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Q:1

Describe API and API level in android.

ANS: API

An Application Programming Interface (API) is a specific set of codes and characteristics which programs could obey to convey with each other. APIs are increasing dramatically each year.

The era of software go very rapid. In the previous days data given and manipulated in the similar system but these days the beginning of the data and manipulating place is totally distinguish. We would be able to get access the data from every where any time that is why we keep this data in cloud.

API LEVEL

API Level is an integer value which uniquely recognize the framework. The API revision given from the version of Android platform.

The Android platform gives a framework API which applications could utilize for communicating with Android system. The API framework comprises of:

- The core set of the packages and the classes
- The set of XML elements and the attributes
- The set of the XML elements and attributes for declaration
- A intent set
- A set of allow that applications could request.

Platform Version	API Level
Android 11	30
Android 10	29
Android 9	28
Android 8.1.0	27
Android 8.0.0	26
Android 7.1	25
Android 7.0	24
Android 6.0	23
Android 5.1	22
Android 5.0	21
Android 4.4 -4.4.4	19
Android 4.3.x	18
Android 4.2.x	17
Android 4.1.x	16
Android 4.0.3 - 4.0.4	15
Android 4.0.1 - 4.0.2	14
Android 3.2.x	13
Android 3.1	12

Android 3.0	11
Android 2.3.3 - 2.3.7	10
Android 2.3 - 2.3.2	9
Android 2.2.x	8
Android 2.1	7
Android 2.0.1	6
Android 2.0	5
Android 1.6	4
Android 1.5	3
Android 1.1	2
Android 1.0	1

Q:2

Illustrate the android service model.

ANS: ANDROID SERVICE MODEL

A service is an element which runs in the back for perform long running operations with no requirement to communicate with a user and it operates even if application is not working. A service can effectively have two states

STARTED

A service is begin when an application element for example a activity begin it by calling startService(). When started a service could run in the background for many time even if the element which begin it is destroyed.

BOUND

A service is said to be bound while an application component binds in it through calling bindService(). A bound service provide a client server interface which give permission components to communicate with service send requests and get results even when around process with inter process communication.

A service is having a life cycle callback methods which you can apply to monitor variation in the state of service and you can operate work at the proper stage. This indicate the life cycle while the service is begin with startService() and the life cycle while the service is begin with bindService()

Q:3

Write the note on the following.

- a. Android libraries and list any 5 types
- b. Android framework and 5 types

ANS: ANDROID LIBRARIES

This category comprises that Java based libraries which are particular for Android development. Instances of libraries in the category comprises of the application framework libraries in extra for those which give facility user interface building and

graphics drawing database access. A brief of few key core Android libraries accessible to the Android developer is given below

- **android.app:**

Give access to a application model and is the foundation of each Android applications.

- **android.content:**

Make ease in content access publishing and communicating among applications and components of application.

- **android.database:**

Utilized for access data created by content provider and comprises SQLite database management.

- **android.os:**

Produce applications having access for standard operating system services comprising messages system and inter process communicate.

Other android libraries include **android.text**, **android.view**, **android.widget**, **android.opengl** etc.

ANDROID FRAMEWORKS

The Application Framework layer gives most higher level services for applications in the kind of Java classes. Application developers are permissible to make utilization of those service in their application. The Android framework consist of the below key services

- **Activity Manager**

Controls every aspects of application life cycle and stack activity.

- **Content Providers**

Give permission to applications to publish data with another applications.

- **Resource Manager**

Give the access to non code embedded resources like the strings color settings, user interface layouts.

- **Notification Manager**

Give permission to applications to show alerts and notifications for the user.

- **View system**

An extensible view set utilized to produce the application user interfaces

Q:4

Explain with model the Android Broadcast Receiver

ANS: ANDROID BROADCAST RECIEVER

Broadcast Receivers simply give response for broadcast messages from another applications either from a system itself. These messages are often known as events and intents. For example applications could also begin broadcasts to let another applications acknowledge that few data is been download for the device and available for them to utilize therefore it is broadcast receiver which will intercept this interaction and would begin proper action.

These are the following two important stages to create Broadcast Receiver works for a system broadcasted intents

- Creating a Broadcast Receiver.

- Registering the Broadcast Receiver

A broadcast receiver is applied as a subclass of Broadcast Receiver class and every communication is broadcaster like a Intent object.

EXAMPLE:

```
public class MyReceiver extends BroadcastReceiver { public void  
onReceive(context,intent){}
```

Q:5

Explain Android content provider

ANS: ANDROID CONTENT PROVIDER

A content provider component gives data from one application to another on demand. This kind of requests are handled from the techniques of the Content Resolver class. A content provider can utilize distinguish paths to keep its data and the data could be kept in a database, in files and even on the network.

Content providers allows you centralize content in a place and having most distinguish applications entrance it as required. A content provider responses mostly like a database where you could query, edit its component, as well as add and remove content by utilizing insert(), update(), delete(), and other techniques. In many cases this data is kept in a SQLite database. A content provider is applied as subclass of Content Provider class and should apply the standard set of API which make it able other applications for performing transactions.

EXAMPLE:

```
public class My Application extends ContentProvider { }
```

Number of steps are needed to be performed to create own service provider.

- At first you are required to make a Content Provider class which expand a ContentProviderbaseclass
- Next you need to describe your content provider URI address that will be utilized to access a content.
- In the next step you wouldl required to make your own database to make the content stay. Commonly Android utiizes SQLite database and framework required to override onCreate() technique that will tilize SQLite Open Helper technique to make or open the database of provider. While your application is first created the onCreate() handler of every of its Content Providers is known on a important application thread.
- In the other step you will have to apply Content Provider query to execute distinguish database particular operations.
- In the last register the Content Provider in your activity file by utilizing provider tag.