MOBILE APPLICATION DEVELOPMENT FOR ANDROID AND IOS TRAINING COURSE

Introduction

This programme develops the skills required to design, build, test and deploy mobile applications for Android and iOS devices. It explores mobile application architecture, user interface design, navigation, application programming interfaces, local data storage, authentication, notifications, device integration and application security. Participants examine native and cross-platform development approaches, including the differences between platform-specific applications and frameworks that support development for multiple operating systems. Practical activities introduce mobile application lifecycle management, responsive layouts, device testing, performance optimization and deployment preparation. The course emphasizes the development of functional mobile solutions for business operations, customer engagement, education, service delivery and digital commerce. Participants complete a practical project involving application design, data integration, testing and preparation for deployment.

Course Objectives

- Explain Android, iOS and cross-platform development approaches.
- Design mobile interfaces that follow usability and accessibility principles.
- Develop application screens, navigation and user interactions.
- Integrate mobile applications with APIs and data storage.
- Implement authentication and basic mobile application security.
- Test applications across devices and resolve common defects.
- Prepare mobile applications for release, maintenance and updates.

Course Modules

> Module 1: Mobile Development Fundamentals and Architecture

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- Mobile operating systems, devices and application ecosystems.
- Native, cross-platform and hybrid development approaches.
- Mobile application architecture and lifecycle management.
- Development tools, SDKs, emulators and project configuration.

> Module 2: Mobile User Interface and Experience Design
- Mobile usability principles and user-centred design.
- Screen layouts, navigation patterns and reusable interface components.
- Responsive layouts, accessibility and device adaptation.
- Prototyping, wireframes and mobile interaction design.

> Module 3: Programming Fundamentals for Mobile Applications
- Variables, data types, operators and control structures.
- Functions, classes, objects and modular programming.
- Events, state management and user interactions.
- Exception handling, debugging and application logging.

> Module 4: Android Application Development
- Android architecture, project structure and development tools.
- Activities, screens, layouts and application navigation.
- Application resources, permissions and lifecycle management.
- Android testing, debugging and device compatibility.

> Module 5: iOS Application Development
- iOS architecture, development tools and project structure.
- Swift programming fundamentals and application components.
- Views, navigation, state and interface development.
- iOS permissions, lifecycle management and application testing.

> Module 6: Cross-Platform Mobile Development
- Cross-platform architecture and framework selection.
- Reusable components and shared application logic.
- Navigation, state management and platform-specific features.
- Building, testing and troubleshooting applications across platforms.

> Module 7: APIs, Data Storage and Synchronization
- REST APIs, HTTP requests and JSON data exchange.
- Integrating applications with back-end services.

- Local storage, databases and application preferences.
- Offline operation, synchronization and error handling.

> Module 8: Mobile Security and Device Integration

- Authentication, authorization and secure session management.
- Secure storage, encryption concepts and protection of sensitive data.
- Camera, location, notifications and other device capabilities.
- Application permissions, privacy and secure communication.

> Module 9: Testing, Performance and Deployment

- Unit testing, integration testing and interface testing.
- Device compatibility, usability and performance testing.
- Application signing, packaging and release preparation.
- App store submission processes, updates and maintenance.

> Module 10: Mobile Application Development Project

- Defining application requirements and designing user journeys.
- Building screens, navigation and core application functionality.
- Integrating data services, storage and authentication.
- Testing the application and presenting a release-ready prototype.