ANSI SQL Using MySQL Exercises

Database Schema

1. Users

Column Name	Data Type	Constraints	Description
user_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique user identifier
full_name	VARCHAR(100)	NOT NULL	User's full name
email	VARCHAR(100)	UNIQUE, NOT NULL	User's email
city	VARCHAR(100)	NOT NULL	City of the user
registration_date	DATE	NOT NULL	Date when user registered

2. Events

Column Name	Data Type	Constraints	Description
event_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique event identifier
title	VARCHAR(200)	NOT NULL	Title of the event
description	TEXT		Event description
city	VARCHAR(100)	NOT NULL	City where event is held
start_date	DATETIME	NOT NULL	Start date and time of event
end_date	DATETIME	NOT NULL	End date and time of event
status	ENUM	('upcoming','completed','cancelled')	Current status of the event
organizer_id	INT	FOREIGN KEY → Users(user_id)	User who organized the event

3. Sessions

Column Name	Data Type	Constraints	Description
session_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique session identifier
event_id	INT	FOREIGN KEY → Events(event_id)	Associated event
title	VARCHAR(200)	NOT NULL	Title of the session
speaker_name	VARCHAR(100)	NOT NULL	Name of speaker
start_time	DATETIME	NOT NULL	Session start time
end_time	DATETIME	NOT NULL	Session end time

4. Registrations

Column Name	Data Type	Constraints	Description
registration_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique registration ID
user_id	INT	FOREIGN KEY → Users(user_id)	User who registered
event_id	INT	FOREIGN KEY → Events(event_id)	Registered event
registration_date	DATE	NOT NULL	Date of registration

5. Feedback

Column Name	Data Type	Constraints	Description
feedback_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique feedback ID
user_id	INT	FOREIGN KEY → Users(user_id)	User who gave feedback
event_id	INT	FOREIGN KEY → Events(event_id)	Event for which feedback is given
rating	INT	CHECK (rating BETWEEN 1 AND 5)	Rating out of 5
comments	TEXT		Optional comments
feedback_date	DATE	NOT NULL	Date of feedback

6. Resources

Column Name	Data Type	Constraints	Description
resource_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique resource ID
event_id	INT	FOREIGN KEY → Events(event_id)	Associated event
resource_type	ENUM	('pdf','image','link')	Type of resource
resource_url	VARCHAR(255)	NOT NULL	Path or link to resource
uploaded_at	DATETIME	NOT NULL	Upload timestamp

Sample Dataset

1. Users

user_id	full_name	email	city	registration_date
1	Alice Johnson	alice@example.com	New York	2024-12-01
2	Bob Smith	bob@example.com	Los Angeles	2024-12-05
3	Charlie Lee	charlie@example.com	Chicago	2024-12-10
4	Diana King	diana@example.com	New York	2025-01-15
5	Ethan Hunt	ethan@example.com	Los Angeles	2025-02-01

2. Events

event_id	title	description	city	start_date	end_date	status	organizer_id
1	Tech Innovators Meetup	A meetup for tech enthusiasts.	New York	2025-06-10 10:00:00	2025-06-10 16:00:00	upcoming	1
2	AI & ML Conference	Conference on AI and ML advancements.	Chicago	2025-05-15 09:00:00	2025-05-15 17:00:00	completed	3
3	Frontend Development Bootcamp	Hands-on training on frontend tech.	Los Angeles	2025-07-01 10:00:00	2025-07-03 16:00:00	upcoming	2

3. Sessions

session_id	event_id	title	speaker_name	start_time	end_time
1	1	Opening Keynote	Dr. Tech	2025-06-10 10:00:00	2025-06-10 11:00:00
2	1	Future of Web Dev	Alice Johnson	2025-06-10 11:15:00	2025-06-10 12:30:00
3	2	AI in Healthcare	Charlie Lee	2025-05-15 09:30:00	2025-05-15 11:00:00
4	3	Intro to HTML5	Bob Smith	2025-07-01 10:00:00	2025-07-01 12:00:00

4. Registrations

registration_id	user_id	event_id	registration_date
1	1	1	2025-05-01
2	2	1	2025-05-02
3	3	2	2025-04-30
4	4	2	2025-04-28
5	5	3	2025-06-15

5. Feedback

feedback_id	user_id	event_id	rating	comments	feedback_date
1	3	2	4	Great insights!	2025-05-16
2	4	2	5	Very informative.	2025-05-16
3	2	1	3	Could be better.	2025-06-11

6. Resources

resource_id	event_id	resource_type	resource_url	uploaded_at

1	1	pdf	https://portal.com/resources/tech_meetup_agenda.pdf	2025-05-01 10:00:00
2	2	image	https://portal.com/resources/ai_poster.jpg	2025-04-20 09:00:00
3	3	link	https://portal.com/resources/html5_docs	2025-06-25 15:00:00

Exercises

1. **User Upcoming Events**

   Show a list of all upcoming events a user is registered for in their city, sorted by date.

2. **Top Rated Events**

   Identify events with the highest average rating, considering only those that have received at least 10 feedback submissions.

3. **Inactive Users**

   Retrieve users who have not registered for any events in the last 90 days.

4. **Peak Session Hours**

   Count how many sessions are scheduled between 10 AM to 12 PM for each event.

5. **Most Active Cities**

   List the top 5 cities with the highest number of distinct user registrations.

6. **Event Resource Summary**

   Generate a report showing the number of resources (PDFs, images, links) uploaded for each event.

7. **Low Feedback Alerts**

   List all users who gave feedback with a rating less than 3, along with their comments and associated event names.

8. **Sessions per Upcoming Event**

   Display all upcoming events with the count of sessions scheduled for them.

9. **Organizer Event Summary**

   For each event organizer, show the number of events created and their current status (upcoming, completed, cancelled).

10. **Feedback Gap**

   Identify events that had registrations but received no feedback at all.

11. **Daily New User Count**

   Find the number of users who registered each day in the last 7 days.

12. **Event with Maximum Sessions**

   List the event(s) with the highest number of sessions.

13. **Average Rating per City**

   Calculate the average feedback rating of events conducted in each city.

14. **Most Registered Events**

   List top 3 events based on the total number of user registrations.

15. **Event Session Time Conflict**

   Identify overlapping sessions within the same event (i.e., session start and end times that conflict).

16. **Unregistered Active Users**

   Find users who created an account in the last 30 days but haven't registered for any events.

17. **Multi-Session Speakers**

   Identify speakers who are handling more than one session across all events.

18. **Resource Availability Check**

   List all events that do not have any resources uploaded.

19. **Completed Events with Feedback Summary**

   For completed events, show total registrations and average feedback rating.

20. **User Engagement Index**

   For each user, calculate how many events they attended and how many feedbacks they submitted.

21. **Top Feedback Providers**

   List top 5 users who have submitted the most feedback entries.

22. **Duplicate Registrations Check**

   Detect if a user has been registered more than once for the same event.

23. **Registration Trends**

   Show a month-wise registration count trend over the past 12 months.

24. **Average Session Duration per Event**

   Compute the average duration (in minutes) of sessions in each event.

25. **Events Without Sessions**

List all events that currently have no sessions scheduled under them.