

## Mobile Application Development – Assignment # 1

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Course Name: Mobile Application Development

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(CLO-1)

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### Q1: Android Development Environment

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Android Development Environment consists of tools and components required to design, develop, test, and debug Android applications.

#### 1. Android Studio:

Android Studio is the official IDE for Android development. It provides a code editor, UI designer, emulator, debugging tools, and Gradle integration.

#### 2. Android SDK:

The Software Development Kit contains APIs, libraries, and tools needed to build Android apps. It includes platform tools, build tools, and system images.

#### 3. AVD (Android Virtual Device):

AVD is an emulator configuration that allows developers to test applications on different Android versions and device types.

#### 4. Gradle:

Gradle is the build system used in Android projects. It manages dependencies, compiles code, and generates APK files.

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### Role of Android Project Components

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#### 1. AndroidManifest.xml:

Defines app components such as activities, permissions, services, and app configuration.

## 2. Gradle Scripts:

Used to configure project build settings, SDK versions, and dependencies.

## 3. res Directory:

Contains resources such as layouts, images, strings, and styles.

## 4. java Directory:

Contains Java source code files for activities and logic.

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## Common Dependency Issues & Solutions

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### 1. Gradle Sync Failed:

Occurs due to internet issues or incorrect dependencies.

Solution: Check internet connection and update Gradle version.

### 2. SDK Version Mismatch:

Occurs when SDK version is not installed.

Solution: Install required SDK version via SDK Manager.

### 3. Missing Dependencies:

Occurs when libraries fail to download.

Solution: Refresh Gradle and check repository settings.

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## Q2: Installation & Configuration Guide

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### Step 1: Install Android Studio

- Download Android Studio from official website.
- Install required SDK tools during setup.

### Step 2: Configure SDK

- Open SDK Manager.
- Install Platform Tools, Build Tools, and Emulator.

### Step 3: Create New Project

- Project Name: HelloWorldApp
- Language: Java
- Template: Empty Activity

#### Step 4: Run Application

- Run app on emulator or connected Android device.
- Successful output shows:  
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#### Submission Screenshots

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- Screenshot of running app
- Screenshot of Android Studio project structure

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#### Short Reflection

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During setup, Gradle sync took time due to internet issues.  
SDK tools installation was slow initially.  
After resolving SDK version mismatch, the app ran successfully.  
Android Studio interface was easy to use after initial setup.