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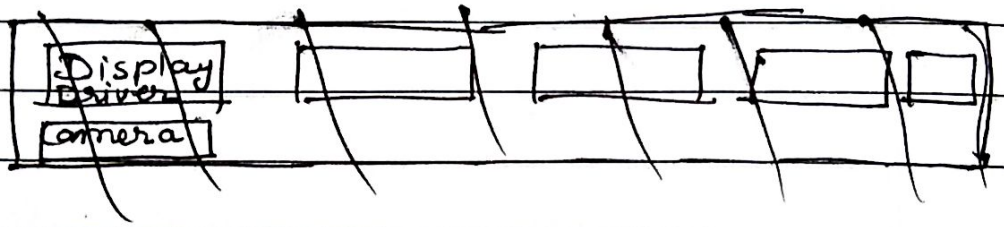
# Android Architecture Diagram

Android can be simply understood as a software package. It is a linux based operating system for mobile devices. Here, we are going to understand the architecture of android in detail. Android architecture is also known as the android software stack. It can be categorized into five parts-




1) Linux kernal
2) native libraries (middleware)
3) Android Runtime
4) Application framework
5) Applications

① Linux kernel:

Linux kernel exists at the root of android architecture and is thus also called as the heart of the android architecture. The

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device drivers, power management, memory management, device management, and resource access comes under the responsibility of the linux kernel.

2) Native libraries –

Native libraries such as Webkit, OpenGL, Freetype, SQLite, Media, C runtime library (libc), etc are on top of the linux kernel.

| S.No | library | Responsibility |
|---|---|---|
| 1 | Webkit library | Browser Support |
| 2 | SQLite | Database |
| 3 | Freetype | Font Support |
| 4 | Media | Playing and recording audio and video formats |

3) Android Runtime

The core libraries and DVM (Dalvik Virtual Machine) are there in android runtime. They are

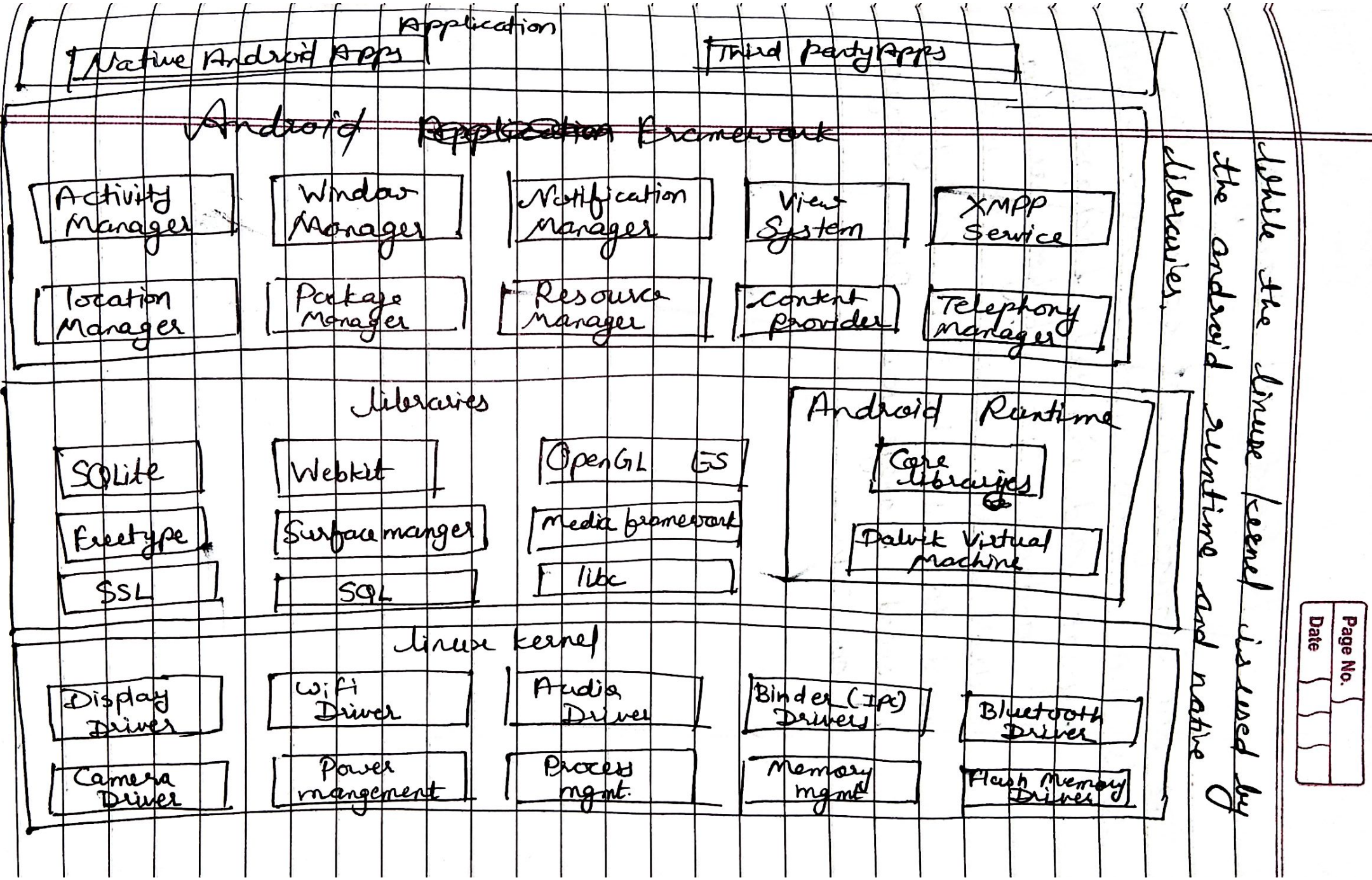
responsible for running android applications. Originally seeing like JVM, DVM is optimized for mobile devices to consume less memory and to facilitate a fast performance.

4) Android Framework -

The Android framework is on the top of native libraries and android runtime. Android APIs like UI (User Interface), telephony, resources, locations, content providers (data) and package managers are a part of the android framework. For the development of the android application, the Android framework facilitates a lot of classes and interfaces.

5) Applications:

Applications are present on the top of android framework. The Android framework is used by all the applications including home, contact, setting games, browsers. The android framework itself uses android runtime and libraries.


Application
Native Android Apps
Third Party Apps
Android Application Framework
Activity Manager
Window Manager
Notification Manager
View System
XMPP Service
Location Manager
Package Manager
Resource Manager
Content Provider
Telephony Manager
Libraries
SQLite
Webkit
OpenGL ES
Freetype
Surface manger
Media framework
SSL
SQL
libc
Android Runtime
Core libraries
Dalvik Virtual machine
Linux kernel
Display Driver
Wi-Fi Driver
Audio Driver
Binder (IPC) Drivers
Bluetooth Driver
Camera Driver
Power management
Process mgmt.
Memory mgmt
Flash Memory Driver
While the Linux kernel is used by the android runtime and native libraries.

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# Android SDK Manager

The SDK manager is a command line tools that allows you to view, install, update and uninstall packages for the android SDK. If you are using android studio, then you do not need to use this tool and you can instead manage your SDK packages from IDE.

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# SDK

SDK stands for software development kit. the SDK is a set of software-building tools for a specific platform, including the building blocks, debuggers and often a framework or group of code libraries such as a set of routine specific to an operating system.

Android SDK is a free and specilized programming language that allows you to create Android apps. Developed by google for its android platform.

A SDK is a set of tools that provides a developer with the ability to build a custom app which can be added on, or connected to, another program. SDK allows programmers to develop apps for a specific platform. Using the SDK you can generate APKs that can be ~~displayed~~ deployed to different android-supported devices.

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Some examples of software development kits are the Java development kit (JDK), the Windows 7 SDK, the macOS X SDK, and the iphone SDK.

To Open the SDK Manager from android studio click Tools → SDK Manager or click SDK manager in the toolbar. If you are not using android studio, you can download tools using the SDK manager command line tool.

difference between android studio & SDK.

Android SDK belongs to "frameworks (full stack)" & category of the tech stack, while android studio can be primarily classified under "integrated Development Environment".