

# HW2 - Basic Storage

## *Storage Management Approaches for "My Training App"*

### **Introduction:**

The purpose of storage management in "My Training App" is crucial for ensuring seamless data handling, whether it is applicants' information or organizations' information that is registered in the program and accessibility.

Firebase has been chosen as the database platform due to its real-time capabilities and ease of integration. Here I show the various Storage Management Approaches.

### **Approach 1: Firebase Realtime Database**

#### Pros:

- Real-time data synchronization ensures up-to-date information.
- No manual syncing required, reducing development complexity.
- Supports structured data storage for organized data management.

#### Cons:

- Limited offline capabilities, which may affect users in low connectivity areas.
- Costs can escalate with large-scale usage, necessitating efficient data usage strategies.

### **Approach 2: Firebase Cloud Firestore**

#### Pros:

- Scalable and flexible data model adapts to evolving app requirements.
- Offline support through Firestore persistence enhances user experience.
- Real-time updates akin to Firebase Realtime Database for instant data reflection.

#### Cons:

- Complexity in data modeling, especially for intricate relationships between data entities.
- Cost considerations arise with heavy usage, demanding efficient data structuring.

### **Approach 3: Local SQLite Database:**

#### Pros:

- Full control over data schema facilitates complex data structuring.
- Efficient querying supports robust data operations.
- Offline data availability ensures functionality even without internet access.

Cons:

- Manual syncing required for online updates, adding development overhead.
- Higher development effort compared to Firebase integration.

#### **Approach 4: SharedPreferences for Settings:**

Pros:

- Lightweight implementation ideal for storing user preferences and settings.
- Easy integration and management within the app.

Cons:

- Limited to key-value pairs, restricting its use for complex data storage.
- Not suitable for storing large volumes of data or intricate data structures.

#### **Conclusion:**

After careful consideration of the requirements and constraints of "My Training App," opting for Firebase as the primary database solution stands out as the most suitable approach. Firebase Realtime Database offers real-time data synchronization, which is crucial for providing users with up-to-date information and seamless interactions within the app. Additionally, leveraging Firebase's offline capabilities helps maintain app functionality even in areas with limited connectivity. This streamlined approach with Firebase ensures efficient data management while minimizing costs and development complexity, making it the optimal choice for "My Training App".