Family Tracker: A JavaFX Desktop Application for Managing Family Member Data

The Family Tracker application is designed to assist users in managing family member details efficiently. The core goal of this application is to enable users to view, add, edit, and organize personal information about their family, such as names, birthdays, and notes. This will be accomplished through an interactive JavaFX-based graphical user interface (GUI) and data persistence using a database (likely SQLite). This application will serve as an effective tool for organizing and accessing important family data, while offering a seamless user experience.

The user interface will feature a dashboard-style main window, with a side or top navigation menu for easy access to key features. Forms will allow users to input family member data, and optional search and filtering capabilities will allow them to quickly find specific family members. The layout will include controls such as TextFields, Buttons, Labels, ComboBoxes, DatePickers, and a TableView for displaying family member information. The app will also include alert dialogs for error handling, ensuring smooth interaction with the user in the event of invalid data input.

The project will adhere to object-oriented principles, with at least three classes. An abstract Person class will define the shared fields (firstName, lastName, dateOfBirth, email) and an abstract method to display details. The FamilyMember class will inherit from Person, adding fields like relation, notes, and profile photo path. Finally, the FamilyManager class will handle family member storage, retrieval, validation, and searching, interacting with the database for data persistence.

In addition to the core data management classes, the application will include multiple GUI-related classes to handle different aspects of the user interface. For example, a MainWindow class will manage the primary application window and its layout, while a FamilyMemberForm class will handle the form for adding and editing family member details. Other GUI classes will include FamilyMemberTableView for displaying family member data, SearchFilter for managing search and filter options, and ErrorDialog for displaying error messages. These GUI-specific classes will interact with the data management classes to ensure smooth user interactions.

While the project will initially consist of these core classes, I anticipate that additional classes will be necessary as the application grows in functionality. These may include classes for input validation, database management, handling family member photos, event management, and task management. The modular design will allow for easy expansion and ensure the app remains maintainable as new features are added.

The inspiration for the Family Tracker application comes from my mother's experience. Over the past two decades, she has adopted 20 children, many of whom have special needs. Currently, she cares for 11 children with severe special needs, which requires managing a wide range of information, including medical details, therapies, allergies, and school data. While my mother has managed this well, she has expressed concerns about the future as she grows older. This application was conceived as a way to organize and centralize this important information, helping ease the burden of keeping track of so many details. While I am unsure if she will ultimately use the app, the idea was directly inspired by her situation.

With at least 10 fields and a well-structured class hierarchy, this application will meet the assignment's requirements, including GUI development using JavaFX, inheritance, abstract classes, event handling, and error handling. The project will be a functional yet simple starting point, with room for future growth and enhancements beyond the initial semester scope.