Mobile Application Development

SQL	SQLite
(•) SQL is a structured Query language used to query a relational database system.	(•) SQLite is an embeddable relational database management system which is written in ANSI-C.
(•) Main components are DDL, DML, Embedded SQL and dynamic SQL.	(•) SQLite supports many feature of SQL and has high performance.
(•) SQL is used with database like MySQL, oracle, microsoft SQL server.	(•) SQLite is a portable database resource.
(•) A conventual SQL database needs to be running as a service like OracleDB to connect to and provide a lot of functionalities.	(•) SQLite database system does'nt provide such functionalities.
(•) SQL is a query lang. which is used by different SQL database.	(•) SQLite is a database management system itself which uses SQL.

(•) De-bugging

→ The de-bugger is an essential tool that lets you inspect the execution of the code that powers your android app so that you can fix any bugs in it. De-bugging is the method you use to determine the state of your program at any point of execution.

(•) Testing

→ Testing is an integral part of the app development process. By running tests against your app consistently, you can verify your app correctness, functional behaviour and usability before you release it publicly.

(•) Bugs :- The team "bug" refers to mistake in software or other aspects of a program. These mistake may produce an error in the form of unexpected result or erratic behaviour. In the best case, a bug may only affect

software performance. In the worst case, it may make the software crash.

(o) **Importance of addressing bugs**

→ There are different types of bugs. Some of them are harmless while others may seriously compromise your mobile application. The best app developer make sure to implement industry best practices when it comes to identifying and addressing bugs. This requires not only looking at the code in detail but also testing to monitor an app performance under certain conditions.

White box	Black box
(o) Code implementation is necessary for white box testing.	(o) Implementation of code is not needed for black box testing.
(o) It is the structural test of software.	(o) It is the functional test of the software.
(o) It is the inner or internal software testing	(o) It is the external software testing
(o) Knowledge of implementation is req.	(o) No knowledge of imple is req.

(•) It is logic testing of the software.	(•) It is the behaviour testing of software.
(•) It is most time consuming.	(•) It is less time consuming.

(★) User interface

→ The role of the user interface is to display the application data on the screen and also to serve as the primary point of user interaction. It is also the way through which a user interacts with an application or a website. whenever the data changes either due to user interaction the user interface should update to reflect those changes.

(★) Importance of UI :-

→ UI is important to meet user expectations and support the effective functionality of your site. A well

executed User-Interface facilitates effective interaction b/w the user and the program, app or machine through contrasting visuals, clean design and responsiveness.

(*) Types of User interface :-

① Graphical User interface (GUI)
→ A GUI is a digital interface in which a user interacts with graphical components such as icons, buttons and menus. In a GUI, the visuals displayed in the user interface convey information relevant to the user, as well as action that they can take.

② Command line interface (CLI)
→ A CLI is a text-based user interface used to run programs, manage computer files and interact with the computer. CLI are also called command-line user interface.

③ Menu-driven User interface
→ The menu-driven interface employs a series of screens, or "menus". When a user makes a selection by tapping/clicking

on the list format or graphics; it takes them to the next menu screen until they complete the desired outcome.

(*) Types of layouts in android

→ ① Linear Layout
→ A layout that organise its children into a single horizontal or vertical row. It creates a scrollbar if the lenght of the window exceeds the lenght of the screen.

② Relative layout
→ Enables you to specify the location of child objects relative to each other (child A to the left of child B) or to the parent (aligned to the top of the parent)

③ Web view
→ Displays web pages.

(e) Dalvik virtual machine

→ The DVM is an android virtual machine optimized for mobile devices. It optimizes the virtual machine for memory, battery life and performance. One of the main reason of using DVM in android is because it follows the register based model and is much faster than stack based model.

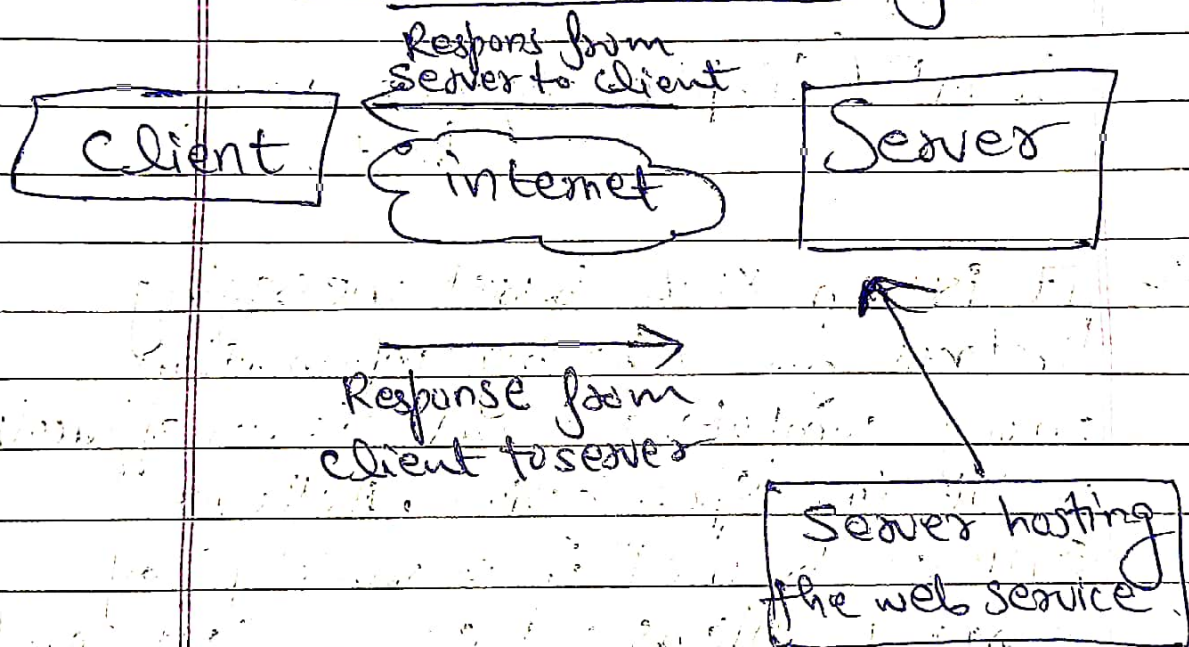(a) SOAP (Simple objects access protocol)

→ It is an XML-based messaging protocol for exchanging information among computers. SOAP is an application of the XML specification. Although SOAP can be used in a variety of messaging systems and can be delievered via a variety of transport protocols, the initial focus of SOAP is remote procedure calls transported via HTTP.

→ SOAP is a communication protocol designed to communicate via internet.

→ SOAP can extend HTTP for XML messaging.

→ SOAP can be used for broadcasting a msg.

→ SOAP is platform and language independent -

(•) Android Web Services

A web services is basically required to provide interoperability i.e connecting various application. It allows different apps to communicate with each other and share the data and services among themselves.

Web Servers Working

Respons from Server to client

Client

internet

Server

Response form client to server

Server hosting the web service

Types of web Services

① XML-RPC :- In XML-RPC, RPC stands for remote procedure calls. It is an XML based protocol for the exchange of data b/w a huge range of device over the internet.

② UDDI :- UDDI stands for Universal descriptive, discovery and Integration. It is an XML-based standard used for detailing, publishing and discovering new web services.

③ SOAP :- SOAP stands for simple objects access protocol. It is an XML based web service protocol used for the exchange of data or documents over HTTP.

④ REST :- Here REST is representational State Transfer. It provides communication and connectivity b/w devices and the internet.

Advantages of web services :-

① Web services enable interoperability among different applications.

② One of the very imp. advantage of using web services is reusability.

③ Web services offer faster communication within and across application and organization.

④ They allow us to expose the functions of the existing code over the internet.

⑤ Web services are deployed over the standard internet technologies.

(•) Android SDK

→ Android SDK stands for Android software development kit which is developed by google for android platform. Android SDK is a collection of libraries and software development tools that are essential for developing android applications. SDK consists of some tools which are very essential for the development of android application. These tools provide a smooth flow of the development process from developing and debugging. Android SDK is compatible with all operating system such as windows, linux, macOS etc.

<u>Components of SDK :-</u>

① Android SDK tools
② Android SDK-build tools
③ Android Emulator
④ Android SDK platform-tools
⑤ SDK platforms.