***1. Assignment: Ticket Booking System for Movies***

**MongoDB Database Schema**

* **Collections**:
* **Users**
* **Movies**
* **Theaters**
* **Bookings**
* **Roles [User and Admin]**

**Required APIs**

**User APIs**

* **User Signup with Email Account Verification**
* Allow users to sign up by providing their email, password, and other necessary details.
* Send an email verification link to the user upon signup.
* **User Login**
* Allow users to log in using their email and password.
* **Get User Profile**
* Fetch and display the user's profile information.
* **Edit User Profile (with Profile Picture)**
* Update user profile details, including uploading or editing the profile picture.

**Movie Management APIs (Admin only)**

* **Add Movie**
* Add movie details including:
* Movie name
* Genre
* Language
* Duration
* Cast
* Director
* Release date
* **Add Theater**
* Add a new theater with details including:
* Theater name
* Location
* Number of screens
* **Assign Movies to Theaters**
* Assign specific movies to available screens in a theater.
* Include:
* Theater ID
* Screen number
* Movie ID
* Show timings
* **List of Movies**
* Fetch a list of all movies available in the database.
* Include:
* Total number of theaters playing that movie
* Theaters and show timings
* **Edit Movie Details**
* Update details for an existing movie.
* **Delete Movie Details**
* Remove a movie from the database.

**Booking APIs**

* **List of Theaters for a Movie**
* Given a movie ID, fetch the list of theaters playing the movie along with show timings.
* **Book Tickets for a Movie**
* Allow users to book tickets for a movie by providing:
* Movie ID
* User ID
* Theater ID
* Show timing
* Number of tickets
* Update the availability of seats for the selected show.
* **Cancel Booking**
* Allow users to cancel a booking by providing:
* Booking ID
* Update the availability of seats for the corresponding show.
* **View Booking History**
* Fetch and display the user's booking history.

**Reports APIs**

* **List of Movies with Total Bookings**
* Fetch a list of all movies along with the total number of tickets booked for each movie.
* **List of Bookings by Theater**
* Fetch bookings grouped by theater, including:
* Movie name
* Total tickets booked for each show
* **Send Booking Summary to User Email**
* Generate a summary of all bookings made by a user and send it to their email in table format.

***2. Assignment: Institute Management System***

**MongoDB Database Schema**

* **Collections:**
* **Users** (Students, Teachers, Admins)
* **Courses**
* **Batches**
* **Enrollments**
* **Attendance**
* **Exams**
* **Roles [User and Admin]**

**Required APIs**

**User Management APIs**

* **User Signup with Email Verification**
* Allow users (students, teachers) to sign up by providing:
* Name
* Email
* Password
* Role (Student/Teacher).
* Send an email verification link to the user upon signup.
* **User Login**
* Allow users to log in using their email and password.
* **Get User Profile**
* Fetch and display the user profile details (students/teachers).
* **Edit User Profile**
* Update user profile details, including:
* Profile picture
* Contact information
* **List of Users (Admin Only)**
* Fetch a list of all users in the system based on roles (Students, Teachers).

**Course Management APIs**

* **Add Course (Admin Only)**
* Add details for a new course including:
* Course name
* Description
* Duration
* Fees
* **Edit Course Details (Admin Only)**
* Update course information.
* **Delete Course (Admin Only)**
* Remove a course from the system.
* **List of Courses**
* Fetch all available courses along with:
* Total batches for the course
* Total enrolled students

**Batch Management APIs**

* **Add Batch (Admin/Teacher)**
* Create a batch for a specific course with:
* Batch name
* Start date
* End date
* Assigned teacher
* **Assign Students to Batch (Admin Only)**
* Enroll students into a specific batch.
* **List of Batches**
* Fetch all batches for a course, including:
* Batch name
* Total students
* Assigned teacher
* **Update Batch Details (Admin/Teacher)**
* Modify batch information such as schedule or assigned teacher.
* **Delete Batch (Admin Only)**
* Remove a batch from the system.

**Enrollment and Attendance APIs**

* **Enroll Student into a Course**
* Allow students to enroll in a course by providing:
* Student ID
* Course ID
* **Mark Attendance (Teacher)**
* Input attendance details:
* Batch ID
* Date
* List of present and absent students
* **View Attendance (Student/Teacher)**
* Fetch attendance records by:
* Student (for a specific course or batch).
* Batch (view attendance percentage for all students).

**Exam Management APIs**

* **Create Exam (Admin/Teacher)**
* Add an exam for a batch including:
* Exam name
* Date
* Duration
* Total marks
* **Assign Marks to Students (Teacher)**
* Input marks for students for a specific exam.
* **Fetch Exam Results (Student/Teacher)**
* View results by:
* Student (individual performance).
* Batch (all student results).
* **Update Exam Details (Teacher)**
* Modify exam information such as date or marks distribution.

**Reports APIs**

* **List of Courses with Total Enrollments**
* Fetch all courses along with the total number of enrolled students.
* **Batch Performance Report (Admin/Teacher)**
* Fetch a report for a specific batch including:
* Attendance percentage for all students.
* Average exam performance for the batch.
* **Student Performance Report**
* Fetch a student’s overall performance, including:
* Attendance percentage.
* Average marks for all exams.
* **Send Student Report to Email**
* Generate a detailed performance report for a student and email it in table format.

***3. Assignment: Daily Task To-Do Planner***

**MongoDB Database Schema**

* **Collections:**
* **Users**
* **Tasks**
* **Categories**
* **Labels**
* **Reminders**

**Required APIs**

**User Management APIs**

* **User Signup with Email Account Verification**
* Allow users to sign up by providing:
* Name
* Email
* Password
* Send an email verification link to the user upon signup.
* **User Login**
* Allow users to log in using their email and password.
* **Get User Profile**
* Fetch and display the user's profile details.
* **Edit User Profile**
* Update user profile details, including:
* Name
* Email
* Profile picture

**Task Management APIs**

* **Add Task**
* Create a new task with details:
* Task title
* Description
* Priority (Low, Medium, High)
* Due date and time
* Category ID (optional)
* Labels (optional)
* **Edit Task**
* Update task details such as title, description, priority, due date, category, or labels.
* **Delete Task**
* Delete a task by its ID.
* **Mark Task as Completed**
* Update the status of a task to "Completed."
* **List Tasks**
* Fetch all tasks for a user with optional filters:
* By due date (e.g., tasks for today, tomorrow, this week).
* By status (Pending, Completed).
* By category or labels.
* **Reorder Tasks**
* Change the order of tasks in the list for prioritization.

**Category and Label APIs**

* **Add Category**
* Create a new category for grouping tasks.
* E.g., Work, Personal, Fitness
* **Edit Category**
* Update category details such as name or description.
* **Delete Category**
* Remove a category.
* **Add Label**
* Create a custom label for tagging tasks.
* E.g., "Urgent," "Meeting," "Chores"
* **List Categories and Labels**
* Fetch all categories and labels for the user.

**Reminder Management APIs**

* **Set Reminder for Task**
* Add a reminder for a specific task.
* Reminder types:
* Notification at a specific time
* Repeating reminders (e.g., daily, weekly)
* **Edit Reminder**
* Update the reminder settings for a task.
* **Delete Reminder**
* Remove a reminder for a task.

**Reports and Insights APIs**

* **Task Summary for a Day or Week**
* Fetch a summary of tasks for a specific day or week, including:
* Total tasks
* Completed tasks
* Pending tasks
* **Task Statistics**
* Generate insights on task completion rates:
* Percentage of completed tasks over time.
* Average time to complete tasks.
* **Send Daily/Weekly Task Summary to Email**
* Automatically email the user a summary of tasks, including:
* Overdue tasks
* Upcoming tasks
* Completed tasks