

Module - 7

1. What is a RESTful API and why is it important in mobile applications?

A **RESTful API** (Representational State Transfer) is a set of rules or guidelines that allows applications to communicate over the internet. It defines how the mobile app can request data from or send data to a server. It's like a protocol or a way for apps to talk to each other.

In mobile applications, RESTful APIs are crucial because:

- They allow the app to **fetch** data (like news, weather, user information) from a server.
- They enable the app to **send** data (like submitting a form or creating a post) to a server.
- They help apps **sync** information with a remote server, keeping the app's data up-to-date.

Without APIs, your app would have no way to interact with remote services or access external data.

2. How is JSON data parsed and used in Flutter?

JSON (JavaScript Object Notation) is a format for storing and exchanging data. It's easy to read and write, which is why it's commonly used for communication between servers and apps.

In Flutter, when you fetch data from a server (often through an API), the server usually responds with JSON data. To use this data in your app:

- The app **receives** the JSON as a string.
- The app **parses** the JSON to turn it into a usable format, typically a Dart object (like a map or list).
- The app can then **use** this data, such as displaying it in the UI or performing operations with it.

Essentially, JSON is a way for the server to send structured data to the mobile app, and the app parses that data so it can work with it.

3. What are HTTP methods (GET, POST, PUT, DELETE), and when to use each?

HTTP methods define actions that your app wants to perform on data stored on a server. Each method corresponds to a specific type of interaction:

- **GET**: This method is used when the app needs to **retrieve** data from a server. It's like asking for information. For example, you use **GET** when you want to fetch data like user profiles, weather updates, or list of items.
 - **POST**: This method is used when the app needs to **send** data to a server to create something new. For example, when you submit a form, create a new user, or make a new post, the app uses **POST** to send that data to the server for saving.
 - **PUT**: This method is used when the app needs to **update** existing data on the server. For example, if you want to update your profile info or modify an existing post, **PUT** is used to send the updated data to the server.
 - **DELETE**: This method is used when the app needs to **remove** data from the server. For example, deleting a user account or removing a post would use **DELETE**.
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- **GET** = Retrieve data.
 - **POST** = Send data to create something new.
 - **PUT** = Update existing data.
 - **DELETE** = Remove data.