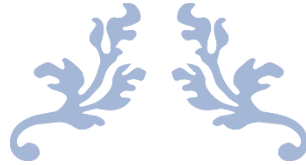




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LAB 01



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Section: SE 5-2

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Introduction to Mobile Application Development

- Mobile app development is the process of **designing, coding, and deploying** apps for **handheld devices** like smartphones and tablets.
- Two main platforms:
 - **Android**
 - **iOS**

Development Methodologies:

1. **Native App Development**
 - Android → Java & XML
 - iOS → Swift / Objective-C
 - Apps built specifically for one platform.
2. **Cross-Platform App Development**
 - Write code once, run on both Android and iOS.
 - Common frameworks: **React Native, Flutter**.

React Native vs Flutter

- **React Native**
 - Developed by Facebook (2015).
 - Open source.
 - Uses **JavaScript**.
- **Flutter**
 - Developed by Google (2017).
 - Open source.
 - Uses **Dart** programming language.

Flutter Framework

- Google's open-source **UI toolkit** for building **cross-platform apps**.
- Hosted on **GitHub**.



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- Uses **Dart language**.
- Uses **Skia 2D engine** for rendering.
- Supports **Hot Reload** → instant UI refresh without restarting.

Advantages of Flutter:

- Cross-platform → reduces development & testing time.
- Large library support via Dart.
- Faster development with hot reload.

Dart Programming Language

- Developed by Google.
- Object-oriented, type-safe, and null-safe.
- Supports **JIT (Just-in-time)** & **AOT (Ahead-of-time)** compilation.
- Can be used for **mobile, desktop, and web apps**.

Widgets in Flutter

- **Widgets**: The basic building blocks of a Flutter app.
- Everything in Flutter is a widget (e.g., buttons, lists, text, images).
- Widgets combine to form a **Widget Tree**.
- When mounted on screen → become **Elements** (Element Tree).

Types of Widgets:

1. **StatelessWidget**
 - Immutable (doesn't change once created).
 - Examples: Text, Icons, Images.
 2. **StatefulWidget**
 - Mutable (state can change at runtime).
 - Examples: Checkboxes, Buttons, TextFields.
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