INSY 661 - Final Group Project

Group 6 – Section 075

McGill x MeetUp

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Overview of the Business Scenario & Scope of Project

McGill University, a leading university in the world, attracts an exceptional and diverse student body from over 150 countries. They proudly consider themselves a home to a vibrant, engaged, and diverse community.[1] In today's digitally connected world, maintaining and enhancing these connections has become increasingly vital. Therefore, McGill University sees an opportunity to build a system that would digitally strengthen its community's connections. To achieve this, McGill is exploring a platform similar to Meetup, designed to enhance connectivity amongst its students and alumni network.

McGill's goal is to establish a digital user-friendly system that mirrors the functionality of Meetup, a platform where users connect based on their shared interests. This platform will provide a space where *McGillians* can come together around their hobbies, interests or similar educational backgrounds and form meaningful connections that transcend the university's physical campus and foster a stronger sense of belonging within McGill, whether you are a current student or a previous one.

The goal is to build a secure platform that will serve as a bridge between students and alumni, no matter their location. It will cater to McGill's international diversity and allow students to effortlessly create or join activities and groups, based on their interests. By meeting other students with similar passions, stronger connections will be built. McGill will thus be able to increase the reach of events, assess feedback on them, and evaluate which program departments and graduation cohorts organize most events to ultimately promote it to its current, former, and future students.

Description of Meet Up, its processes, features and functionalities

Meetup considers itself a "people platform – where interests become friendships."[2] The platform connects its users based on their interests - ranging from hiking, music, networking, and reading – and creates a central hub for organizing and discovering events. Upon joining the platform, users can look up Interest groups based on their Interest categories and users can attend/host events in their area through interest groups.

The key processes and features from Meetup considered for this project are:

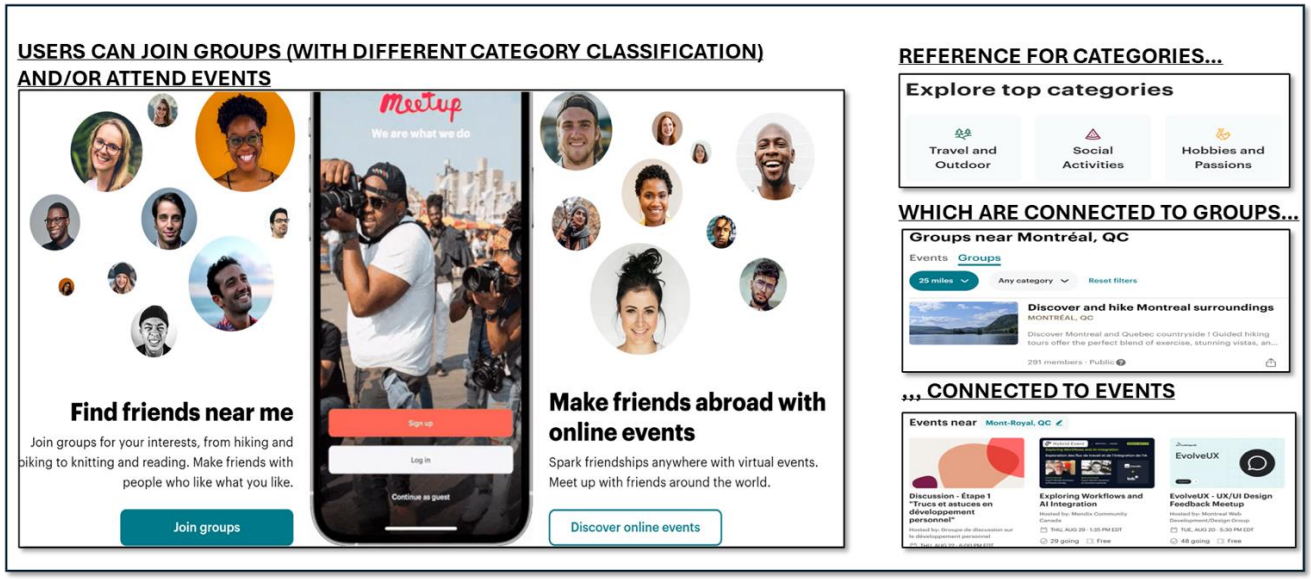
1. **Profile creation:** This feature allows users to create their profiles and include their personal details. In the scope of our project, this will be specific to current and former McGill students globally.
2. **Group creation:** Using this feature will allow students to create groups based on their interests and group members will be able to organize events / activities.

[1] McGill University. "About McGill." Accessed August 20, 2024. https://www.mcgill.ca/about/.
[2] Meetup. "Meetup." Accessed August 20, 2024. https://www.meetup.com/.

3. **Events:** On Meetup, group organizers can create events and specify their details (i.e. time, location). The category this event belongs to is based on the group that created the event, and its respective category.
4. **RSVP:** To attend an activity, users RSVP to events. This allows meetup to track attendance for future interactions.
5. **Reviews:** Users can leave feedback for events they attended, leaving insights for other users.

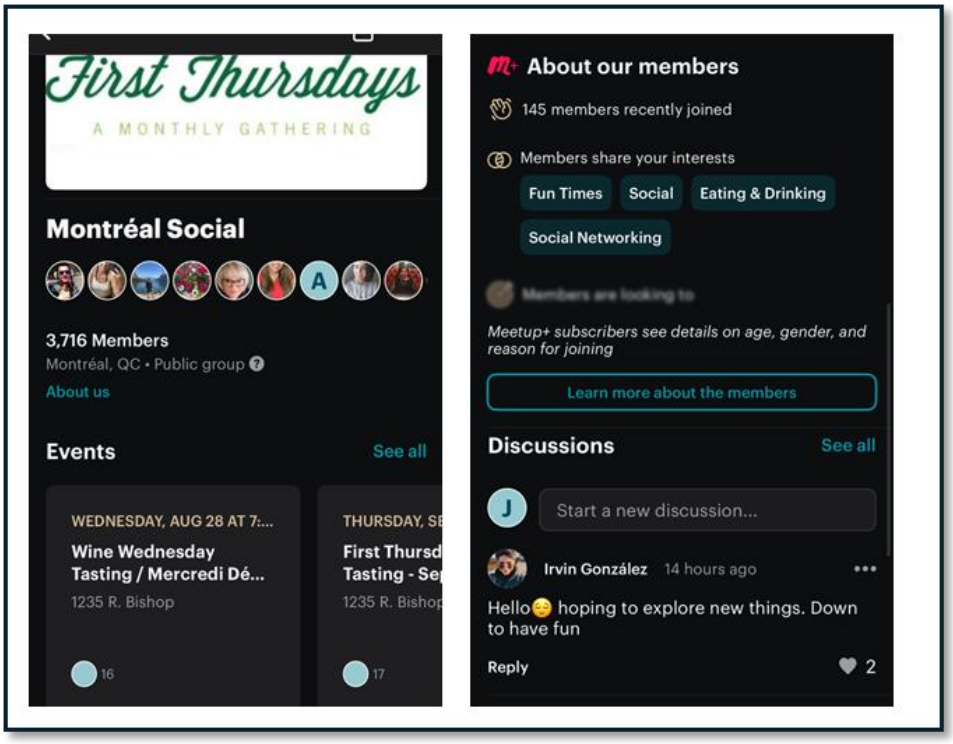
For business purposes, we introduced a new feature called Membership which allows us to track users joining groups and provides different levels of involvement based on their membership. This feature enables certain users to organize activities, adjust capacity and keep track of attendance. Additionally, McGill can reach out to specific users if needed, depending on their role within the group (creator, admin, or basic user).

IMAGE 1: SCREENSHOTS FROM MEETUP ON CATEGORIES, GROUPS, EVENTS[3]



[3] Meetup. "Meetup." Accessed August 20, 2024. https://www.meetup.com/.

IMAGE 2: SCREENSHOTS FROM MEETUP GROUPS[4]



MISSION STATEMENT

The purpose of *MeetupxMcgill* is to strengthen McGill's student and alumnae network and community via a comprehensive, technology-driven database, allowing McGill University to maintain and manage a database for engaging their network by not only creating an online community but also engaging it through interest-based networking events and groups. The platform will facilitate meaningful connections between students and alumni, providing opportunities for mentorship, career networking, and continued engagement with the university community. By offering a variety of groups and events, and ensuring inclusivity and accessibility, the website will serve as a central hub for fostering connections across McGill's diverse population.

MISSION OBJECTIVES

To maintain (enter, update and delete) data on students.
To maintain (enter, update and delete) data on groups.
To maintain (enter, update and delete) data on activities.
To maintain (enter, update and delete) data on reviews.

To manage RSVP and attendance data across activities.
To manage membership data.

[4] Meetup. "Meetup." Accessed August 20, 2024. https://www.meetup.com/.

To perform searches on student and alumni, including their participation in activities and reviews.
To perform searches on groups.
To perform searches on activities.

To track the status of activities.

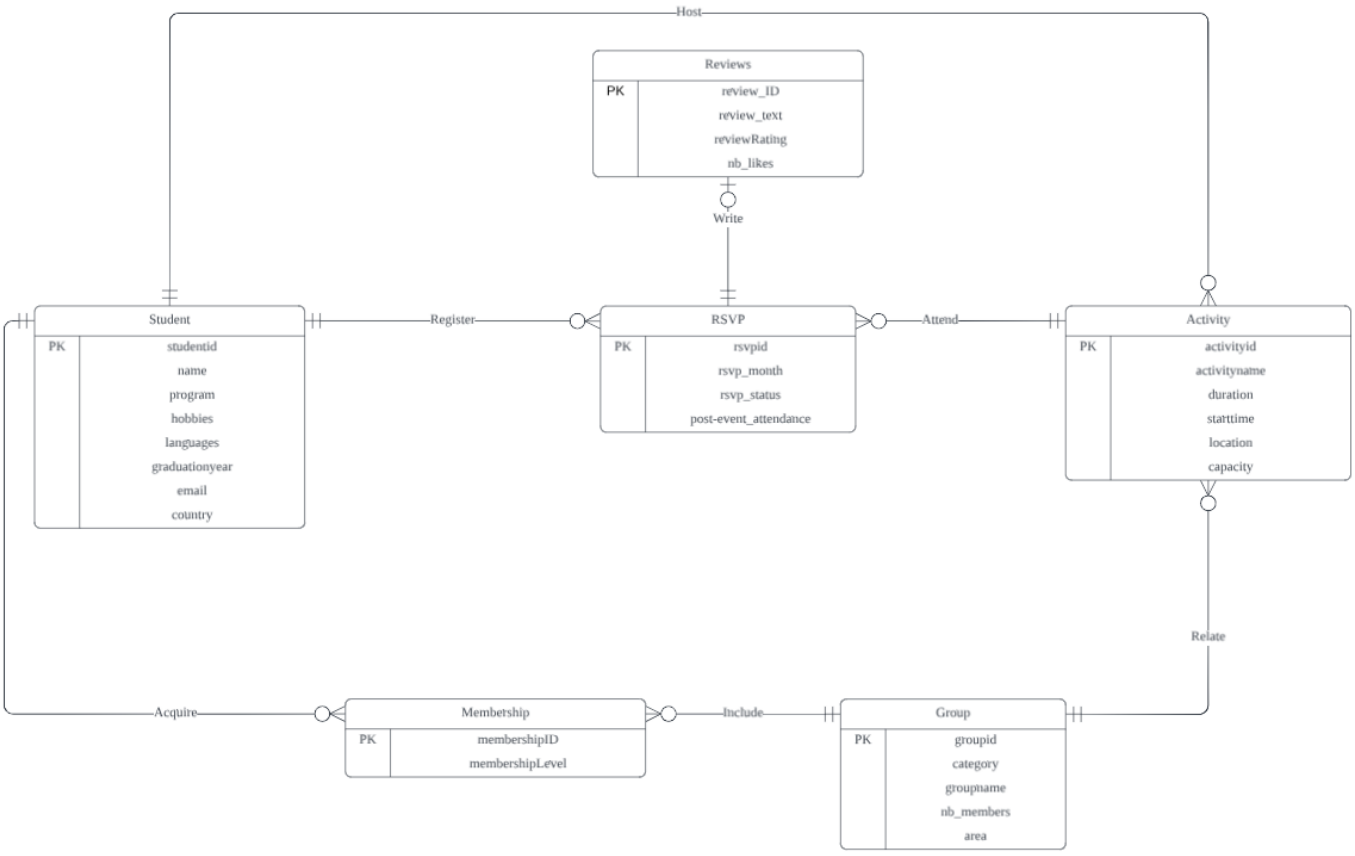
To report on user engagement, including activity participation and feedback.
To report on students, including engagement and participation metrics.
To report on groups, including membership distribution and activity success.
To report on activities, including attendance, feedback, and success metrics.
To report on reviews, including ratings and community engagement.

BUSINESS RULES

- Students must create profiles with a unique ID, name, email, program, hobbies, languages, graduation year, and country.
- Profiles must be complete before students can RSVP or join groups; email addresses must be validated during registration.
- A student can belong to multiple groups of interest.
- Groups must designate roles: Creators, Admins, Basic Members.
- Students can RSVP to multiple activities, and RSVPs must be linked to activities with enough capacity. McGill can track non-attendance for students that do not attend an activity more than twice within a month to assess attendance per group / activity.
- Students can leave one review per activity, including a rating from 1 to 5; written feedback is optional. Reviews can receive likes and comments.
- Each activity must have a maximum capacity, and no RSVPs are allowed once capacity is reached.
- Capacity can only be changed by the host in exceptional circumstances.
- Attendance reports for activities must be available to the host
- Activities must have a defined duration and cannot be edited after RSVPs have been submitted, unless approved by the host.
- One activity can be hosted multiple times.
- Students can join groups and activities based on categories of interest.
- RSVP statuses include 'Attending' and 'Maybe'; post-event attendance is tracked (e.g., 'Attended,' 'Did not attend').
- The popularity of groups is monitored based on attendance and activity reviews.
- Each group can host multiple activities, but activities must be assigned to an existing group.

- Activities with high ratings are those whose scores are at least 4 out of 5 and low ratings are at most 2 out of 5.
- Students are considered most engaged if they participate in at least 3 unique activities and have an average review rating of 3.5 or higher.
- To evaluate group performance score, weights are assigned such as 40% for number of members, 30% for total RSVPs, 20% for average review ratings and 10% for total likes on reviews.

ERD



APPENDIX

Appendix A: Data Dictionary

Table 1: Description of the entities

Entity Name	Description	Aliases	Occurrence
Student	Contains the information needed to identify a student and their details such as program, hobbies, and languages.	N/A	Many students can register for many activities. A student can also be a member of many groups. A student can also host zero or many activities, but an activity can only be hosted by one student.
Activity	Details the activities offered, including name, duration, start time, and location.	Event	Many activities can be attended by many students. Each activity is associated with one group.
Group	Contains information about student groups, including category, group name, number of members, and area.	Club	Many students can be members of many groups. Each group can organize multiple activities.
RSVP	Tracks student RSVP status for activities, including RSVP month, status, and credit status.	Registration	Each RSVP links a student to an activity.
Membership	Holds information on group memberships, including membership level and associated group.	Enrollment	Each membership links a student to a group.
Reviews	Captures reviews written by students for	Feedback	Many reviews can be written by many students. Each review

	activities, including the review text and rating.		is associated with an RSVP.

Table 2: Description of the attributes

Entity Name	Attributes	Description	Data Type	Nulls	Multi-valued	Derived	Default
Student	studentid	Unique ID for each student	INT	No	No	No	None
	name	Name of student	VARCHAR(50)	No	No	No	None
	program	Program of study	VARCHAR(255)	No	No	No	None
	hobbies	Hobbies of the student	VARCHAR(255)	Yes	No	No	None
	languages	Languages spoken by the student	VARCHAR(255)	Yes	Yes	No	None
	graduationYear	Year of graduation	INT	No	No	No	None
	email	Email address of the student	VARCHAR(255)	No	No	No	None
	country	Country of origin	VARCHAR(255)	No	No	No	None

RSVP	rsvpid	Unique ID for each RSVP	INT	No	No	No	None
	rsvp_month	Month of the RSVP	TIME	No	No	No	None
	rsvp_status	Status of the RSVP (e.g., confirmed, pending)	VARCHAR(50)	No	No	No	pending
	Post-event_attendance	Status of attendance filled after the event	VARCHAR(50)	Yes	No	No	None
Reviews	review_ID	Unique ID for each review	INT	No	No	No	None
	review_text	Text content of the review	VARCHAR(255)	Yes	No	No	None
	reviewRating	Rating given in the review	INT	No	No	No	None
	nb_likes	Number of likes	INT	No	No	No	None
Activity	activityId	Unique ID for	INT	No	No	No	None

		each activity					
	activityName	Name of the activity	VARCHAR(50)	No	No	No	None
	duration	Duration of the activity in minutes	INT	No	No	No	None
	startTime	Start time of the activity	TIME	No	No	No	None
	location	Location where the activity takes place	VARCHAR(255)	No	No	No	None
	capacity	Maximum number of participants for the activity	INT	No	No	No	None
Group	groupId	Unique ID for each group	INT	No	No	No	None
	category	Category of the group	VARCHAR(50)	No	No	No	None
	groupName	Name of the group	VARCHAR(50)	No	No	No	None

	nb_members	Number of members in the group	INT	Yes	No	Yes	None
	area	Area where the group is located	VARCHAR(255)	No	No	No	None
Membership	membershipID	Unique ID for each membership	INT	No	No	No	None
	membershipLevel	Level of membership (e.g., basic, premium)	VARCHAR(255)	No	No	No	None

Appendix B: Relational Schema

Student(studentid, name, program, hobbies, languages, graduationyear, email, country)
Primary Key: studentid

Activity(activityid, activityname, duration, starttime, location, capacity, groupid, studentid)
Primary Key: activityid
Foreign Key: groupid References Group(groupid)
Foreign Key: studentid References Student(studentid)

RSVP(rsvpid, studentid, activityid, rsvp_month, post_event_attendence, rsvp_status)
Primary Key: rsvpid
Foreign Key: studentid References Student(studentid)
Foreign Key: activityid References Activity(activityid)

Reviews(review_ID, review_text, reviewRating, nb_likes, rsvpid)
Primary Key: review_ID
Foreign Key: rsvpid References RSVP(rsvpid)

Membership(membershipID, membershipLevel, groupid, studentid)

Primary Key: membershipID
Foreign Key: groupid References Group(groupid)
Foreign Key: studentid References Student(studentid)

Group(groupid, category, groupname, nb_members, area)
Primary Key: groupid

Appendix C: Queries

Query 1: Description	Query 1: Objective
This query returns rows that rank groups within the 'XXX' category by their number of members in descending order. We display the most popular and active groups first. In this case, we chose 'Tech'.	The goal is to mimic the function that using the dropdown list to select with category and display all groups within a specified category. We ordered the table by the number of members in descending order.

Query #1 Execution time: 0.71ms

category	nb_members	groupid	groupname	area
Tech	50	3	Cybersecurity Experts	Washington D.C.
Tech	35	2	Blockchain Innovators	Austin
Tech	30	27	AI Researchers	Boston
Tech	27	16	App Developers	Atlanta
Tech	24	17	Web Designers	San Jose
Tech	20	1	AI Enthusiasts	Silicon Valley

Query 2: Description	Query 2: Objective
This query returns rows that list all distinct activities scheduled in a specific month. It shows key details such as activity name, duration, start time, location, capacity, and associated group, ordered by activity attributes. In this case, we chose 4, which is "April".	The goal is to list all activities occurring in a specific month, allowing users or administrators to view or manage events scheduled within that timeframe. # Manually set the month for which the activities need to be retrieved (e.g. 4 means April). # One activity can be hosted several times.

Query #2 Execution time: 1.9ms

activityid	activityname	duration	starttime	location	capacity	groupid
4	Startup Pitch	150	11:00:00	New York	30	4
16	App Development Bootcamp	180	09:00:00	Atlanta	40	16
28	Startup Mentorship Session	120	10:00:00	Los Angeles	12	28
20	Luxury Travel Planning	240	08:00:00	Chicago	15	20
5	Marketing Strategies	90	13:00:00	Chicago	50	5
24	Seafood Cooking Class	150	11:00:00	Baltimore	26	24

Query 3: Description	Query 3: Objective

This query returns rows that rank academic programs by the average number of activities hosted per student, in descending order. We want to highlight which programs have the most engaged students based on their activity involvement.	The goal is to find the average number of activities hosted by students in each specific academic program.

Query #3 Execution time: 0.98ms

program	avg_activities_per_student
Mathematics	3.6667
Business Administration	3.5000
Literature	3.5000
Engineering	3.0000
Computer Science	2.6000

Query 4: Description	**Query 4: Objective**
This query returns rows that rank the top 5 students by the total number of likes received on their reviews, in descending order. We want to highlight the most influential reviewers on the platform.	The goal is to determine which students have received the most likes on their reviews. This is to identify the most influential reviewers on the platform.

Query #4 Execution time: 0.58ms

name	total_likes
Henry Wilson	107
Diana Garcia	100
Kelly Adams	91
Jane Smith	57
Bob Brown	32

Query 5: Description	**Query 5: Objective**
This query returns rows that rank the top 5 students who have participated in the most diverse range of activities, in descending order. We want to highlight those with the broadest engagement across different events.	The goal is to identify the top 5 students who participate in the most diverse range of activities.

Query #5 Execution time: 0.47ms

name	total_unique_activities
Henry Wilson	9
Diana Garcia	7
Kelly Adams	7
Jane Smith	7
John Doe	5

Query 6: Description	**Query 6: Objective**
This query returns rows that rank students who consistently give either high or low ratings. It display those with an average review rating of at least 4 or at most 2, in	The goal is to identify students who consistently give either high or low ratings in their reviews. This will provide insights into

ascending order of their average rating. This helps identify students with strong positive or negative opinions.	their overall satisfaction levels and potential biases. # We only care about average review score which is at least 4 (for high ratings) or at most 2 (for low ratings). We only display these people.

Query #6 Execution time: 0.94ms

name	avg_review_rating
Tina Young	2.0000
John Doe	4.0000
Alice Johnson	4.0000
Eve Davis	4.0000
Anna Sanders	4.0000
Zachary Foster	4.0000
Jack Robinson	4.0000
Victor Hall	4.0000
Leo Scott	4.0000
Paula King	4.0000
Bob Brown	4.6667
Jane Smith	4.7500
Quinn Baker	5.0000
Rita Carter	5.0000
Nina Clark	5.0000
Ursula Hughes	5.0000

Query 7: Description	**Query 7: Objective**
This query returns rows that calculate the engagement rate for each group, defined as the proportion of members who have made at least one RSVP to an event. This helps us identify which groups have the most active and engaged members.	The goal is to calculate the engagement rate for each group, defined as the proportion of members who have ever made an RSVP to an event.

Query #7 Execution time: 13.91ms

groupid	groupname	engagement_rate
1	AI Enthusiasts	1.0000
2	Blockchain Innovators	1.0000
3	Cybersecurity Experts	1.0000
4	Startup Founders	1.0000
5	Marketing Gurus	1.0000
6	E-commerce Entrepreneurs	1.0000
7	Adventure Travelers	1.0000
8	Cultural Explorers	1.0000
9	Backpackers Club	1.0000
10	Nature Photographers	1.0000
11	Urban Photographers	1.0000
12	Gourmet Chefs	1.0000
13	Baking Enthusiasts	0.8000
14	Vegan Cooks	1.0000
15	BBQ Masters	0.8000
16	App Developers	1.0000

Query 8: Description	**Query 8: Objective**
This query returns rows that rank academic programs based on the total number of groups created by students within each program, in descending order. This highlights which programs have the most active group creators.	The goal is to determine how many groups are created by students from each academic program.

Query #8 Execution time: 0.54ms

program	total_groups_created
Computer Science	15
Business Administration	5
Mathematics	4
Engineering	4
Literature	2

Query 9: Description	**Query 9: Objective**
This query returns rows that rank groups based on the total number of events they have hosted, in descending order, highlighting the most active groups within the community.	The goal is to determine which groups are the most active by counting the number of events they have hosted.

Query #9 Execution time: 2.21ms

groupname	total_events
Startup Founders	6
Marketing Gurus	6
Blockchain Innovators	5
Cybersecurity Experts	5
AI Enthusiasts	4
Adventure Travelers	4
Cultural Explorers	4
Nature Photographers	4
E-commerce Entrepreneurs	4
Urban Photographers	4
Backpackers Club	3
Baking Enthusiasts	3
BBQ Masters	3
Vegan Cooks	3
Real Estate Investors	2
Gourmet Chefs	2

Query 10: Description	**Query 10: Objective**
This query returns rows that display the distribution of student participation across different graduation years, ordered by year in ascending order. This highlights how engagement varies among students at different academic stages.	The goal is to analyze the distribution of students across different graduation years who have participated in activities. This helps in understanding how student engagement varies by academic stage.

Query #10 Execution time: 0.45ms

graduationyear	total_participants
2023	30
2024	29
2025	15
2026	12

Query 11: Description	**Query 11: Objective**
This query returns rows that rank languages spoken by students based on the total number of RSVPs (attendance) in descending order. This highlights the correlation between language proficiency and activity participation.	The goal is to determine the impact of a student's language proficiency on activities they attend. This analysis helps identify correlations between language skills and activity preferences.

Query #11 Execution time: 0.47ms

languages	total_attendance
English	30
English, Spanish	19
English, French	19
English, German	12
English, Chinese	4
English, Italian	2

Query 12: Description	Query 12: Objective
This query returns rows that rank combinations of academic programs and hobbies based on the total number of RSVP engagements, in descending order. This highlights how student demographics impact their participation in activities.	The goal is to evaluate how student demographics, such as academic programs and hobbies, impact their engagement in activities.

Query #12 Execution time: 1.26ms

program	hobbies	total_engagement
Business Administration	Writing, Chess	9
Business Administration	Hiking, Photography	7
Computer Science	Music, Traveling	7
Business Administration	Swimming, Hiking	7
Computer Science	Reading, Gaming	5
Mathematics	Chess, Running	5
Business Administration	Writing, Hiking	4
Engineering	Photography, Reading	4
Computer Science	Photography, Cycling	4
Engineering	Cooking, Music	4
Engineering	Reading, Traveling	3
Computer Science	Painting, Gaming	3
Literature	Writing, Traveling	3
Mathematics	Drawing, Running	3
Computer Science	Cooking, Running	3
Computer Science	Gaming, Hiking	2

Query 13: Description	Query 13: Objective
This query returns rows that identify students who missed 2 or more RSVP commitments within a single month, ranked by the number of missed RSVPs in descending order. This query highlights students that are likely to impact event attendance estimation vs actual attendance.	The goal is to identify students who are at risk of suspension due to missing 2 or more RSVP commitments within a 30-day period. # Month here is the month of RSVP

Query #13 Execution time: 0.56ms

studentid	name	missed_rsvps	month
2	Jane Smith	2	2
7	Diana Garcia	2	1
10	Henry Wilson	2	4

Query 14: Description	Query 14: Objective
This query returns rows that rank the most popular times of day for hosting activities, based on the total number of RSVPs, in descending order. This can help us to identify the optimal times to schedule events.	The goal is to identify the most popular times of day for hosting activities based on past RSVP data.

Query #14 Execution time: 0.46ms

starttime	total_attendance
10:00:00	17
09:00:00	14
14:00:00	13
11:00:00	11
13:00:00	9
08:00:00	6
15:00:00	4
07:00:00	4
06:00:00	3
12:00:00	3
05:00:00	1
17:00:00	1

Query 15: Description	Query 15: Objective
This query returns rows that rank locations based on the number of distinct students who attended activities at each venue, in descending order. This can help us to identify the most attractive locations for hosting future events.	The goal is to identify which locations are most attractive to participants.

Query #15 Execution time: 0.79ms

location	number_of_student
Los Angeles	9
Chicago	6
Austin	5
Boston	5
San Francisco	4
San Diego	4
New York	4
New Orleans	4
Washington D.C.	3
Philadelphia	3
Paris	3
Kansas City	3
Baltimore	3
Miami	2
Nashville	2
Lisbon	2

Query 16: Description	Query 16: Objective
This query returns rows that display monthly attendance trends by counting the total number of RSVPs for each month, ordered from January to December. This can help us identify peak periods for event participation.	The goal is to analyze attendance trends across different months by counting the total number of RSVPs each month.

Query #16 Execution time: 0.4ms

month	total_attendance
1	8
2	8
3	8
4	6
5	6
6	6
7	6
8	6
9	10
10	7
11	8
12	7

Query 17: Description	Query 17: Objective
This query returns rows that rank graduation years based on the number of students who hold 'Creator' memberships, in descending order. This highlights which graduation year has the most active group creators.	The goal is to determine which graduation year has the most students creating groups.

Query #17 Execution time: 0.66ms

graduationyear	number_of_creator
2024	12
2025	7
2026	7
2023	4

Query 18: Description	Query 18: Objective
This query returns rows that identify the most popular group categories among students in each graduation year, ranked in descending order by both graduation year and the number of groups in each category. This helps us understand the preferences of different academic cohorts.	The goal is to identify the most popular group category among students in each graduation year.

Query #18 Execution time: 0.82ms

graduationyear	category	counting
2026	Tech	8
2026	Cooking	4
2026	Photography	4
2026	Business	4
2026	Travel	4
2025	Tech	14
2025	Travel	7
2025	Cooking	7
2025	Business	7
2025	Photography	6
2024	Tech	23
2024	Cooking	12
2024	Travel	11
2024	Photography	10
2024	Business	10
2023	Tech	15

Query 19 (Most Challenging / Interesting): Description	Query 19 (Most Challenging / Interesting): Objective
This query returns rows that rank the top 5 students who are both highly engaged—participating in at least 3 unique activities—and consistently provide high ratings (average review rating of 3.5 or higher), in descending order of their engagement and ratings. We can use the result to identify potential student leaders or influencers on the platform.	The goal is to identify the top 5 students who are highly engaged across a wide variety of activities and consistently provide high ratings for these activities. # We want only students who participated in at least 3 unique activities and have an average review rating of 3.5 or higher as per business requirements.

Query #19 Execution time: 0.79ms

name	total_unique_activities	avg_review_rating
Henry Wilson	7	5.0000
Diana Garcia	6	5.0000
Kelly Adams	6	5.0000
Jane Smith	4	4.7500
Bob Brown	3	4.6667

Query 20 (Most Challenging / Interesting): Description	**Query 20 (Most Challenging / Interesting): Objective**
This complex query evaluates and ranks groups based on a calculated `group_quality_score`, which is derived from four weighted attributes: the number of members (40%), total RSVPs (30%), average review ratings (20%), and total likes on reviews (10%). The results, ordered by the `group_quality_score` in descending order. This highlights the most successful and active groups on the platform, facilitating resource allocation and support decisions.	The goal is to identify which groups are most successful and active, and which might require further support or changes.

Query #20 Execution time: 2.05ms

groupid	groupname	nb_members	total_rsvps	average_review_rating	total_likes	group_quality_score
2	Blockchain Innovators	15	6	4.4000	56	9.760000000
3	Cybersecurity Experts	15	4	5.0000	49	8.874999998
1	AI Enthusiasts	15	3	5.0000	25	7.946428571
4	Startup Founders	5	5	4.7500	55	6.715472856
10	Nature Photographers	5	5	4.5000	53	6.579758570
8	Cultural Explorers	5	4	4.2500	53	5.979758569
12	Gourmet Chefs	5	4	4.3333	41	5.798806188
5	Marketing Gurus	5	4	5.0000	25	5.779758569
6	E-commerce Entrepreneurs	5	4	3.6667	34	5.407139521
30	Film Photographers	6	3	4.5000	26	5.364285714
15	BBQ Masters	5	3	4.0000	25	4.879758571
20	Luxury Travelers	5	2	5.0000	30	4.869044284
24	Seafood Lovers	5	3	4.0000	23	4.844044285
26	Dessert Makers	5	3	4.0000	18	4.754758571
27	AI Researchers	5	2	5.0000	20	4.690472856
23	Street Photographers	5	2	5.0000	19	4.672615713