

Phase 5 Relational Algebra

1. List all students registered for training along with their mentor

π Student.Student_ID, User.Name AS Student_Name, Uni_Mentor.Uni_Name AS Uni_Mentor, Company_Mentor.Company_Name AS Company_Mentor

 $(\text{Student} \bowtie (\text{User} \bowtie (\text{Internship_Application} \bowtie (\text{Uni_Mentor} \bowtie \text{Mentor}) \bowtie (\text{Company_Mentor} \bowtie \text{Mentor}))))$

2. Which students are assigned to a particular company mentor (given a specific mentor ID)?

π Student.Student_ID, User.Name, Student.Major, Student.CGPA

 $(\sigma \text{ Company_Mentor.Company_Mentor_ID} = \text{'specific_id'}(\text{Company_Mentor}) \bowtie \text{Internship_Application} \bowtie \text{Student} \bowtie \text{User})$

3. How many students are assigned to each company mentor?

γ Company_Mentor.Company_Mentor_ID, User.Name AS Mentor_Name;
COUNT(Student.Student_ID) \rightarrow Assigned_Students

 $(\text{Company_Mentor} \bowtie \text{Mentor} \bowtie \text{User} \bowtie \text{Internship_Application} \bowtie \text{Student})$

4. List all trainings and the number of enrolled students

γ Company.Name, Company.Industry; COUNT(DISTINCT Student.Student_ID) \rightarrow Enrolled_Students

 $(\text{Company} \bowtie \text{Has_a_Relation} \bowtie \text{Internship_Application} \bowtie \text{Student})$

5. Which students have registered for training but do not have a supervisor assigned yet?

π Student.Student_ID, User.Name, Student.Major

 $(\sigma \text{ Internship_Application.Uni_Mentor_ID} = \text{NULL}(\text{Internship_Application}) \bowtie \text{Student} \bowtie \text{User})$

6. List names and emails of all users who live in Riyadh

π Name, Email (σ Address LIKE '%Riyadh%' (User))

7. How many students with GPA higher than 3?

γ COUNT(Student_ID) \rightarrow HighGPASStudents

(σ GPA > 3(Student))

8. How many students were approved?

γ COUNT(Student_ID) \rightarrow ApprovedStudents

(σ Application_State='Approved'(Student))

9. Show students with specific majors

π Student.Student_ID, User.Name, Student.CGPA, Student.Academic_Level

(σ Major='Computer Science'(Student \bowtie User))

10. Show students according to the nearest addresses

τ Address(π Student.Student_ID, User.Name, User.Address(Student \bowtie User))

11. Find Students with Highest Performance Score

π Student.Student_ID, User.Name, Evaluation_Report.Performance_Score

(Student \bowtie User \bowtie Internship_Application \bowtie

σ Performance_Score = MAX(Performance_Score)(Evaluation_Report))

12. How many companies accepted students?

γ COUNT(DISTINCT Company.Company_Logo) \rightarrow Companies_Accepting_Students

(Company \bowtie Has_a_Relation \bowtie σ Status='Accepted'(Internship_Application))

1. View: StudentDashboard

Purpose: To provide a comprehensive overview of each student's academic details, internship application status, and evaluations in a single view.

Functionality: This view joins several tables related to the student, including user information, internship applications, mentors, company info, and evaluation reports.

Expected output:

```
483 -- View all student records with their internship applications
484 • SELECT * FROM StudentDashboard;
485
```

Student_ID	Student_Name	CGPA	Major	Academic_Level	Application_ID	Application_Status	Company_Name	Industry	University_Mentor	Company_Mentor	Performance_Score	Evaluation_Feedback
1	Ali Salem	3.60	Cybersecurity	Junior	204	Accepted	NEOM	Smart City	PHU	NEOM	4.80	Outstanding contributions and a
2	Sara Ahmed	3.82	AI	Senior	205	Pending	Mobily	Telecom	Taibah University	Mobily	4.00	Great learning curve observed.
3	Omar Khalid	3.40	Data Science	Senior	206	Accepted	Careem	Tech/Transport	KFUPM	Careem	4.60	Well-performed in technical tasks
4	Nora Faisal	3.75	Computer Science	Senior	201	Accepted	Aramco	Energy	King Saud University	Aramco	4.50	Excellent performance by student
5	Yousef Hamad	3.90	Information Systems	Junior	202	Pending	STC	Telecom	KAU	STC	3.90	Good progress, needs improvement
6	Lina Mohammed	3.45	Software Engineering	Senior	203	Rejected	SAPTCO	Transportation	Imam University	SAPTCO	3.20	Average skills, needs more training

StudentDashboard 41 x Read Only

```
186 -- View dashboard for a specific student by ID
187 • SELECT * FROM StudentDashboard WHERE Student_ID = 3;
188
189 -- Example: Get dashboard for student with ID 2
190 • SELECT * FROM StudentDashboard WHERE Student_ID = 2;
```

Student_ID	Student_Name	CGPA	Major	Academic_Level	Application_ID	Application_Status	Company_Name	Industry	University_Mentor	Company_Mentor	Performance_Score	Evaluation_Feedback
3	Omar Khalid	3.40	Data Science	Senior	206	Accepted	Careem	Tech/Transport	KFUPM	Careem	4.60	Well-performed in technical tasks.

2. View: CompanyMentorView

Purpose: To give company mentors a dashboard summarizing their assigned students, applications, and evaluations.

Functionality: Joins data from mentors, users, students, applications, and evaluation reports. Designed to help mentors monitor student progress and performance.

Expected output:

```
528
529 -- View all records in the CompanyMentorView
530 • SELECT * FROM CompanyMentorView;
531
```

Company_Mentor_ID	Company_Mentor_Name	Company_Name	Industry	Application_ID	Student_ID	Student_Name	Application_Status	Applied_Date	Decision_Date	Report_ID	Evaluation_Date	Feedback
1	Ali Salem	Aramco	Energy	201	4	Nora Faisal	Accepted	2025-03-01	2025-03-15	301	2025-04-10	Excellent performance by student
2	Sara Ahmed	STC	Telecom	202	5	Yousef Hamad	Pending	2025-03-05	2025-03-20	302	2025-04-12	Good progress, needs improvement
3	Omar Khalid	SAPTCO	Transportation	203	6	Lina Mohammed	Rejected	2025-03-07	2025-03-30	303	2025-04-15	Average skills, needs more training
4	Nora Faisal	NEOM	Smart City	204	1	Ali Salem	Accepted	2025-03-10	2025-03-25	304	2025-04-17	Outstanding contributions and a
5	Yousef Hamad	Mobily	Telecom	205	2	Sara Ahmed	Pending	2025-03-12	2025-03-28	305	2025-04-18	Great learning curve observed.
6	Lina Mohammed	Careem	Tech/Transport	206	3	Omar Khalid	Accepted	2025-03-15	2025-03-28	306	2025-04-19	Well-performed in technical tasks

3. View: UniversityCoordinatorView

Purpose: To summarize the performance of university mentors, showing how many students are under their supervision, how many are placed, and average performance.

Functionality: Aggregates data using GROUP BY to show KPIs (Key Performance Indicators) per university coordinator.

Expected output:

The screenshot displays a SQL query window with the following code:

```
566 SELECT * FROM UniversityCoordinatorView
567
568 SELECT * FROM UniversityCoordinatorView
569 WHERE Uni_Mentor_ID = 6 ;
```

Below the query, the 'Result Grid' shows a table with 8 columns: Uni_Mentor_ID, Coordinator_Name, University, Feedback_Score, Assigned_Students, Avg_Performance_Score, Placed_Students, and Partner_Companies. The table contains 6 rows of data.

Uni_Mentor_ID	Coordinator_Name	University	Feedback_Score	Assigned_Students	Avg_Performance_Score	Placed_Students	Partner_Companies
1	Ali Salem	King Saud University	4.80	1	4.500000	1	1
2	Sara Ahmed	KAU	4.60	1	3.900000	0	1
3	Omar Khalid	Imam University	4.90	1	3.200000	0	1
4	Nora Faisal	PNU	4.50	1	4.800000	1	1
5	Yousef Hamad	Taibah University	4.70	1	4.000000	0	1
6	Lina Mohammed	KFUPM	4.40	1	4.600000	1	1

Below the result grid, the 'UniversityCoordinatorView 56' window is shown with the 'Output' tab selected, displaying the same data as the result grid.

The screenshot displays a SQL query window with the following code:

```
567 SELECT * FROM UniversityCoordinatorView
568 WHERE Uni_Mentor_ID = 6 ;
569
570
571
572 -- Stored Procedure
```

Below the query, the 'Result Grid' shows a table with 8 columns: Uni_Mentor_ID, Coordinator_Name, University, Feedback_Score, Assigned_Students, Avg_Performance_Score, Placed_Students, and Partner_Companies. The table contains 1 row of data.

Uni_Mentor_ID	Coordinator_Name	University	Feedback_Score	Assigned_Students	Avg_Performance_Score	Placed_Students	Partner_Companies
6	Lina Mohammed	KFUPM	4.40	1	4.600000	1	1

Below the result grid, the 'UniversityCoordinatorView 57' window is shown with the 'Output' tab selected, displaying the same data as the result grid.

4. Stored Procedure: GetStudentReport(student_id)

Purpose: To generate a detailed report for a specific student, including personal info, academic records, internship applications, mentor names, evaluations, and documents.

Functionality: -Accepts student_id as input.

-Pulls together detailed records using joins.

-Allows filtering on the front-end if only partial data is needed.

```
623 DELIMITER ;
624
625
626
627 -- Get full report for student with ID 6
628 CALL GetStudentReport(6);
629
```

Result Grid

Student_Name	Major	Academic_Level	CGPA	Company_Name	Industry	Application_Status	Applied_Date	Decision_Date	University_Mentor	Company_Mentor	Performance_Score	Evaluation_Date	Feedback
Nora Faisal	Computer Science	Senior	3.75	Aramco	Energy	Accepted	2025-03-01	2025-03-15	Ali Salem	Ali Salem	4.50	2025-04-10	Excellent performance b

```
630 -- Get only application status and company info
631 CALL GetStudentReport(8);
```

Result Grid

Student_Name	Major	Academic_Level	CGPA	Company_Name	Industry	Application_Status	Applied_Date	Decision_Date	University_Mentor	Company_Mentor	Performance_Score	Evaluation_Date	Feedback	Document_Upload_Dat
--------------	-------	----------------	------	--------------	----------	--------------------	--------------	---------------	-------------------	----------------	-------------------	-----------------	----------	---------------------

(Because we have no id=8)