



COURSE TWO – MY SQL DATABASE MANAGEMENT

FINAL LAB REASSESSMENT (13/05/2024)

INSTRUCTIONS FOR THE LAB ASSESSMENT:

Please read carefully and understand the total number of questions, the time allocated for each question, and the duration of the lab assessment.

- Total number of lab section: Four (4).
- No of Questions to be answered: 20 (Twenty).
- Time allocated for each question: 5 minutes.
- Duration of lab assessment: 100 minutes.

Lab Section : 1

You are given a Movies Dataset carefully analysis and work on task given below the tables.

Table : directors

	director_id	name
▶	1	Christopher Nolan
	2	Sofia Coppola
	3	Martin Scorsese
	4	Denis Villeneuve
	5	Ava DuVernay
	6	Wes Anderson
	7	Quentin Tarantino
*	NULL	NULL

Table : genres

	genre_id	genre_name
▶	1	Science Fiction
	2	Drama
	3	Thriller
	4	Fantasy
	5	Adventure
*	NULL	NULL



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Table : movies

	movie_id	title	director_id	release_date	box_office_million
▶	1	Time to Wander	1	2023-04-15	150.00
	2	The Silent Ocean	2	2023-05-20	210.00
	3	A Dream of Spring	3	2023-06-05	95.00
	4	Spacebound	1	2023-06-22	300.00
	5	The Last Light	4	2023-07-01	185.00
	6	Echoes of Tomorrow	5	2023-08-15	120.00
	7	Whispers in the Wind	6	2023-09-01	135.00
	8	Forever and a Day	5	2023-10-23	220.00
	9	The Hidden Truth	7	2023-11-05	100.00

Table : movie_genres

	movie_id	genre_id
▶	1	1
	4	1
	8	1
	10	1
	2	2
	3	2
✓	5	2
	6	2
	5	3

1. You are a data analyst at an online entertainment news portal that focuses on providing detailed insights and statistics about film industry trends. Your editor has requested a feature article on the most commercially successful film directors over the past decade. Specifically, the article aims to highlight directors whose films have collectively grossed over \$200 million at the box office, listing all the films they've directed in this period along with total earnings and the number of movies they've made..



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2. You are working as a data analyst at a market research firm that specializes in the entertainment industry. Your firm has been tasked with providing insights to a group of investors interested in understanding which film genres were most lucrative in 2023. The investors are particularly interested in not just the average earnings, but also the variability (i.e. Max, Min) within the top-performing genre to gauge investment risks and opportunities..
3. You are a data analyst working for a film production company that specializes in big-budget films. Your company is interested in analyzing the movies that blend elements of 'Science Fiction' and 'Adventure' to decide on the budget for an upcoming project. Your task is to analyse data on past films that combined these genres.
4. You are a data analyst at a film distribution company, and you've been tasked with providing an annual report on the company's movie releases for the year 2023. The report needs to detail the number of movie releases by genre each month, with a summary row for each month and an overall total at the end of the report. The report should be useful for understanding trends in movie releases and guiding future decisions about genre focus.
5. As a data analyst in a consulting firm that specializes in the media and entertainment industry, you are tasked with providing a year-end report on the financial performance of movie genres for the year 2023. Your firm uses this data to advise clients on investment opportunities in different segments of the film industry. The report should highlight the top-performing genres in terms of box office earnings, as well as provide a summary line that aggregates the total earnings for these top genres.



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6. As a film industry analyst at a popular entertainment magazine, you have been tasked with writing an article that explores the unique stylistic choices of two renowned directors, Director A and Director B. Part of your analysis focuses on highlighting the genres that Director A has worked in that Director B has not, providing insight into their distinct artistic directions. This comparative analysis will help your readers understand the unique appeal of each director's filmography.

Lab Section - 2:

You are given a product database, carefully go through the data and do the task.

Table : products

	product_id	product_name	category	price	quantity	supplier_id
▶	1	Laptop	Electronics	1200.00	50	1
	2	Smartphone	Electronics	800.00	100	2
	3	Tablet	Electronics	500.00	30	3
	4	Headphones	Electronics	100.00	200	1
	5	Keyboard	Electronics	50.00	150	2
	6	Chair	Furniture	200.00	80	4
	7	Desk	Furniture	300.00	40	5
	8	Sofa	Furniture	700.00	20	4
	9	Bed	Furniture	1000.00	30	5



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Table : Suppliers

	supplier_id	supplier_name	city
▶	1	Supplier A	New York
	2	Supplier B	Los Angeles
	3	Supplier C	Chicago
	4	Supplier D	Houston
	5	Supplier E	Miami
	6	Supplier F	San Francisco
	7	Supplier G	Seattle

Table : Customers

	customer_id	customer_name	email	phone_number
▶	1	John Doe	john.doe@example.com	555-1234
	2	Jane Smith	jane.smith@example.com	555-5678
	4	Dhoni	dhoni@example.com	555-5675
	5	Tulkar	tulkar@example.com	555-1235
	6	Naveen	naveen@example.com	555-5675
	7	Stephen Jhon	stephen@example.com	555-1254
	8	Usha	usha@example.com	555-5578
	NULL	NULL	NULL	NULL

Table : Transactions

	transaction_id	product_id	customer_id	quantity	transaction_date
▶	1	1	1	2	2023-01-01
	2	2	2	1	2023-01-01
	3	3	2	1	2023-01-01
	4	3	1	2	2023-01-02
	5	4	7	1	2023-01-02
	6	4	6	1	2023-01-03
	7	5	4	2	2023-01-04
	8	6	2	1	2023-01-06
	9	7	5	1	2023-01-07



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7. You are organizing a supplier appreciation event for your retail company to recognize and celebrate the contributions of your suppliers. To highlight the most impactful suppliers, you need to identify the top three based on the total sales revenue generated from their products over the past year.
8. As a product manager in a consumer electronics company, you are tasked with analyzing the profitability of products within each category. To optimize product offerings and marketing strategies, you need to determine which products have the highest profit margins within their respective categories.
Hint Profit Margin : Price - Avg(Price)
9. You are managing the inventory for a large department store and aim to categorize products into different price tiers based on their selling prices. The goal is to have a balanced representation of products across various price ranges to cater to a diverse customer base. Define the tiers based on price ranges you consider appropriate (e.g., low, medium, high).
10. As a sales analyst for a software company, you are analyzing the sales performance of different software products within each category. To better understand trends and performance over time, you need to calculate the cumulative sales quantity for each product, considering only the sales of preceding products within the same category.
11. You are a business analyst at an online marketplace, and your task is to identify the top five best-selling products based on sales quantity to focus marketing efforts and stock management. It is important to list these products in a continuous rank order, regardless of any ties in sales quantities.



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12. You are a data analyst for a retail chain, tasked with monitoring daily sales during promotional periods. For a specific promotion running from January 1, 2023, to January 30, 2023, you need to analyze the sales performance by tracking how many products were sold each day. Days with no sales should be clearly indicated.

Lab Section - 3

Give below Teacher students Tables.

Table : teachers

TeacherID	TeacherName
1	John Smith
2	Jane Doe
3	Emily Johnson
4	Ram
5	Vivek
NULL	NULL

Table : classes

ClassID	ClassName	TeacherID
1	Mathematics	1
2	Science	2
3	History	3



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Table : students

StudentID	Name	ClassID
1	Alice Brown	1
2	Bob White	2
3	Charlie Green	NULL
4	Daisy Black	3
5	Jane Doe	3
6	Emily Johnson	1
NULL	NULL	NULL

13. You are an IT administrator at a local high school. As part of your duties, you manage the student information system. Recently, the school has introduced a new registration system for classes. Some students may have missed registering for their classes due to the transition to this new system. Your task is to identify students who have not been assigned to any class so that the administration can assist them in completing their registration process. (Achieve without using IN, Not IN, Exists, Not Exist for Efficient Performance).
14. You are the IT administrator at a large educational institution that recently underwent a major reorganization of its curriculum and faculty assignments. Due to these changes, some teachers might not currently be assigned to any classes for the upcoming academic year. The school administration needs to identify these teachers to ensure that all faculty members are properly allocated to classes and that no teacher is left without an assignment. (Achieve without using IN, Not IN, Exists, Not Exist for Efficient Performance)
15. You are a database administrator at an educational institution that is planning a community event involving both students and faculty. The event management team needs a consolidated list of all participants to prepare



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name tags and personalized welcome kits. Your task is to compile a complete list of names from both the students and teachers, ensuring that each person is listed only once, even if some teachers might also be registered as students for some courses.

16. You are a data analyst at a school district looking to evaluate the range of student performance in various classrooms. The district is particularly interested in identifying teachers whose classes have shown both high achievement and notable challenges, indicated by having at least one student scoring above 95% and another scoring below 65%. This analysis will help the educational board understand where targeted interventions or support may be necessary.
17. You are a data analyst in the academic affairs department of a university. The department is interested in understanding patterns of student improvement over sequential grading periods to better tailor academic support programs. Specifically, the university wants to identify students who have shown a consistent improvement in their scores from one grading period to the next, as this could indicate the effectiveness of current teaching methods or highlight areas where additional resources may be needed.

Lab Section - 4

Given the Election Results Dataset .



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Table : Candidates

	candidate_id	name	party
▶	1	Neha Singh	BJP
	2	Amit Patel	INC
	3	Rajesh Kumar	AAP
	4	Sunita Yadav	SP
	5	Manoj Tiwari	BSP
	6	Anjali Rao	DMK
	7	Bhaskar Das	TMC
	8	Chetan Reddy	YSRCP

Table : constituencies

	constituency_id	name	state
	1	Varanasi	Uttar Pradesh
	2	Amethi	Uttar Pradesh
	3	Raipur	Chhattisgarh
	4	Kolkata North	West Bengal
	5	Chennai Central	Tamil Nadu
	6	Gandhinagar	Gujarat
	7	Bhopal	Madhya Pradesh
	8	Lucknow Central	Uttar Pradesh

Table : Election_Results

	result_id	constituency_id	candidate_id	votes	election_year
▶	1	1	1	50000	2022
	2	1	2	45000	2022
	3	1	1	55000	2023
	4	1	2	46000	2023
	5	1	1	62000	2024
	6	1	2	48000	2024
	7	2	3	35000	2022
	8	2	4	34000	2022



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18. You are a data analyst for a political consulting firm that specializes in election analysis. Your firm is preparing a detailed report for an upcoming national election, focusing on trends and performance metrics of candidates across various constituencies. Your task involves comparing each candidate's performance in the current year's election with their average performance over the past three elections, excluding the current year. The aim is to identify trends in voter support and assess the impact of candidates' campaign strategies on their current performance.
19. You work as a data analyst for a national news outlet that is closely covering the 2024 general elections. As the elections conclude, there's a need to provide immediate and insightful data to the public about the results. Your task is to analyze the vote distribution in each constituency to determine which candidates are leading and by how many votes compared to the next closest candidate. This information will be featured prominently in your news outlet's election coverage to help viewers understand the competitive landscape of the election.
20. You are an election strategist for a political consultancy firm, tasked with analyzing the performance trends of candidates in specific constituencies over the past three election cycles (2022-2024). Your objective is to provide insights into how each candidate's vote total has changed year-over-year, identify the peak vote count a candidate received in any given cycle, and calculate a moving average of the votes to spot trends. This analysis will assist political parties in making strategic decisions for future campaigns, such as where to allocate resources or which candidates are gaining or losing traction.