

Assignment

MODULE: 4

Networking And API Integration

Q.1 Explain what a Restful API is and its importance in mobile applications ?

➤ **Ans.**

A **RESTful API** (Representational State Transfer) is a set of rules that allows mobile apps to communicate with servers using standard HTTP methods like GET, POST, PUT, and DELETE. It treats data as resources, which are accessed through unique URLs.

In mobile applications, RESTful APIs are important because they allow apps to fetch, update, and delete data from a remote server efficiently. They use lightweight formats like JSON, which is ideal for mobile networks. REST APIs also make the app scalable, secure, and easy to maintain by separating the frontend (app interface) from the backend (server logic and database).

Q.2 Describe how JSON data is parsed and used in Flutter ?

➤ **Ans.**

In **Flutter**, JSON data is parsed using the `dart:convert` library. Here's a short explanation:

1. Import the library:

```
import 'dart:convert';
```

2. Parse JSON string into a Dart object using `jsonDecode()`:

```
var jsonData = '{"name": "John", "age": 30}';  
var parsedData = jsonDecode(jsonData);  
print(parsedData['name']); // Output: John
```

✓ In short: JSON in Flutter is parsed using `jsonDecode`

Q.3 Explain the purpose of HTTP methods (GET, POST, PUT, DELETE) and when to use each?

➤ **Ans.**

HTTP methods define how clients (like mobile apps) interact with resources on a server. Here's a short explanation of the main methods and their purpose:

1. GET

Purpose: Retrieve data from the server.

Use When: You want to **read** or **fetch** information (e.g., list of users, product details).

Example:

GET /users/1 → Get user with ID 1.

2. POST

Purpose: Send data to the server to **create** a new resource.

Use When: You are **submitting** a form, creating a user, or posting a comment.

Example:

POST /users → Create a new user.

3. PUT

Purpose: **Update** an existing resource completely.

Use When: You want to **replace** all data of an existing resource.

Example:

PUT /users/1 → Update user with ID 1.

4. DELETE

Purpose: **Remove** a resource from the server.

Use When: You want to **delete** data (e.g., a user, a post).

Example:

`DELETE /users/1` → Delete user with ID 1