**🌐 What is Flutter Web?**

**Flutter Web** is a part of the Flutter framework that lets you build websites using the same code you use for mobile apps. So, instead of creating different apps for Android, iOS, and web, you can write your code once in Flutter and run it everywhere — including in a web browser.

**🛠️ How Does It Work?**

Flutter Web turns your app into HTML, CSS, and JavaScript — the languages that all websites use. When someone visits your site, their browser runs this code and shows your app.

**✅ Why Use Flutter Web?**

* **One codebase:** Build for mobile, desktop, and web with the same code.
* **Beautiful UI:** Flutter gives you full control over how your app looks.
* **Fast development:** Use features like Hot Reload to see changes instantly.

**🚀 Where Can You Use It?**

You can use Flutter Web for:

* Company websites
* Admin dashboards
* Portfolios
* Web versions of your mobile apps

**📦 What is Serialization?**

Serialization means converting data (like from a JSON file or API response) into Dart objects — and vice versa.

Example:  
If your API sends this:

json

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{ "name": "John", "age": 30 }

You convert it to a Dart object using serialization:

dart

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User user = User.fromJson(jsonData);

**✅ When is Serialization Needed?**

You **need serialization** when:

* You're working with APIs (like REST APIs or Firebase).
* You're storing or reading data (e.g., from local storage or databases).
* You want to convert Dart objects into a format like JSON.

🔁 Basically, anytime you move data **in or out** of your app, you’ll likely need serialization.

**🚫 When You Don’t Need It**

You **don’t need serialization** if:

* You’re not using external data (API/database).
* You're just working with hardcoded values inside the app.