Admin and User Functionalities I Worked On

1. User Menu

This feature allows logged-in users to interact with the system and access several functionalities. It provides an intuitive interface with options for searching traffic data, enabling notifications, managing feedback, and more.

Key Features:

- **Menu Options:**
  The main menu includes:
  - **Search by Location:** Users can input a location to fetch real-time accident data.
  - **Offline Search:** Enables users to search accident data offline after syncing.
  - **Notifications:** Users receive updates on incidents near their saved locations in real time.
  - **Feedback Menu:** Allows users to provide, update, and search feedback.
  - **Logout:** Ends the user session.
- **Implementation:**
  The other_user_menu function presents a loop-based interface that dynamically handles user input and triggers the appropriate functionality.

2. Real-Time Notifications

Real-time notifications keep users updated about incidents near their saved locations. Notifications are monitored in the background using threading for seamless updates.

Key Features:

- **Background Monitoring:**
  The monitor_notifications function runs a separate thread to continuously check for updates in the background without blocking other operations.

- **User-Centric Updates:**
  The system fetches notifications specific to user-saved locations using the dal.get_user_locations and dal.get_notifications_by_location methods.
- **Interval-Based Updates:**
  The thread refreshes notifications every 30 seconds, ensuring timely alerts.

3. Search by Location

This feature allows users to search for accident data specific to a location.

Key Features:

- **Dynamic Search:**
  Users can input any location, and the system fetches accident records related to that location via dal.search_by_location.
- **Database Integration:**
  The search functionality leverages live database connections to ensure the latest data is retrieved.
- **Error Handling:**
  Any issues during the search (e.g., database connectivity) are gracefully handled to provide user-friendly error messages.

4. Offline Search

The offline search feature is designed for scenarios where users cannot access real-time data.

Key Features:

- **Data Syncing:**
  Users can sync accident data with the database using dal.cache_accident_data. Once cached, this data is available for offline search.

- **Immediate Search Option:**
  After syncing, users are prompted to perform an offline search without additional steps.
- **Location-Based Search:**
  Cached data is queried locally using dal.offline_search.

5. Feedback Management

This module enables users to provide feedback, update it, or search for feedback.

Key Features:

- **Add Feedback:**
  Users can submit feedback through the bus.add_feedback method, storing it in the database with their user ID.
- **Update Feedback:**
  Feedback can be modified using its unique ID via bus.update_feedback.
- **Search Feedback:**
  Users can retrieve all feedback associated with their user ID using bus.search_feedback.

6. Admin Activity Logs

The admin functionality provides a log of all activity within the system.

Key Features:

- **Activity Logs:**
  The admin function retrieves and displays detailed activity logs using bus.get_activity_logs. These logs help monitor the system's usage and identify potential issues.
- **Periodic Refresh:**
  Logs are displayed with a refresh delay of 5 seconds, ensuring administrators have adequate time to review entries.