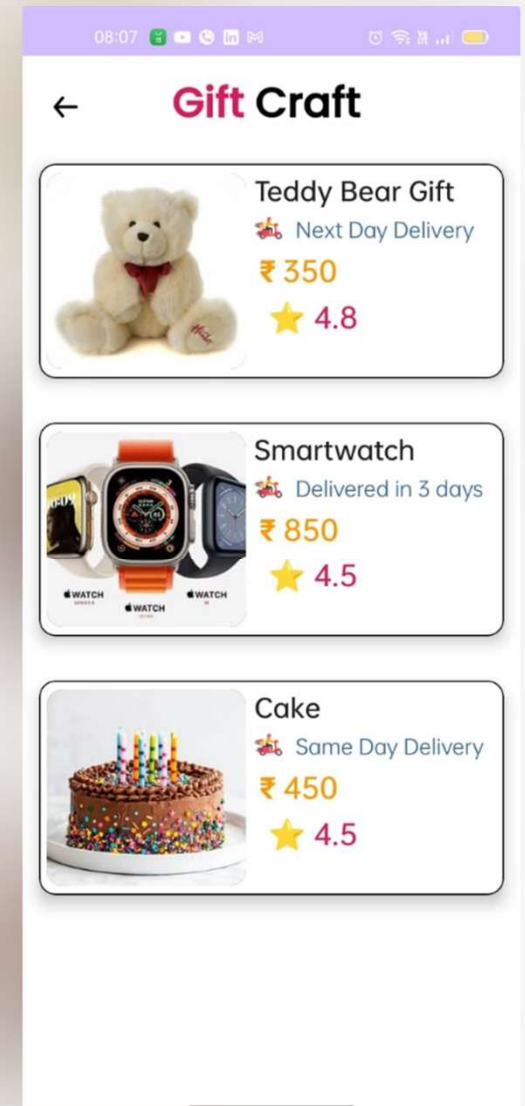# MIDTERM REPORT: GiftCraft E-Commerce App

This report summarizes the six-month industrial training at TCIL-IT Technologies. The focus was on developing "GiftCraft," an Android app for personalized gift recommendations. The training covered Android development with Kotlin and Java, implementation details, and progress until March 2024. Key achievements include mastering Android fundamentals and creating an intuitive UI.

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Project Overview: GiftCraft

GiftCraft simplifies gift selection by providing personalized recommendations. It considers user preferences, recipient details, occasion, and budget. The app aims to be intuitive and feature-rich. It targets busy professionals and individuals planning special occasions. Key features include personalized recommendations, budget control, gift categories, and wishlist management.

Android Application Architecture (MVVM)

Model

Represents data and business logic. Includes data classes for gifts, users, and occasions. Repositories handle data operations.

View

UI components like Activities, Fragments, and XML layouts. Observes the ViewModel for data changes and updates the UI.
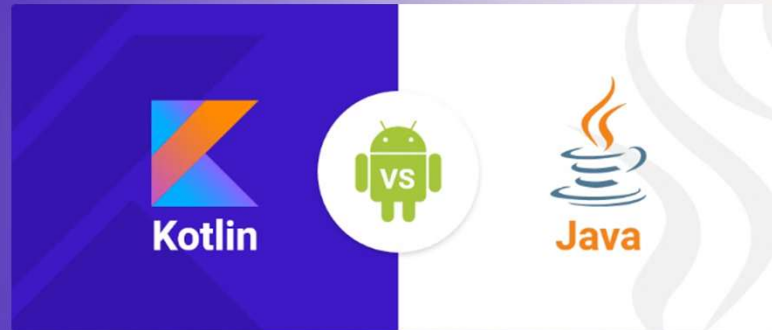
ViewModel

Mediator between View and Model. Exposes data streams and handles user interactions. Retains data during configuration changes.

Kotlin and Java in GiftCraft

- **Kotlin:** Null safety, extension functions, data classes, coroutines, lambda expressions, property delegates.

- **Java:** Legacy API integration, background services, interface implementations.

GiftCraft uses both Kotlin and Java, leveraging their strengths. This demonstrates interoperability and allows gradual migration from Java to Kotlin.

Tools and Technologies

1. **Development Environment:** Android Studio, Git, Gradle.

2. **Programming Languages:** Kotlin, Java, XML.

3. **Libraries and Frameworks:** Material Components, Room, Retrofit, ViewModel, LiveData, Navigation Component, Glide, JUnit, Espresso, Mockito.

4. **Cloud Services:** Firebase (Authentication, Firestore, Storage, Analytics, Cloud Messaging).

Android Fundamentals & UI Development

Android Application Components

Activities, Fragments, Intents, Navigation, Permissions Handling.

UI Development

Layout Implementation (ConstraintLayout), Resource Management, Material Design Application.

The initial training phase focused on building a strong foundation in Android development concepts and practices.

UI/UX Development & Database Integration

UI/UX Development

Design System Implementation (Color, Typography, Components), Screen Implementations (Onboarding, Home, Browse, Detail, Profile), Interaction Design (Navigation, Gestures, Animations).

Database Integration

Database Schema: Users, Products, Orders collections. Local database (Room) and cloud database (Firebase Firestore) integration.

Conclusion & Future Scope

The training provided valuable experience in Android app development. Significant progress was made in understanding Android fundamentals, implementing features, designing the UI, and integrating the database.

Future work includes advanced features, UI refinements, and performance optimization. This will lay a strong foundation for the successful completion of GiftCraft.

References: Android Jetpack, Room Persistence Library, Cloud Firestore, ViewModel Overview, ChatGpt and Other Ai tools.