Ionic Framework with Angular for Hybrid App Development

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Abstract— **Ionic framework is an open source cross platform tool which allows to develop hybrid application which work on different mobile platforms like android, IOS and windows without much efforts and increasing the ease of development. Ionic framework enhances the look and the feel of the UI of the hybrid application with the use of HTML5 and CSS.**

Index Terms— **Apache Cordova, Hybrid Application, Angular 4,Ionic Framework.**

I. INTRODUCTION

Angular is an open-source web application framework which is used in developing web based applications while Apache Cordova lets developers build mobile applications using JavaScript, CSS and HTML instead of using platform specific application programming interface (APIs') like those in iOS, Android or Windows Phone.

Apache Cordova

Apache Cordova, was previously known as PhoneGap is a mobile application development framework initially created and distributed by Nitobi. In 2011, Adobe Systems purchased Nitobi and rebranded it as PhoneGap. Later Adobe released it as an open source software called Apache Cordova. Apache Cordova provides the means for software programmers to create applications for mobile devices deploying HTML5,CSS3, and JavaScript unlike native tools and languages that depend of each platform SDK and APIs such as Android, iOS, and Windows Phone. It works like a native application wrapper with components that offer the appropriate modifications. Cordova can integrate and interpret HTML5,CSS3, and JavaScript codes without modification of additional coding or changes in a native application. This framework helps developers to build a rapid mobile application regardless of the knowledge and skills of the target native platform.
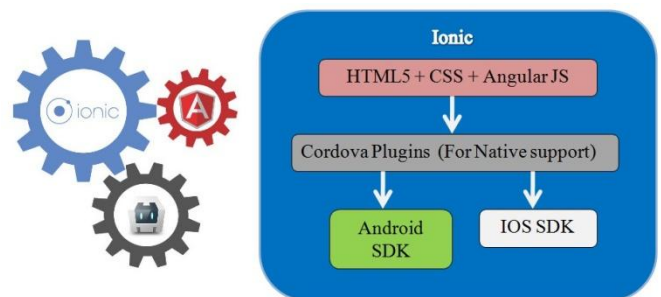
Ionic Framework

Ionic is a much better platform to use in order to design and build applications, since native applications are platform specific, have respective development tools, are extremely time consuming and expensive as well. Ionic on the other hand is platform independent, uses HTML5, CSS and Javascript. The development process is fairly quick and developers have a direct access APIs' with Cordova. Ionic utilizes the CSS property called Syntactically Awesome Style Sheets (SASS).

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Ionic provides users with all the components, and functionalities that are used in native mobile development - software development kits (SDKs'). Developers can design their applications using tools and sample codes provided by the ionic framework documentation and help website. The installation requires NodeJS and npm that is the default package manager for NodeJS, irrespective of a Windows, Linux or Macintosh environment.

Ionic Creator is a platform used in building a user interface by dragging and dropping ready-made components. It was implemented in designing the final appearance of the application. Ionic View makes it very easy for users to run and share developed apps to multiple devices using simple common and before they are transferred to the official market store Ionic Market is used in sharing the mobile applications, charging a fee to download it. In addition, Ionic has credible user support along with documentation for useful information. Ionic lab for testing newly developed application on android and IOS

Ionic Architecture

INSTALLATION AND RUNNING THE APPLICATION

The procedure for installation of ionic and cordova is fairly simple and straight forward. In order to perform a global installation, the following command can be input in the terminal which installs the packages needed to be used.

Global installation: npm install –g ionic cordova.
After the basic packages have been installed, their versions can be confirmed via the following npm commands.
To check version of ionic and cordova version-
ionic –v
cordova-v
In order to build a new application the ionic serve command can be used in the terminal after setting the appropriate directory where the project exists. In order to run the template or application the following commands can be used. on web browser: ionic serve add mobile platform: ionic platform add [android/ios] run on device/emulator: ionic [run/emulate] [android/ios].
To create mobile App project ionic start ionic start "app_name" "blank".

cd project_name
Add and remove plugin ionic plugin
 add "plugin package name"
 Cordova plugin add "plugin package name"   ionic plugin rm "package name"
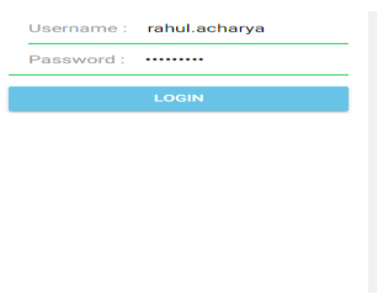**To run the application:**
npm run ionic:serve

SOFTWARE SPECIFICATIONS

 In order to build the application various tools and software were   used. The application is built and tested on a Windows platform using command line interface(CLI). NodeJS latest version along with cordova and ionic 3.20.0.

ABOUT THE APPLICATION

This application is developed using Ionic Framework and angular. This is an marketing and sales tracking application developed for marketing and sales team, where the Admin assigns a particular contact to marketing and sales members. Then the marketing and sales team can manage these leads and convert them into prospect customers.
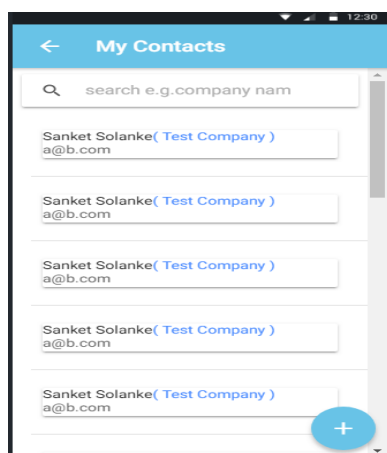
As this is an hybrid application it is compatible with android, IOS and windows devices. This is the login page of the application.

Login Page of the application

Here in this application we made use of various ionic UI components such as ion-buttons, ion-fab, ion-cards which enhances the look of the application.
Data security is maintained for the credentials as it comes from the API and is validated whenever the user enters his username and password and then the user is given the access to the application.

My contacts Page

Above screen of the application lists the contacts added by the admin to the particular marketing and sales member ..By clicking on a contact user can view the details of the contact. In this screen we made use of ion-fab which is the add icon which is used to add new contact. Ion-cards are being used to divide each contact separately in a block format.
Ion-search bar is used to display search box which helps in finding particular contact.

V. CONCLUSION

This study aimed at making hybrid applications which can run on android, IOS, windows platform. This has three collaborative frameworks-Apache cordova, ionic, Angular.
This study could save a lot of cost and time compared to the native software development kit or SDK from Apple such as Xcode with Objective-C or Swift. For cost saving can be fined by the number of mobile application developer are less than the native application. For time saving, it is defined as the time period that is much shorter that the native one as well.
Hybrid app combines the best of both web and native app to deploy native like app across different platforms. The conclusion of this study is that the choice to go with hybrid approach is   worthwhile   considering   the   emerging framework.

VI .Future Recommendations

Ionic framework should work on making progressive web apps without only being restricted to mobile platforms like android, IOS.

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