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An introduction of android technology

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Abstract:
Android operating System make the user easier to interact with real object.
It makes the user more friendly while working with smart Phones because of customization.Mainly, people all over the world uses android operating system than IOS operating system.

Keyword used:
Android pie,operating system,linux,layers of android,framework,libraries.

A) What is android?

It is used as operating system among smartphones.

One of the Linux based operating system is android.It is a collection of packages for mobile devices such as smartphones, tablet. It was developed by Google and. Java language is mainly used to write the code of Android and other languages can be used. The main purpose to make an Android operating system is to make a real-world product which can easily interact with the users. There are many version of Android such as lollipop,kitkat ,Jelly Bean, Icecream,Sandwich,Donut,etc. The latest version of Android is Pie: **Versions** 9.0

B) what is linux based operating system?

It is basically a software which manages the communication between software and hardware.
Without any operating system, the software wouldn't function.

1) Features of Android

1) It is fully open source that means everyone can download it from the Internet.
2) it is fully customization platform. The user can easily customize it according to his/her requirement.

2) Application of android

1)communication.
2)personalization.
3) music and audio.
4) social, etc

3) Layers of android

1)Linux
2)Native libraries
3)Android runtime
4)Application framework
5)Application

3.1) Linux
It is the core part of android layers.It makes the communication between Software and hardware.It is responsible to make the interaction from software to hardware.

3.2) Native libraries
On the top of the kernel, there are **Native libraries** such as WebKit, OpenGL, FreeType, SQLite, Media, C runtime library, etc.

3.3) Android runtime
In this layer, there are many core libraries which are responsible to run android application.

3.4) Android framework

It consists many android APIs .
This layer provides many classes and interfaces for Android app development.

3.5) Application

It is the topmost layer of the whole architecture of android.
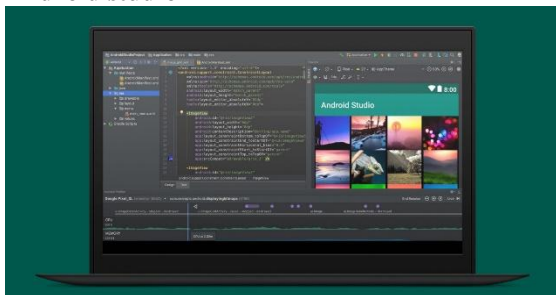
Android studio

Fig.1. Android studio

Android Studio is the IDE(integrated development environment) or tool which provide us a platform to make an android studio.It also provide a dark theme.
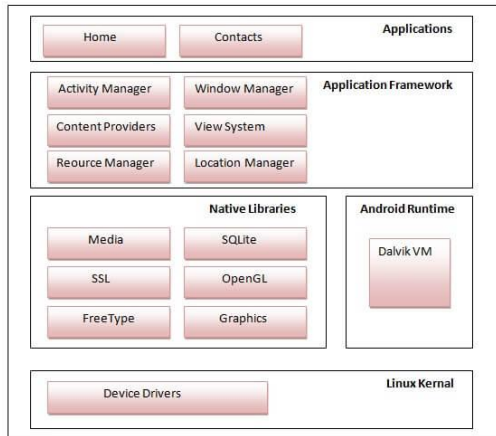

Fig.2. layers of android

Note: Java language is basically used to build the android application.

C) Disadvantages of using android studio

Using Android Studio on Windows is just a waste of time. I turned to Ubuntu a months ago. It is easier and more convenient to use Android Studio on Ubuntu. Gradle building and parsing are faster, too.

keywords that are used in the android studio are as follows--

C.1) Activity

It is a class in which we write java code. It is just as a Frame which is used in Netbean IDE.

C.2) View

View is anything that is available on the screen such as button,textFields,etc.

C.3) Intent

This thing makes our activity to move on another activity easily.
EX.
 Intent intent = new Intent(this,loginActivty.class);
 startActivty(intent);

C.4) Fragment

Fragments makes our application more interactive. A single activity can display one or more fragments on the screen at the a time.

Note: By using android studio we cannot create real 3 D games that's why we use visual studio for developing games.

D) Firebase

It is database storage of android studio project.
Firebase is the storage of data which is build by android studio.It is the best way to store the data online.Many applications such as facebook used firebase to store their data online on cloud.It provide more interactive way to customize our application.

1) Firebase Service

Firebase services are of two parts---
  1) Development and
  2) Test

  a) Real time database

 b) Auth

c) CrashLytics

d) Cloud Function

e) Firestore

f) Cloud Storage

g) Performance Monitoring
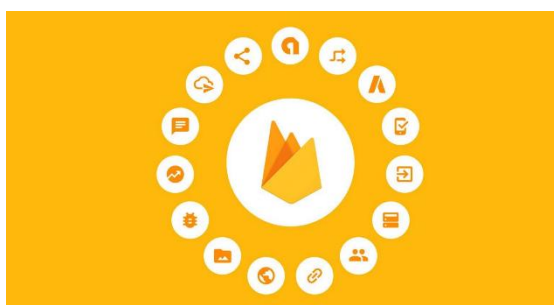
h) Crash Reporting

i) Hosting

Fig.3 Firebase

Fig. 4 Real Time Firebase

2) Realtime Database

It is the database which is responsible to store the data the from users systems to server.

The Realtime Database is just have only one single JSON file that the developers can manage in realtime.

Benefits of Realtime database is that it allow you to build an application without the use of servers.

E) Java

Java is an object oriented programming language.Java language was developed by James Gosling. The main reason behind to develop Java language is to use classes and object to make the applications more attractive.It is fully secure language,fast,reliable.

Features of java

1) Java is platform independence

 It means it's a write once run anywhere(WORA).A single Java code that is written on one operating system.It will also run on another operating system without any modifications.

To run Java code in IDE,it require JVM(Java virtual machine) which convert the byte code into the programming language code.Jvm is one which is responsible to make the code platform Independent.

2) Large standard library
One of the reason why Java is most popularly used because of the availability of large library files.
Ex java.lang(String,array), Java.util(scanner class)

Keywords used in JAVA are as follows---

1) JVM
It is an abstract Virtual machine that enable the Java code to run on any system.
2) JRE
It stands for Java runtime environment.It supports the libraries and other components to run a Java program.
3) JDK
It stands for Java development kit.it consist JRE and tools such as complier and debugger for developing Java application .
In Android studio Java and xml ,both are

used to develop the

applications.

F) XML

The full form of XML is extensible Markup language.

Markup language is a Xml langauge just as a Html which is used to describe the data.It is used to designing the Java application.Xml tags are not pre-defined .we have to define our own tags.

It is easy to use and simple to use.we use XML because it is light weight language so it doesn't make our layout heavy.

Different XML files used in Android

1) Layout XML files
It is located inside the res folder and in the layout folder.

It is used to define the actual UI of our application.It consists all the elements and views that we want to use in our application

2) Manifest XML file (Manifest.xml)

This xml file shows summarize of all the xml files.It includes application package, activities,services, permission.suppose we need to do internet work then we use internet permission in our androidManisfest.xml file.

3) Drawable XML file
These are those xml files which consist foreground and background xml files.

4) Color XML file(color.xml)

These are those Xml file which is responsible for the colors of the whole application. Some of are background color.

G) Conclusion

This is the short introduction of using android studio to develop java Application that will support the full features to develop any java application.We can create 2 D games also. Android Studio is the one of the finest IDE because it supports all the upcoming updates by the google.

H) Acknowledgement

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