**Mobile Application Development Project**

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**1. Project Proposal**

**Project Name**: Random Quote Generator

**Objective**: To create a Flutter application that displays random quotes, allows users to add quotes to their favorites, and provides functionality to rate and share quotes. The app uses SQLite for local storage to maintain a database of quotes and manage favorite quotes effectively.

**Key Features**:

* Random quote generation with refresh functionality.
* Add quotes to favorites and manage them through a separate screen.
* Share quotes via external apps.
* Rate quotes using a star-based rating system.

**2. Report**

**Real World Problem Identification**

People often seek inspiration and motivation through quotes. However, finding and organizing favorite quotes can be cumbersome when relying on online sources. Users need a platform where they can access a diverse range of quotes, add them to favorites, and revisit them conveniently, all while rating and sharing their preferred quotes.

**Proposed Solution**

The Random Quote Generator app provides users with a simple interface to view and manage motivational and wisdom quotes. The app fetches random quotes and allows users to add them to their favorites. Additionally, users can rate quotes and share them with others. The app uses a local SQLite database for efficient and offline management of user data.

**Responsive User Interfaces**

* **Home Screen**: Displays a random quote and author details with buttons for adding the quote to favorites, sharing, and refreshing.
* **Favorite Quotes Screen**: Displays all favorite quotes with a search feature, and users can rate quotes using a star rating system.
* **Screenshots**:

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**Data Storage**

**Database Used**: SQLite

**Justification**: SQLite is chosen due to its lightweight nature and efficiency in handling local storage within mobile applications. It supports the offline functionality of the app, allowing users to manage their favorite quotes without needing an internet connection. The use of SQLite ensures quick read and write operations for storing, updating, and retrieving quotes.

**APIs/Packages/Plug-ins**

* **Sqflite**: For interacting with the SQLite database, enabling the storage and retrieval of quotes.
  + **Justification**: Sqflite is a popular package in Flutter for local database management and provides an easy API for CRUD (Create, Read, Update, Delete) operations.
* **Share**: For sharing quotes through various applications installed on the device.
  + **Justification**: The Share package allows seamless integration with external apps, enhancing the app's sharing functionality.

**Issues and Bugs Encountered and Resolved during Development**

1. **Database Schema Update**:
   * **Issue**: Adding a rating column to the existing database requires an update to the schema without losing user data.
   * **Solution**: Implemented the onUpgrade method in the database initialization function to add the rating column while preserving existing records.
2. **Responsive Design Challenges**:
   * **Issue**: The background image and text alignment were not consistent across different screen resolutions.
   * **Solution**: Used a Box Decoration with BoxFit.fill and Padding to ensure a consistent and scalable layout.
3. **Search Functionality**:
   * **Issue**: The search feature did not update the results correctly when typing rapidly.
   * **Solution**: Optimized the \_filterQuotes method to fetch and filter results asynchronously, ensuring smooth user interaction.