# ANDROID APPLICATION DEVELOPMENT USING WEB

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***ABSTRACT*** *This paper proposes a clever plan to create application. Not quite the same as customary programming techniques, clients can outline their application without long haul preparing. The device anticipates sentence structure and semantic mistakes amid outline the application. In view of the proposed thought an aggregate answer for create application for android framework is set up. The framework incorporates a cloud framework, client administration framework; web base advancement instrument and an auto convey framework. By methods for just intuitive, clients can plan and send their application. The design likewise gives adaptability to change the application focus with alter the dialect layer.*

***Keywords***— **Android, cloud, user friendly, module, automatic**

## INTRODUCTION

Now is an exciting time for mobile developers. Android also offers an equal alternative. Android is an open source architecture that includes the operating system, middleware, and its key applications along with a set of API libraries for writing mobile applications that can shape the look, feel, and function of mobile handsets. Mobile developers can now expand into the Android platform to enhance existing products. Without any artificial barriers, Android developers write applications that take full advantage of increasingly powerful mobile hardware. Mobile applications are a rapidly growing segment of the global mobile market. In this paper, we discuss on Android mobile platform for the mobile application development, layered approach for android. Google released Android which is an open-source mobile phone operating system which is Linux-based. Android becomes the most widely used OS on mobile phones. Android is mobile operating systems designed for increasingly powerful mobile hardware. Windows Mobile and Apple's iPhone provide simplified development environment for mobile applications. Android is built on proprietary operating systems that often prioritize applications those are created by third parties and restrict communication among applications and native phone data. Android offers possibilities for mobile applications by offering an open development environment built on an open source Linux kernel. Hardware access is available through a series of API libraries, and application interaction. Android Mobile Application Development is based on Java language codes. It allows developers to write codes in the Java language. These codes can control mobile devices via Googleenabled Java libraries. It provides the platform to develop mobile applications using the software stack provided in the Google Android SDK. Android mobile OS provides a flexible environment for Android Mobile Application Development as the developers can not only make use of Android Java Libraries but it is also possible to use Java IDEs. The software developer in Mobile Development has expertise in developing applications based on Android Java Libraries and other important tools. Android Mobile Application Development can be used to create innovative applications. Mobile Development has worked extensively on projects gaming software, organizers, media players, picture editors devices and more.

## BACKGROUND

Android is an operating system (OS) developed by the Open Handset Alliance (OHA). The Alliance is a coalition of more than 50 mobile technology companies ranging from handset manufactures and service providers to semiconductor manufacturers and software developers, including Acer, ARM, Google, eBay, HTC, Intel, LG Electronics, Qualcomm, Sprint, and T-Mobile. The stated goal of the OHA is to "accelerate innovation in mobile and offer consumers a richer, less expensive and better mobile experience" The java platform and the SDK tools were available in October 2008. There is single mobile phone that runs the Android OS which was G1 from T Mobile.

### Platform overview

Android is a software stack which is for only mobile devices. It includes an operating system, key applications. The Android SDK provides the tools. APIs necessary to begin developing applications on the Android platform using the

Java programming language . Android based on Linux version 2.6. The system services such as security, memory management, process management are controlled by Linux.

**Fundamentals**

Android applications are written in Java programming language. They are not executed using the standard Java Virtual Machine (JVM).Google has created a custom VM called Dalvik which is responsible for converting and executing Java byte code. All custom Java classes must be converted into a Dalvik compatible instruction set before being executed into an Android operating system. Dalvik VM takes the generated Java class files and it combines them into one or more Dalvik Executable (.dex) files. It reuses duplicate information from multiple class files, effectively reducing the space requirement created to support the nature of mobile operating systems.

**Development**

The Android SDK provides set of application programming interfaces (APIs). Android handset services are exposed and accessible to all applications. Android applications can share data among one another and also access shared resources on the system securely

**Application Framework**

Android offers developers ability to build extremely rich and innovative applications.Android Developers are free to take advantage of the hardware device, access location information, run background services, set alarms, and add notifications to the status bar. Developers access to the same framework APIs which is used by the core applications. The android architecture is designed to simplify the reuse of components; any application can publish its capabilities and any other application may then make use of those capabilities. Underlying all applications is a set of services and systems including: A rich and extensible set of Views that can be

- used to build an application, including lists, grids, text boxes, buttons, and even an embeddable web browser Content Providers that enable applications to
- access data from other applications (such as Contacts), or to share their own data A Resource Manager, providing access to noncode
- resources such as localized strings, graphics, and layout files A Notification Manager that enables all
- applications to display custom alerts in the status bar An Activity Manager that manages the lifecycle
- of applications and provides a common navigation back stack

**Android Runtime**

Android includes a set of core libraries that provides most of the functionality available in the core libraries of the Java programming language . Every Android application runs on Dalvik virtual machine. Dalvik has written so that a device can run multiple VMs efficiently. The Dalvik VM executes in the Dalvik Executable (.dex) format which is optimized for minimal memory footprint. The VM is register runs classes compiled by a Java language compiler that have been transformed into the .dex format.The Dalvik VM relies on the Linux kernel for underlying functionality such as threading and low-level memory management.

**APPLICATION DEVELOPMENT**

**The Application Model**

In Android's application model , an application is a package of components, each can be instantiated and run as necessary. Components are of the following types [5] Activity components form the basis of the user interface. Each window of the application is controlled by some activity. Service components run in the background which remains active even if windows are switched. Services can expose interfaces for communication with other applications. Receiver components react asynchronously to messages from other applications. Provider components store data relevant to the application, usually in a database. Such data can be shared across applications , like an online photo viewing application for an Android based phone. This application may have several components. There are activities for viewing the photos on the phone in the form of grid or list. There may be receivers for pausing application when a call comes in, and for restarting the application when the call ends. The application should not affect the high priority functionality of the device like incoming call, incoming sms, battery low indication etc. .

**Component Classes And Methods**

The Android SDK has a base class for each type of component (Activity, Service, Receiver, and Provider), with callback methods that are invoked at various points in the life cycle of the associated component. Each component of an application is defined by extending one of the base classes, and overriding the methods in that class. In particular:

- The Activity class has methods that are run when activity is created, or activity calls some other activity, or returns to the activity. The Service class has methods that are run when the Service is started, or some component binds to this service or even combination of both.

- The Receiver class has a method that is run when a message is sent to this receiver.
- The Provider class has methods to delete, query and update the data stored by this provider.

**Component Classes and Methods**

The Google Android mobile phone platform is one of the most anticipated smartphone operating systems. Smart phones can be used in place of Computers/Laptops. Mobile devices attain increasing capabilities; there are many more opportunities for novel applications development. Mobile application development has reached a high demand on today's cellular market. Android defines a new component-based framework for developing mobile applications which is comprised of different numbers and types of components. Activity components are the basis of the user interface; each screen presented to the user is a different Activity . Service components provide background processing that continues even after its application loses focus. Content Provider components share information in relational database form. SQLite is embedded into android which supports relational database. System includes an application with a Content Provider devoted to sharing the user's address book upon which other applications can query. Broadcast Receiver components act as an asynchronous mailbox for messages from the system and other applications. This application framework supports a flexible degree of collaboration between applications so the dependencies can be as simple or complex as a situation requires

**SOFTWARE IMPLEMENTATION**

The Android SDK includes all the tools and APIs.we need to write compelling and powerful mobile applications. The biggest challenge with Android, as with any new development toolkit, is learning the features and limitations of its APIs.

**Eclipse Software**

The Eclipse Platform is designed for building integrated development environments (IDEs) that can be used to create applications as diverse as web sites, embedded Java TM programs, C++ programs, and Enterprise JavaBeans TM. Many software developers spend their workday in an integrated development environment (IDE). For many Java developers, Eclipse (IDE) is a choice. Commonly cited reasons for using Eclipse include rich Java Development Tools (JDT) support and a plug-in architecture that allows tight integration of third-party functionality. Eclipse distribution based on the percentage of developers who made at least one selection in each of the views. The 10 views are used for display purpose

- the code is static structure (Package Explorer and Outline),
- runtime and debug information (Console, Variables Debug, and Breakpoints),
- search results (Search),Many developers used the first seven views.

We can create layout via drag and drop or via XML (Extensible Markup Language) source code using android editor. Android support layout manager like linear layout, Relative layout, Grid layout, Frame layout. Linear Layout having single column or row depending on the android orientation attributes. Different values for this attribute are horizontal and vertical, horizontal is the default value. Relative Layout allows positioning the widget relative to each other. This allows for complex layouts. Grid Layout separates its drawing area into: rows, columns, and cells. Frame layout is a layout manager which draws all elements on top of each other.

**Algorithm for developing Android Application**

i) Android applications are primarily written in the Java programming language in eclipse software.

ii) The Java source files are converted to Java class files by the Java compiler.

iii) The Android SDK contains a tool called dx which converts Java class files into a .dex (Dalvik Executable) file.

iv) The .dex file and the resources of an Android project, like images and XML files.

iv) So finally whole Android application (.apk file) will be created and deployed.

**Android virtual device – Emulator**

The Android Development Tools (ADT) include an emulator to run an Android system. The emulator behaves like a real Android device (in most cases) and allows us to test our application without having a real device

| Name of the author | Title of the paper | Publications/ year | concept | Advantages | Disadvantages |
|---|---|---|---|---|---|
| JetBrains | *A basic* | January 2001 | IntelliJ IDEA is a Java integrated | Language injections. Cross-language | IntelliJ IDEA is fairly expensive, with a |

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| | *approach to IntelliJ IDEA* | | development environment (IDE) for developing computer software. In December 2014, Google announced version 1.0 of Android Studio, an open source IDE for Android apps, based on the open source community edition of IntelliJ IDEA. Other development environments based on IntelliJ's framework include AppCode, CLion, PhpStorm, PyCharm, RubyMine, WebStorm, and MPS. | refractorings. Inspections and quick-fixes. Data flow analysis. | pricetag of $149/year. However there is a free community edition available. Startup can be slow deepending on system configuration. |
| AppFour | AIDE : A Documentary Overview | 2012 | AIDE supports developing Java/Xml based Android apps using the Android SDK. The AIDE app comes bundeled with a mobile version of the Android SDK, so there is no need to install anything else. The following tutorials show how to get started developing Android SDK apps with AIDE. | Checsum stored in plain tesxts. Allows for cross-compatibility, redundancy and portability. Support comp-licted file excludes. You can exclude folders, files, filetypes, etc. | The full version has a significant cost. |
| The jQuery | Introducti | October, | jQuery Mobile is a HTML5-based user | Download Builder. An interactive tool | There is no included MVC support in jQuery Mobile. It is |

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|---|---|---|---|---|---|
| Team | on to jQwery Mobile | 2010 | interface system designed to make responsive web sites and apps that are accessible on all smartphone, tablet and desktop devices.<br><br>jQuery Mobile is a touch-optimized web framework, more specifically a JavaScript library, currently being developed by the jQuery project team. | that has been created to customize an apps theme. Users can import a current theme, make changes, and export the theme back to the app for integration. | possible to achieve this, however, using other frameworks such as BackboneJS in combination with jQuery Mobile |
| ActiveState | Komodo IDE Documentary | May, 2000 | Komodo IDE is an integrated development environment (IDE) for dynamic programming languages.<br>Komodo IDE has features such as integrated debugger support, DOM viewer, interactive shells, source codecontrol integration, and the ability to select the engine used to run regular expressions, to ensure compatibility with the | Built in version Control Collaboration tools | **Not free**<br><br>Komodo IDE costs you $89 for a personal license. |

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|---|---|---|---|---|---|
| | | | final deployment target. | | |

## 4. PROPOSED SYSTEM

There are three sections of the proposed framework, as appeared in Fig.1, cloud framework, electronic improvement instrument, and on line help. The cloud framework is a sort of Paas. It has reinforcement bolster, excess help, stack balance bolster, online compiler bolster, stockpiling support, database bolster ,site support and auto send bolster. Being developed device, it gives clients to outline their android application by a program. In online help, there are electronic books to train clients how to utilize the framework.

The particular idea of this framework is appeared in Figure 2. There are four levels in the framework. Clients can plan android application in various levels. In the primary level, clients can plan the application by intuitive. In the second level, clients can outline the occasions without anyone else's input. In the third level, clients can actualize the capacity of use by select or change coefficients. In the fourth level, clients can read or adjust the java source code.

To accomplish the objective that exchange realistic part to java source code, a code create motor is executed in this paper. There are two arrangements of OP code: format of movement and legitimate OP code. The format code is exchanged from the XML of android design definition. The coherent OP code is developed by large scale idea.

This is an aggregate arrangement, a security instrument, reinforcement and repetitive framework have been composed, as appeared in Fig.3 and Fig.4. The detail portrayal is appeared as beneath:

There are five base parts of the framework: (a) site segment (b) stockpiling component(c) information base segment (d) reinforcement segment (e) repetitive segment. Utilizing these parts, a client administration framework, report framework, UI outline framework and module plan frameworks are builded.

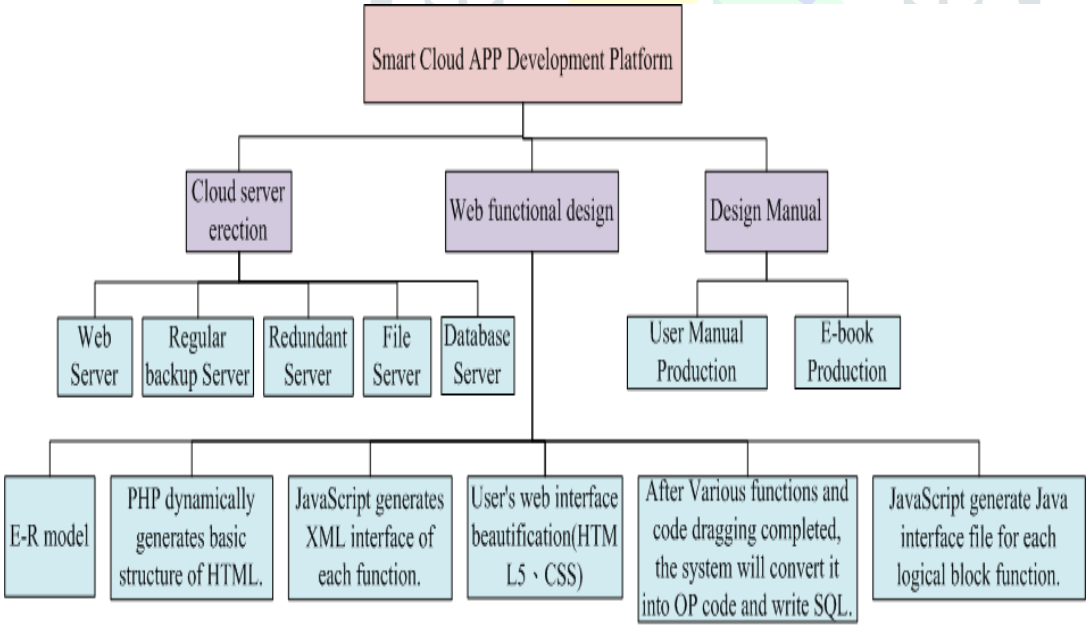


Fig. 1 The architecture of proposed system

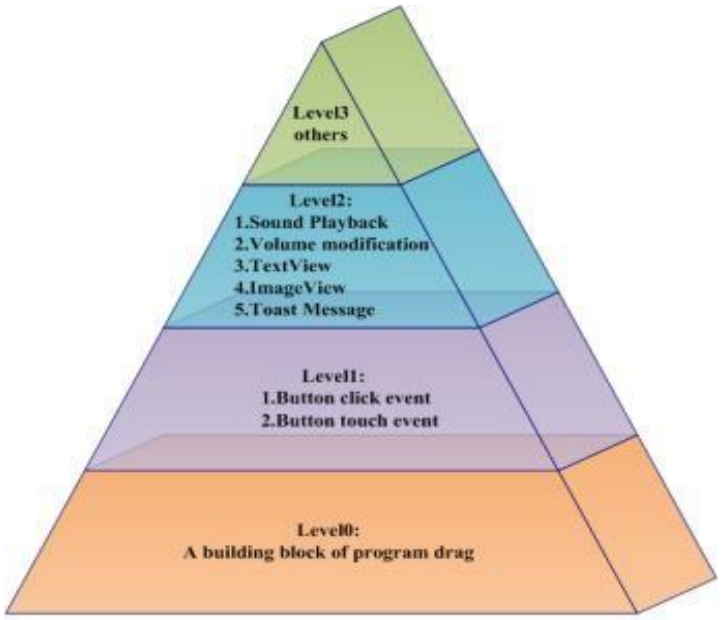


Fig. 2 The functional layers

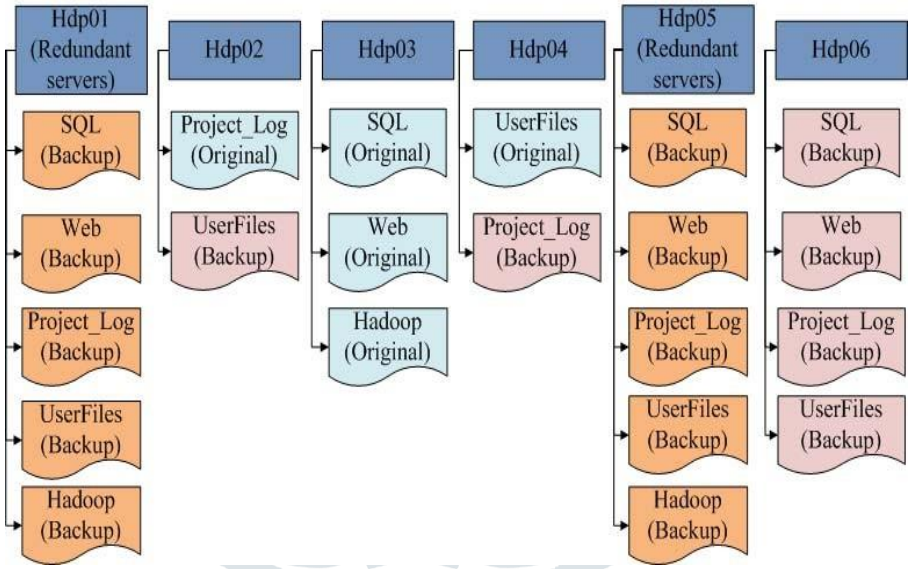


Fig. 3 The architecture of the cloud system

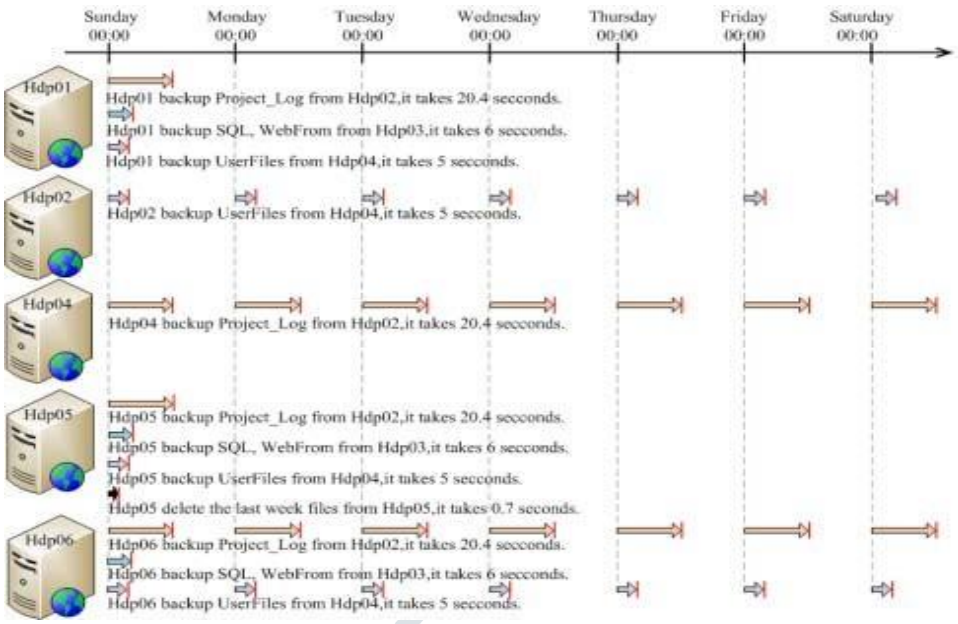


Fig. 4 The schedule of backup system

## 5. SYSTEM DEMOSNSTRATION

This paper proposed a model to actualize a web base android application improvement framework. To check the model, a straightforward trial is prepared. There are four framework are actualized for the examination: cloud framework, administration framework, application plan framework and programmed send framework.

### A. Cloud System

There are six computers in the experiment. The specification is shown as table.1. The hard wares are shown in Figure 5. All of them are installed Ubuntu 13.04 .

TABLE 1 specification of experiment hardware

| Name of node | CPY | memory | Hard disk |
|---|---|---|---|
| Hdp01 | Intel pentium4 3.4 GHz | 2G | 73G |
| Hdp02 | Intel pentium4 3.4 GHz | 1G | 150G |
| Hdp03 | Intel pentium4 3.4 GHz | 3G | 74G |
| Hdp04 | Intel pentium4 3.4 GHz | 1G | 77G |
| Hdp05 | Intel pentium4 3.4 GHz | 2G | 155G |
| Hdp06 | Intel pentium4 3.4 GHz | 1G | 77G |

### *B. Management System*

The undertaking administration framework is appeared as Fig. 6. After clients login the framework, clients can include, expel and alter their activities. It additionally intended to counteract SQL infusion and cross-site assaulting.

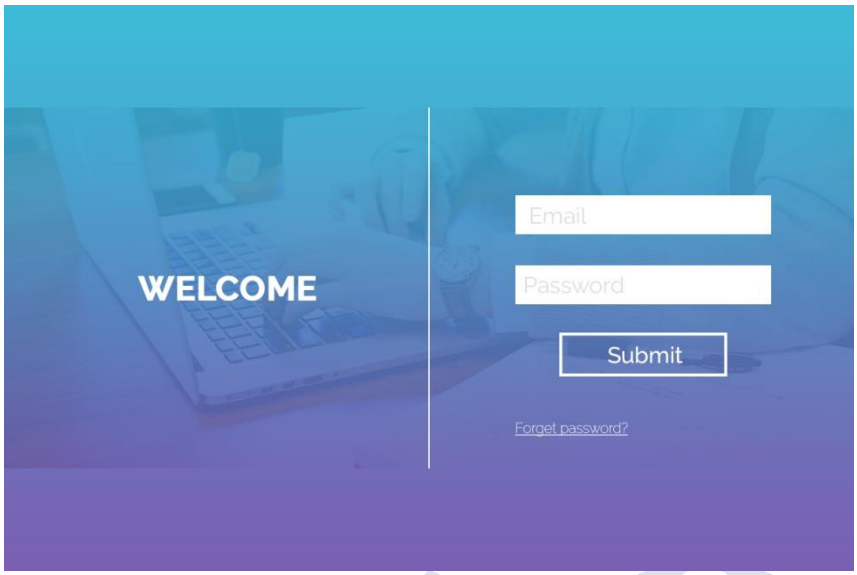


Fig. 6 Project creation

### *C. Application Design System*

There are two plan stages: UI fashioner and coherent originator. In UI creator stage, clients open the UI originator, as appeared in Fig.7. Drag the segment to appropriate area of the customer locale. And after that change the property of parts in the property page after they click it. In the intelligent originator stage, clients can decision the modules or squares into the coherent district. The framework bolsters sound player, little clock, photograph shower, and fundamental consistent squares, for example, circle or branch explanations. The intelligent fashioner stage is appeared as Fig.8. After clients click "Spare" catch, the venture will spare brief. The task will create APK record after snap "Distribute" Button.

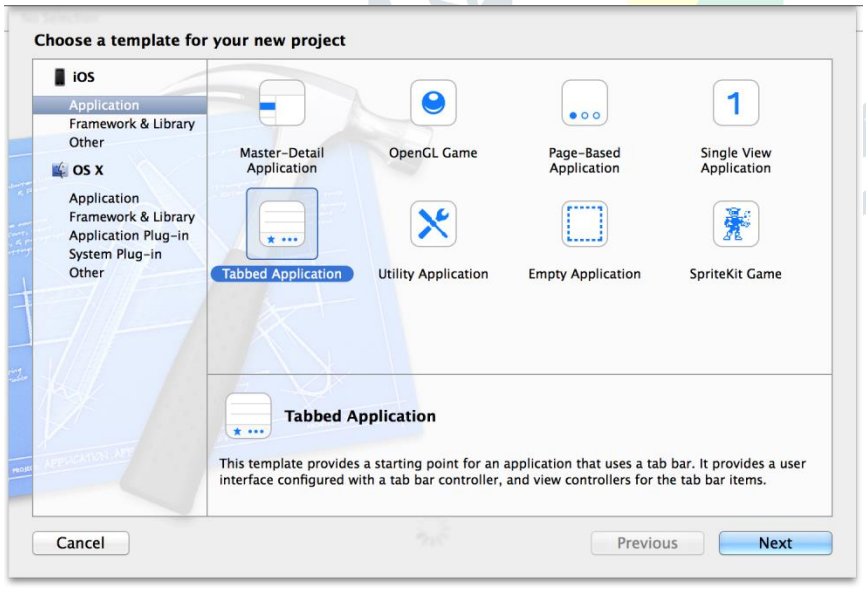


Fig. 7 User interface Design

### *D. Automatic Deploy System*

As shown in Fig.9, the users can choose to develop the project, delete the project or automatically packaged and download apk. The system also deploys apk file to specific smart phone if the smart phone install our auto deploy application.

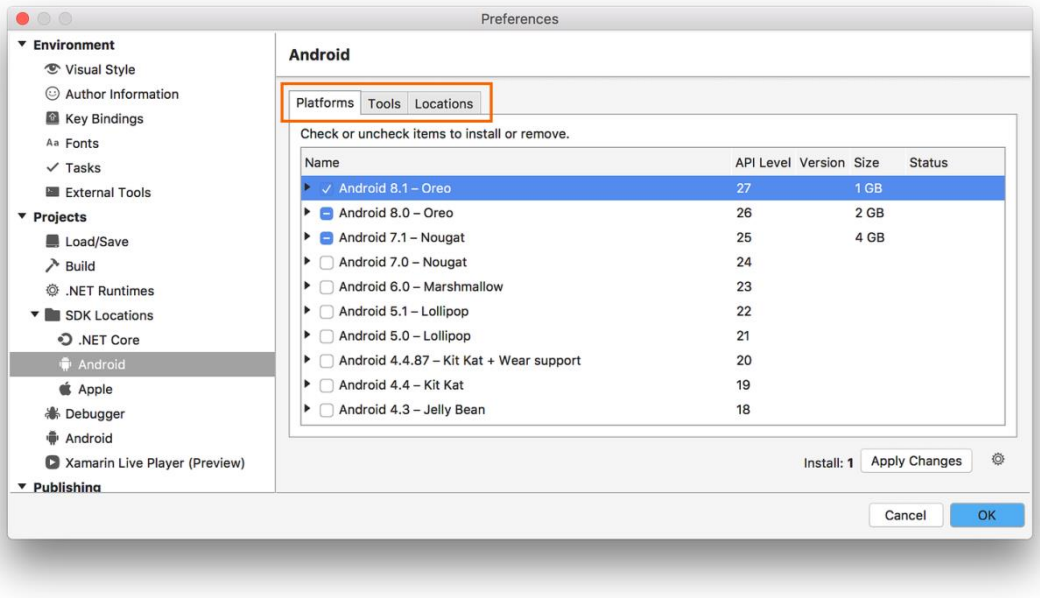


Fig. 9 Project list

### *E. Auto Deploy Application*

As shown in Fig. 10, users's apk file has been deploy and installed in the smart phone successfully

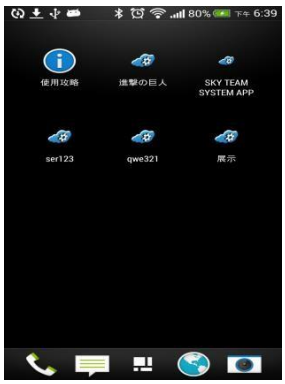


Fig. 10 apk successfully installed on the phone screen

## 6. CONCLUSIONS AND DISCUSSION

This paper proposed a plan to make the android application outlining stream all the more benevolent. Clients can outline android application without introduce particular programming. Clients can plan the application just by a program which underpins HTML5. The thought can reach out to other application. It makes the hole between regular client and programming originator littler. Contrast and exist instruments. The possibility of this paper gives an idea of module blend instead of rationale gathering. It additionally put advancement device and convey device in one framework. Later on, it is conceivable to create a framework to produce numerous applications for various gadget with just on click.

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