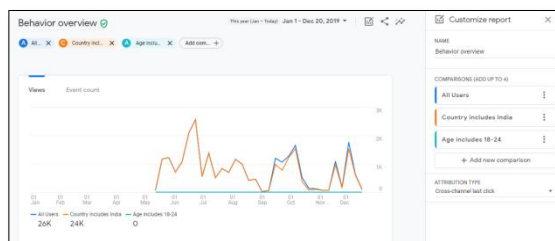
RESULTS:

The results generated are:

Figure 6: India Statistic

The above Graph i.e. Figure 6 states that from all 26000 users the number of users from India is 24000k with no user within the age 18 to 24.
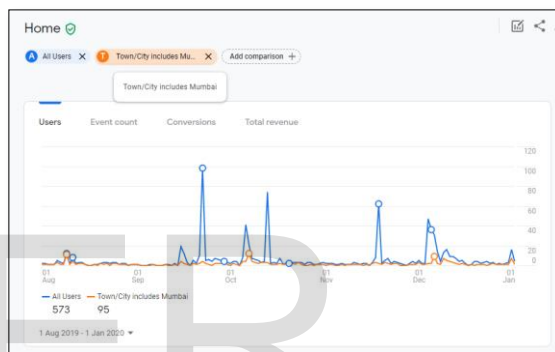

Figure 7: Mumbai Statistic

The above graph ($^{Figure\ 7}$) represents, from the date 1 August 2019 to 1 January 2020 the total number of users were 573 among which 95 lives city Mumbai.
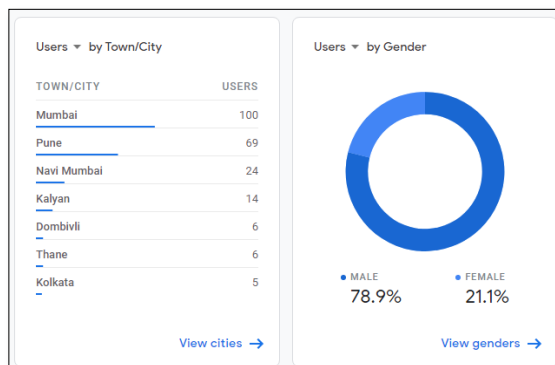

Figure 8: Town & Gender

Figure 8 shows, the Graphical representation of the number of users from different towns and cities along with percentage of the gender of the user.
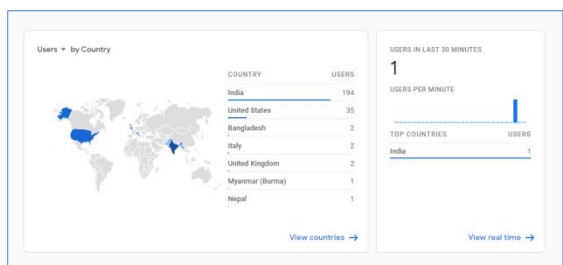
Figure 9: Real-time Stream

In above Figure (*Figure 9*) the users from all across the globe for a specified range of date are represented along with the number of user active on the application in last 30 minutes. The entire data is fetched in Real time.
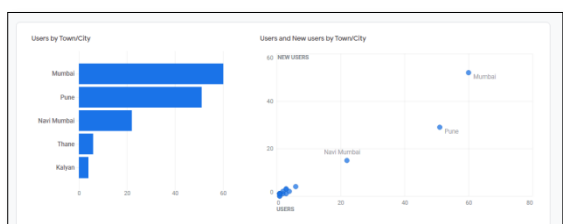

Figure 10: Town/State

Figure 10 shows, the Bar graphs of the Number of users from town of state Maharashtra for a specified range of date.

CONCLUSION

Thus, by using this application users from all across India can now access Educational events (Information and Technology, Science and Medical, Travel and Tourism, Space and Technology, Security and Defence, Agriculture and Forestry, Education and Training, Entertainment and Media), seminars, workshops and conferences on their android mobile devices and can securely register themselves in less amount of time.

FUTURE SCOPE

Tracking activities of individual user and providing them the content in which they are interested along with personalized home page which will contain News & Articles. Later, The User Interface of the application can be updated with latest upcoming designs, Material components and Themes.

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