I – A Comparative Analysis of Mobile Applications

Native, PWA, and hybrid apps cater to different needs. They vary in performance, effort, UX, and integration. This report compares these app types. It provides a comprehensive understanding of their suitability.

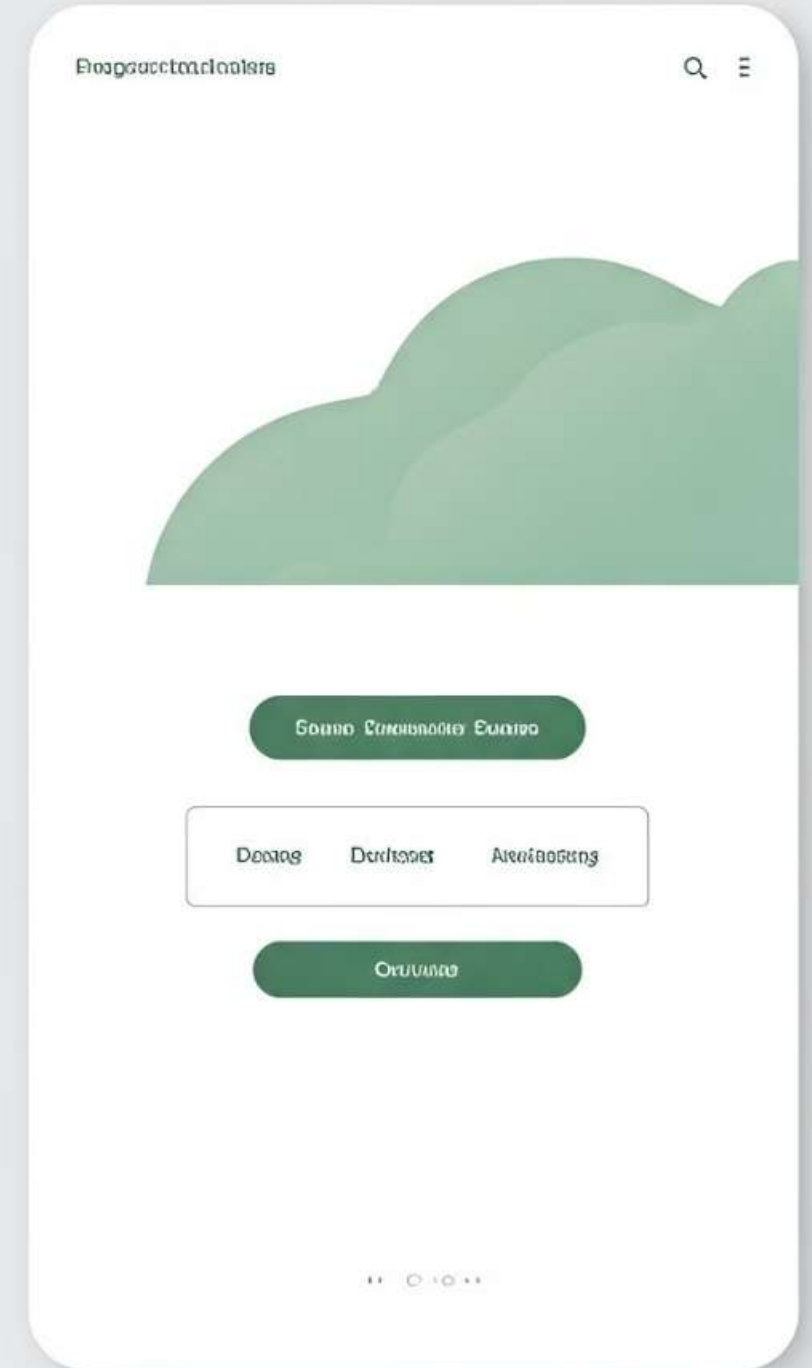**GROUP 23**

Native Applications

Advantages

- Fast performance
- Better use of OS
- Interactive UI/UX
- Offline Functionality
- App Store Presence

Disadvantages

- Time-consuming
- More Costly
- Longer release cycles
- Platform Dependency

Progressive Web Applications (PWAs)

No App Store Required

Installed directly from a browser.

Low Development Cost

Built with web technologies.

Instant Updates

Changes go live without user downloads.

Cross-Platform

Works on any device with a modern browser.

Hybrid Applications

Single Codebase

Write once, deploy to iOS and Android.

Faster Development

Leverages web technologies for cross-platform builds.

Lower Cost

Reduced development time compared to native.
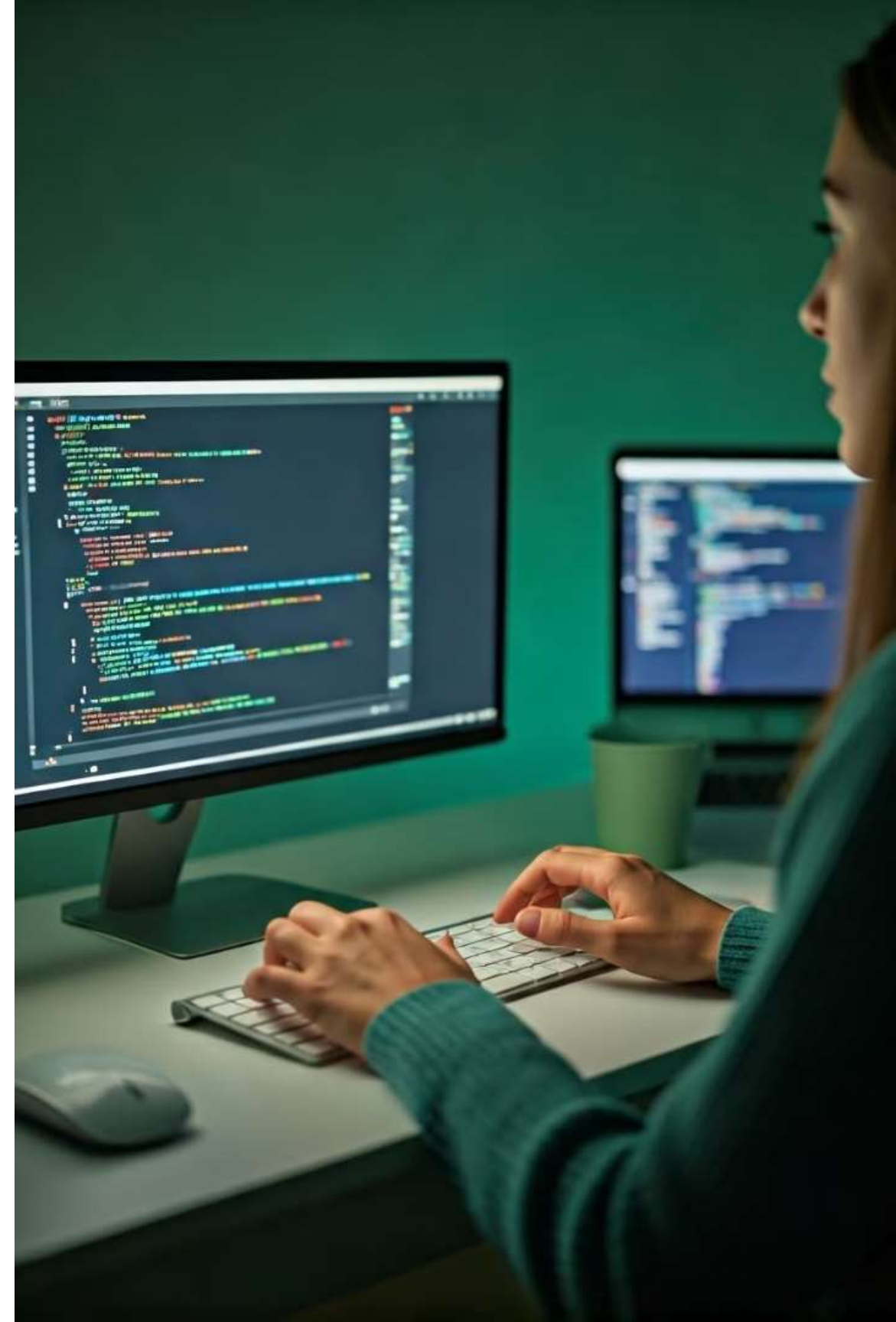
Native Mobile App Programming Languages

Swift (iOS)   Kotlin (Android)   Java (Android)

Cross-Platform App Languages

1   **Dart (Flutter)**

Single codebase for iOS and Android.

2   **JavaScript (React Native)**

Code reusability across web and mobile.

3   **C# (Xamarin)**

Single codebase for iOS and Android.

Mobile App Development Frameworks

1 **SwiftUI & Jetpack Compose**

Native iOS and Android development.

2 **Flutter**

Single codebase for multiple platforms.

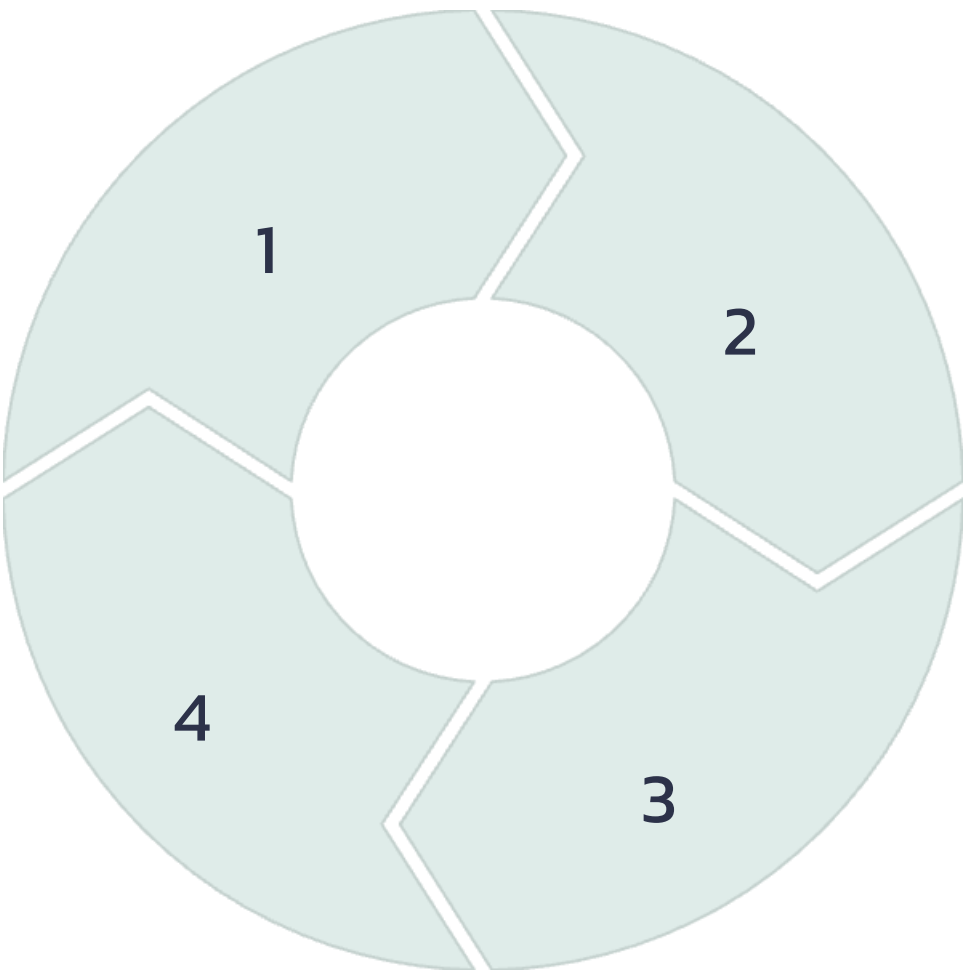**3** **React Native**

Code reuse with web apps.

4 **Ionic**

Rapid development with web technologies.

Collecting User Requirements
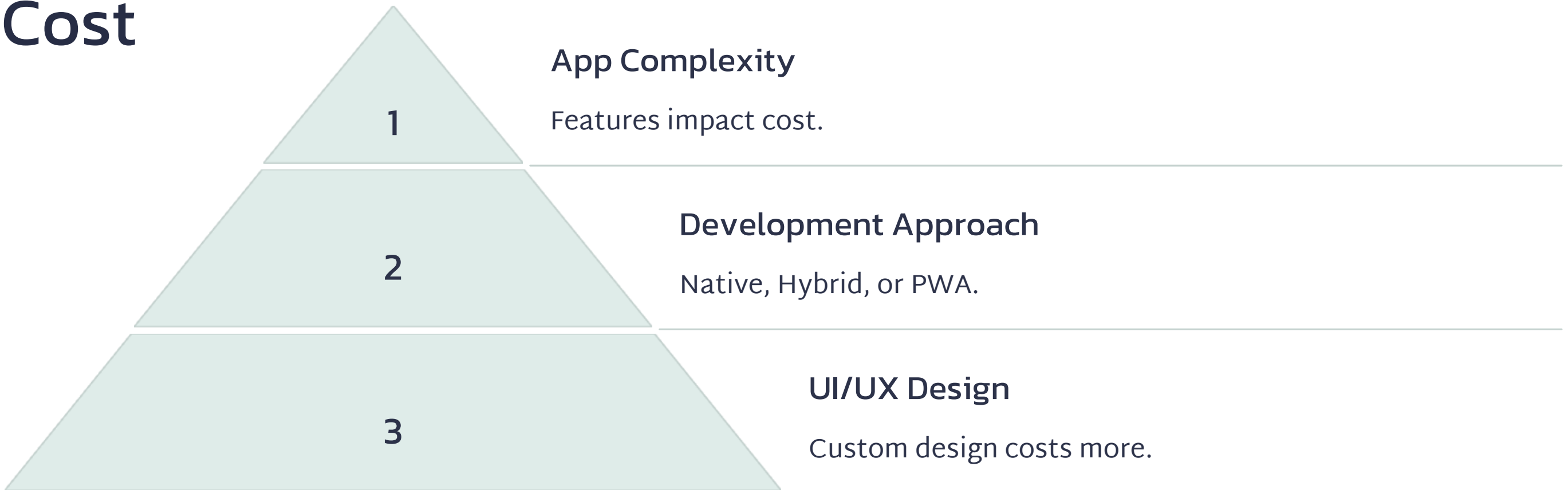
Stakeholder Interviews

Deep insights into user needs.

Surveys & Questionnaires

Scalable for many users.

Prototyping

Validates UI/UX.

Focus Groups

Encourages brainstorming.

1

2

3

4

Estimating App Development Cost

App Complexity

1   Features impact cost.

Development Approach

2   Native, Hybrid, or PWA.

UI/UX Design

3   Custom design costs more.

Strategies to Reduce Cost

1

MVP

Start with essential features.

2

Cross–Platform

Reduces development time.

3

Outsource

Cost-effective regions.