**CMPS 312 – Mobile Application Development Final Practical Exam – 4 December 2023 (duration 2h)**

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| Student Name (Student ID) |  |

**Task Overview:**

1. Sync the cmps312-lab repository and copy the **FinalExam** folder to your GitHub repo, which contains the base project named **PizzaPal** and with all necessary dependencies and the testing sheet.
2. Implement a **PizzaPal** Ordering app that allows users to add pizzas for customers. Manage the app data in an SQLite database using Room Library.

**Implementation Tasks:**

1. **Entity-Relations: [10]** Create two Entity classes, Customer and Pizza, each with proper annotations as outlined in Figure 1. Ensure that the IDs are auto-assigned by the database. Add foreign key annotations with cascade delete and update when required.

Diagram

Description automatically generated

*Figure 1. Product Review Entity-Relations*

1. **PizzaPalDAO Interface and PizzaPalDatabase [30] :** Create a PizzaPalDAO Interface with necessary functions and annotations to allow users to:

* Add a new Customer
* Get all customers
* Delete a customer and all associated Pizzas
* Add a new Pizza for a customer
* Get all Pizza orders for a specific customer given customer ID
* Update a Pizza

Then create the database class.

1. **PizzaPalRepository [5]:** Implement the PizzaPalRepository with all necessary methods listed above.
2. **PizzaPalViewModel [20]:** Create a PizzaPalViewModel to serve as an intermediary between the UI and the repository. The ViewModel should:

* Manage the interaction between the UI and the repository for customer and pizza data.
* Provide Flows and Observable data to observe changes in the underlying data.
* Handle user inputs and interactions, ensuring proper validation and data integrity.

1. **App UI and Navigation [35]:**

* When the user clicks on the customer clickable card, the app should navigate to the PizzaList Screen. This screen should be linked to the PizzaPalViewModel to display and interact with pizza data.
* Clicking on the add button should navigate the user to the PizzaEditor Screen, linked to the PizzaPalViewModel, allowing the user to add a pizza type and select the pizza size using dropdowns.
* Submitting the form should trigger the PizzaPalViewModel to add the pizza to the database and update the UI accordingly.
* Clicking the edit button should load the details of the selected pizza in the PizzaEditor screen, facilitated by the PizzaPalViewModel. Submitting the form should update the pizza in the database and notify the PizzaPalViewModel to refresh the UI.

**Submission Requirements:**

* Provide screenshots in Testing-GradingSheet.docx.
* Possible grading for functionality includes complete and working (70%), complete but not working (lose 30%), and not done (0%).
* The remaining grade is assigned based on the quality of the implementation.