**COMP-304 Mobile Apps Development**

**Final Test – Monday, Dec 9, 2024**

Student:

**Be sure to read the following general instructions carefully:**

* This hands-on test **must be completed individually** by all the students. **DO NOT** give your solution to others, otherwise there will be serious consequences. See College Academic Policy.
* Read the project **naming and submission guidelines** on page 2,3.
* You should **provide the runtime screenshots** of your solution and **submit the project and screenshots through the assignment link on eCentennial**.

**Exercise #1**

Develop an Android application that retrieves stock information from a Room database and displays it in another activity. Your application should use the **MVVM-Repository architecture**.

### Instructions:

#### Entity Class:

* If your first name starts with a letter from A-N inclusive:
  + Create a new class named StockInfo with the following private instance variables:

@Entity(tableName = "stock\_info")

data class StockInfo(

@PrimaryKey val stockSymbol: String,

val companyName: String,

val stockQuote: Double

)

* If your name starts with a letter from O-Z inclusive:
  + Create a new class named CompanyStock with the following private instance variables:

@Entity(tableName = "company\_stock")

data class CompanyStock(

@PrimaryKey val companyName: String,

val openingPrice: Double,

val closingPrice: Double

)

#### Create the DAO Interface:

* Define methods for inserting, updating, deleting, and querying the entity.

#### Create the Room Database Class:

* Define the abstract class that extends RoomDatabase.

#### Create the Repository Class:

* Implement the data access logic using the DAO.

#### Create the ViewModel Class:

* Provide the data to the UI and handle configuration changes.

#### Create MyApp.kt

#### Create MyApplication class

Make sure to add this to Android manifest file: android:name=".MyApplication"

#### Create the UI Activities:

**Main Activity:**

* Allow the user to input stock information and insert it into the database.
* Display a list of stock symbols in the database using a LazyColumn.
* Provide a button to display the selected stock information in DisplayActivity.

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**Display Activity:**

* Display the retrieved stock information in Text elements.
* Provide a "Back" button to return to MainActivity.

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### Evaluation Table:

| **Item** | **Percentage of Total Mark** |
| --- | --- |
| **Project Setup** | **10%** |
| - Create a new Android project | 5% |
| - Ensure Jetpack Compose is enabled | 5% |
| **Database Setup** | **20%** |
| - Define StockInfo or CompanyStock entity class | 5% |
| - Create StockDao interface | 5% |
| - Create AppDatabase class | 5% |
| - Create StockRepository class | 5% |
| **ViewModel Setup** | **20%** |
| - Create StockViewModel class with StateFlow | 10% |
| - Implement methods to insert stock information and fetch stock symbols | 10% |
| **MainActivity** | **30%** |
| - Allow user to input stock information and insert it into the database | 10% |
| - Display a list of stock symbols in the database using a LazyColumn. | 10% |
| - Provide a button to display the selected stock information in DisplayActivity | 10% |
| **DisplayActivity** | **10%** |
| - Display the stock information passed from DisplayActivity | 5% |
| - Provide a "Back" button to return to MainActivity | 5% |
| **UI Components** | **10%** |
| - Use Jetpack Compose to build the UI | 5% |
| - Ensure the UI is responsive and user-friendly | 5% |
| **Total** | **100%** |

### Android Project Naming Rules:

You must name your Android Studio project according to the following rule: YourFullName\_COMP304\_FinalTest\_F24

Example: JohnSmith\_COMP304\_FinalTest\_F24

* Use minSdkVersion 24 and targetSdkVersion 34.
* Package name must be com.yourfirstname.yourlastname. For example: com.john.smith.
* Main activity should be named: YourFirstNameActivity. For example: JohnActivity.
* Provide your student number as a comment at the top of the main activity.

### Submission Rules:

* Archive your project in a zip file named according to the following rule: YourFullName\_COMP304\_FinalTest\_F24.zip
* Example: JohnSmith\_COMP304\_FinalTest\_F24.zip
* Use **Android Studio Export to zip feature** to zip your projects (File/Manage IDE Settings/Export to Zip file).
* Upload the project through the assignment link on eCentennial.

### Note:

* Ensure your solution handles the database operations and UI updates efficiently.
* You should provide runtime screenshots showing the insertion of stock information and the display of the selected stock info in the second activity.

**Good luck!**