

ICFAI University, Dehradun

ASSIGNMENT – 1

Android App Development

By:-

Ashirbad Sarangi

18STCUDDN01008

8) Characteristics of OOP :

The OOP or object oriented programming was different from the earlier procedural programming language and so introduced few new concepts + entities :-

① Class

This is a collection of different member functions and data members which share the similar resources and access permissions.

A class can be public, private or protected where public classes are accessible to all, protected classes are accessible to the parent child and private classes are inaccessible by other parts of program.

② Object :

This is the instance of class. The copy of a class or the 'class variable'. The data members and member fun's of a class can be accessed through an object. A class can ~~create~~ create objects as many objects as required.

③ Encapsulation Data Abstraction

This is hiding of data from other. Through this only those data that are required are shown, rest all are hidden using protected access modifier.

④ Modularity

The whole program is broken into modules such that the debugging gets easier.

⑤ Encapsulation

This is to encapsulate the whole code. Hide all the unnecessary things and put everything in one file.

⑥ Inheritance

The process of inheriting the methods of one class to other is called inheritance.

⑦ Polymorphism

The ability of existence of one operator or function in multiple forms is called polymorphism.

8) Serialisation

This means to write the state of an object into a byte stream. It is mainly used in Hibernate, RMI,

JPA, EJB & JMS technologies. The object to be serialised must call the processes: `writeObject()`, `ObjectOutputStream()`

Ex: It is platform independent.

Ex:—

// class Student is created already

Student s = new Student (211, "Ashu")

FileOutputStream writef = new FileOutputStream ("f.dat")
ObjectOutputStream writeO = new ObjectOutputStream (writef)

writeO.writeObject (s)

writeO.flush()

writeO.close()

Q) Thread

Threads are lightweight process. They are ~~par~~ lighter than process and can execute faster. Programming languages like Java allow multi-threading which allow multiple concurrent execution of ~~mul~~ threads parallelly.

Synchronisation

Synchronisation comes to the scene when multiple thread access the same shared resources. The main aim of synchronisation is to provide atomicity and ~~to~~ avoid corruption of data.

If thread A and thread B of the same process are present. Thread A ~~updated~~ entered a segment and updated a variable. As soon as, it was done, thread A ~~was~~ ~~looked~~ it came out of the segment. Then, thread B entered the segment and again updated the value. Thus when, A will make a further computation, it may not get accurate results as, the value would have been changed by B, therefore synchronisation is required.

8) Features of android

The features of android are unique and.

(i) Beautiful UI

The user interface of Android OS is a very beautiful and intuitive.

(ii) Connectivity

There are various ^{forms} methods of connectivity through Android OS like GSM, Edge, IDEN, CDMA, EV, DV, UMTS, Bluetooth, Wi-Fi, LTE, NFC, WiMax

(iii) Storage

SQLite is a lightweight relational db is used for storage purpose

(iv) Media Support

H.263, H.264, MPEG-4 SP, AMR, AMR-WB, AAC, HE-AAC, AAC-SI, MP3, MIDI, WAV, JPEG, PNG, GIF, BMP etc.

(v) Messaging

(vi) Web Browser

Based on open source WebKit layout engine, coupled with chrome, JS engine, supporting HTML5 CSS3

(vii) Multi-touch :

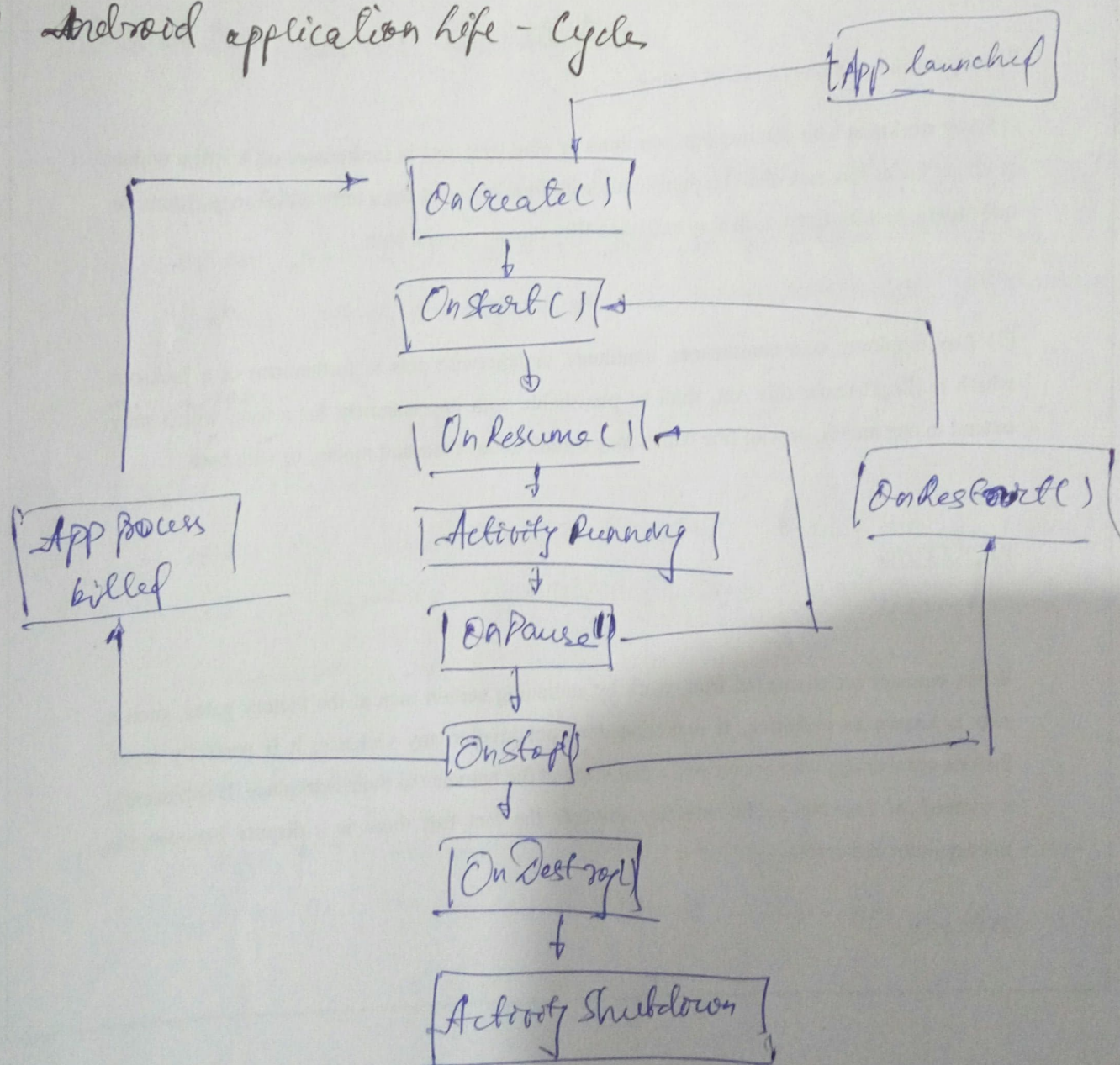
(viii) Multi-tasking

(ix) Resizable widgets - applications and widgets can be expanded or reduced according to space

(x) Multi-language - support single & multi-lingual keyboards

(xi) Wifi Direct - allowing peer-to-peer connection over high bandwidth

8) Android application life - Cycle



- OnCreate(): when the application is first called
- OnStart(): when the app starts
- OnResume(): called when activity starts interacting with the user
- OnPause(): when activity is not visible to user
- OnStop(): no longer visible to user
- OnRestart(): activity is stopped prior to start
- OnDestroy(): activity is destroyed

8) Android internal architecture

① Linux kernel.

The android architecture has a linux (open source) kernel. Kernel is required as it contains all drivers, power management, device management & resource access.

② Native libraries

These are the libraries that built into Android such as Webkit, OpenGL, FreeType, SQLite, Media, C runtime, etc.

③ Android Runtime

It has libraries and Dalvik Virtual Machine (DVM) for getting optimised to be run on mobile device.

④ Android Framework

It contains all the android APIs and framework upon which OS is built.

⑧ Applications.

These are the softwares that are used by the user and are called as apps popularly.

8) Android application class

This is the base android class that contains all components as activities and services.

The appⁿ class or any subclass of appⁿ class is initiated before any other class when process for package is generated.

8) SDK

Software Development Kit that enables development to create appⁿ for android platform. It includes sample project with source code, development tools & emulators.

8) Android Virtual Device

It is represented as a specific Android device that can be used as the Android emulator on PC. It provides the same functionality of phone on PC.