

# SPMUMA (Sri Padmavati Mahila Unified Mobile Application)

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**Abstract**— In the today's advancing world of technology, Mobile Applications are rapidly growing segment of global mobile market. Mobile applications are developing at a meteor space to give user a rich and fast user experience. This paper involves an application for the android base operating system for an institute which will provide the detail and accurate information about an institute.

This Unified Mobile application is simple yet powerful which integrated platform that connects all the various departments of an institute. In this app we can get the Notice board, Study materials, Campus News, Internship/Job, Skill Development, Suggestions/Grievances, Sports, and Results given by the institute via Unified Mobile Application. We have seen over the years that the process of notice board, important notification about academics has been carried out manually, this process is not only time consuming but also inefficient.

**Keywords**— Android Mobile Application, Android Studio, Core JAVA, Android SDK, XML

## I. INTRODUCTION

Android is a new, next- generation mobile operating system that runs on the platform of Linux Kernel. Android mobile application development is based on Java language codes. It is an important platform to develop mobile application using the software stack provided in the Google Android SDK.

This App has certain features like it provide information about department in which it gives information about staff, students and placement. Another feature is that notice is display on LCD notice-board and it gives notice via BLUETOOTH as well as notification directly sends on app. It also provide college calendar in which it gives schedule of holidays and events that are carried out in college. The most important feature of this Application is, user get college information on single touch.

## II. ARCHITECTURE OF ANDROID

### A. Application Fundamentals

Android applications are written in Java programming language. However it is important to remember that without using the standard Java Virtual Machine (JVM) android applications cannot be executed. Instead, Google has created a custom VM called Dalvik. Dalvik is responsible for transforming and also for launching Java byte code. All recursive Java classes are necessary to convert into a Dalvik compatible instruction to put before being executed into an Android operating system. Android is a software stack for mobile gadget that contains an operating system, also a middleware and key application. The Android SDK provide the tools and APIs which are necessary to develop application on the platform of Android technology using the java programming language. Android based on Linux version 2.6.

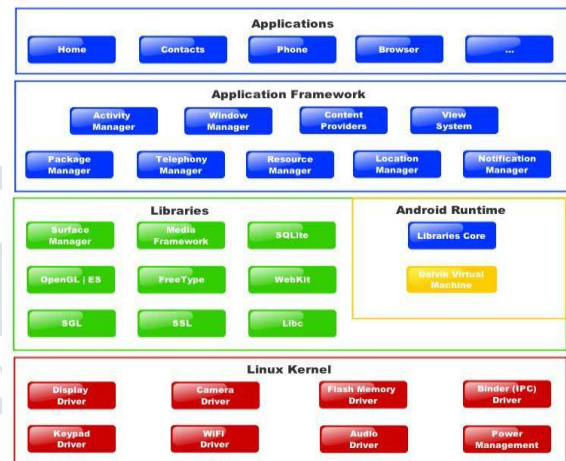


Fig.1: Android Platform Overview

### B. Developing Android application

The Android SDK provides an extensive set of application programming interfaces (APIs) that is both contemporary and resistant. Android handset core system services are expose and approachable to all applications. When given the appropriate permissions, Android application can share data among one another and access shared resources on the system securely.

### C. Application framework

By providing an open development platform, Android proposes develop the ability to build extremely abundant and innovative application. Developers are free to get benefit of the device hardware, access location information, execute background services, add notifications to the status bar, and much more.

Underlying all applications is asset of services and system, including:

- A rich and extensible set of Views that can be used to develop an application, containing lists, grids, text boxes, buttons and even an embeddable web browser.
- Content Provider that allows application to access data from other applications, or to share their own data.
- A Resource Manager, providing access to non-code resources which includes localized strings, graphics and layout files.
- A Notification Manager that enable all application to display custom alerts in the status bar.

- An Activity Manager that manages the life cycle of application and provides a common navigation backstack.

#### D. Android Runtimes

Android includes a bunch of core libraries that facilitate most of the functionality available in core libraries of the Java programming language. Each Android application executes in its own process, when its own instance of the Dalvik Virtual machine. Dalvik has been written so that a device can execute multiple VMs in an efficient manner. The Dalvik VM execute file in the Dalvik Executable (.dex) format which is enhanced for least memory footprint. The VM is resister-based, and run classes compiled by a java language compiler that have been change into the .dex format by the included “dx” tool. The Dalvik VM release on the Linux Kernel for fundamental basic functionality like threading and low-level memory management.

### III. TECHNOLOGIES USED

**SQLite:-** SQLite is an in-process library that carry out a self-contented, server less, zero-configuration, transactional SQL(Structured Query Language) which is a data base engine. The code for the SQLite is in the public domain and is thus free for use for any purpose, it may be a commercial or private. SQLite is the most widely developed data base in the world with more application that we can count, including multiple high-profile projects.

SQLite is an embedded SQL database engine. Unlike most other SQL database, SQLite does not have separate server process. SQLite reads and write diretly to ordinary disk file.

**XML:-** XML is nothing but a Extensible Markup Language. It is a markup language which defines a set of collection of rules for encoding a record in a format which is both human-readable as well as machine-readable. It is define by the W3C’s XML1.0 specification and by many other related specifications, some of which are free open specified parameters.

The design aim of XML emphasize simplicity, generality and easy to use across the internet. It is a textual data format with robust support via Unicode for different human language. Although the design of XML focus on documents, it is mostly used for the representation of arbitrary data structures like those which are use in web services

**Java:-** It is a programming language expressly designed for used in the environment of the internet. It was architecture like nearby C++ language such that having the “look and feel” of the C++ language, but it is more easy to use than C++ and emphasize an object-oriented programming model. Java can be use to design a complete applications that may execute on a single computer or be distributed among servers and client in the network. It can also be used to construct a tiny application module or applet for use as part of a web page. Applets make it feasible for a web page user to interact with the page.

**Android:-** Android provides a rich application framework that allows the user to produce the innovative apps and games for mobile gadgets in java language environment.

### IV. METHODOLOGY USED

**i. Android Studio:-** Android studio is the official IDE for the Android application development, which is based on IntelliJ IDEA. On top of the capabilities the user wishes from IntelliJ, Android Studio offers:

- Flexible gradle-based building system
- Build variants and various apk file generation
- Code templates to support you build common app features
- Rich layout editor with support for drag and drop them editing Lint tools to catch performance, usability,
- variations capability and other problem
- Proguard and app-signing capabilities

Build-in support for Google Cloud Platform, making it easy to integrate Google Cloud Messaging and Application Engine and many more.

**ii. Android SDK: -** A software development kit that permits the developers to design applications for the Android platform. The Android SDK include sample projects with some source code, development tools, an emulator and required libraries for developing the Android applications. Applications which are built using the Java programming language and run on Dalvik, virtual machine architecture for embedded use which runs on top of a Linux Kernel.

## V. RESULT

This Unified Mobile Application having following result:-

To provides strong security purpose this android application having two Modules

1. SPMUMA Admin Module:
  - Registration Form
  - Login Form
  - Get information from SPMUMA
2. SPMUMA student Module:
  - Monitors the stored data
  - Reports to be generated
  - Provides secured authority/access to data
  - Sends link to the registered users
  - Activates users account if any trouble arise while register or login to application



Fig3. Splash Screen

This is the first android application only for SPMVV university student (<https://www.spmvv.ac.in/>).

SPMUMA Icon:

Nowadays, icons are playing a major role in Mobile application designing. Designers are constantly focusing on icons, because they are very important for any Mobile Application. Icons are very important, because users can be motivated by the message conveyed by icons.



Fig2. SPMUMA Icon

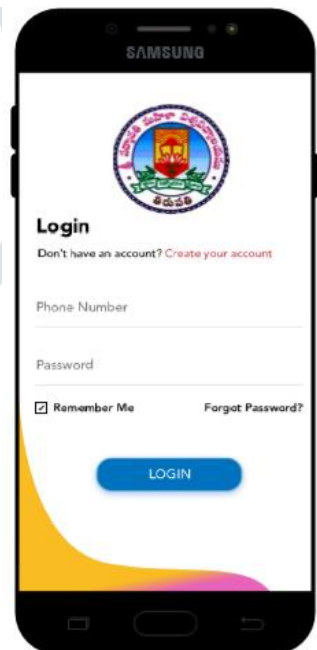
This SPMUMA Icon used for this Application is as shown above Fig2

SPMUMA Login Screen:

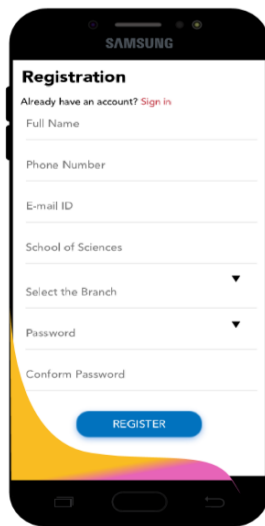
Splash screen, or very often called as the launch or boot screen is the first screen that is displayed when an application loads. It is the welcome screen of your mobile app that the users encounter while launching the application.

SPMUMA Login Screen:

Login credentials are given to authenticate an User. Authentication can be done with phone number and Password associated with one time password. Login Credentials are used to allow access to private members to use this Mobile application. When these login credentials matches with the details saved in the server, then the user can access the resource, otherwise they need to register with the application this step is called authentication which means identifying if the user is right person or not.



## SPMUMA Registration Screen



Screen where students enter their personal information and register to a system.. On successful registration, user credentials will be stored on the DB created in our backend server. There will be a link to Android Login Screen

## SPMUMA Home Screen



Fig4. SPMUMA Home screen  
Home screen contains:

- a. Notice board
- b. Study Material
- c. Campus News
- d. Internship/Job
- e. Skill Development
- f. Suggestions/Grievance
- g. Sports
- h. Results
- i. My Profile

## VI. CONCLUSION

With the advancement in the mobile applications one can get important and useful information without waste of time by such single touch they can use unified mobile application, which gives a fast user experience with detailed and accurate information. This application provides Notice board, Study materials, Campus News, Internship/Job, Skill Development, Suggestions/Grievances, Sports, and Results

## VI. Future Work

The era of mobile Application has just started and there is a long way to march. Development of mobile application will be emphasized on following aspects:

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