Assignment: Event Management API

Objective

Develop an Event Management API using Python and FastAPI. The API will provide features to create, manage, and track events and attendees. Core functionalities include event scheduling, registration, attendee check-ins, and status management.

Requirements

1. Database Models

Event:

 - event_id: Integer (Primary Key)

 - name: String

 - description: String

 - start_time: DateTime

 - end_time: DateTime

 - location: String

 - max_attendees: Integer

 - status: Enum ('scheduled', 'ongoing', 'completed', 'canceled')

Attendee:

 - attendee_id: Integer (Primary Key)

 - first_name: String

 - last_name: String

 - email: String (Unique)

 - phone_number: String

 - event_id: Foreign Key (references Event)

- check_in_status: Boolean

2. Endpoints

1. Create Event: Endpoint to create new events. Status is initialized as 'scheduled'.

2. Update Event: Endpoint to update event details and modify the status.

3. Register Attendee: Allows users to register for an event, checking max_attendees.

4. Check-in Attendee: Marks an attendee as checked in.

5. List Events: Fetch events with filters (status, location, date).

6. List Attendees: Retrieve attendees for a specific event with optional filters.

3. Business Logic

1. Prevent registration if the max_attendees limit is reached.

2. Automatically set event status to 'completed' if the end_time has passed.

3. Support bulk attendee check-in via a CSV upload.

4. Error Handling

1. Use appropriate HTTP status codes (e.g., 400 for validation errors, 404 for not found).

2. Provide meaningful error messages for client and server issues.

5. Testing

1. Write unit tests to validate core business logic:

   - Registration limits

   - Check-ins

   - Automatic status updates

2. Ensure API endpoints behave as expected under various conditions.

Extra Credit

Implement JWT Authentication to secure endpoints for authorized users only.