GROUP Data Analytics Exercise

Question 1
Table: students_performance

student_id	student_name	test_score
1	Alice	85
2	Bob	45
3	Charlie	73
4	David	66
5	Eva	92
6	Frank	58

Task:
Write a SQL query to classify students as:

- 90-100: "Excellent"
- 75-89: "Good"
- 50-74: "Average"
- Below 50: "Poor"

Include only students with a score above 40.
Display: student_name, test_score, performance

Question 2
Table: sales_summary

sale_id	sale_date	customer_id	product_id	quantity	total_amount
1	2025-01-05	101	501	2	95.00
2	2025-01-10	102	502	15	1200.00
3	2025-01-11	103	503	1	350.00
4	2025-01-15	101	504	3	480.00
5	2025-01-20	102	505	7	990.00
6	2025-01-22	104	506	6	650.00

Tasks:

1. Add sales_category: "Low" (< 500), "Medium" (500-999), "High" (≥ 1000)
2. Label each sale as "Bulk Sale" if quantity >= 5, else "Regular Sale"
3. Group by sales_category and count the number of sales
4. Group by customer_id and classify as "Frequent Buyer" if sales > 1

Question 3
Table: employee_details

employee_id	first_name	last_name	department	salary	hire_date

201	Thando	Mokoena	HR	28000.00	2024-11-01
202	Zanele	Khumalo	Finance	55000.00	2022-03-15
203	Sipho	Dlamini	IT	72000.00	2020-07-10
204	Lindiwe	Sithole	HR	35000.00	2025-02-20
205	Tebogo	Nkuna	IT	47000.00	2023-06-01
206	Sanele	Zulu	Finance	63000.00	2021-08-01

Tasks: Add salary_bracket: "Low" (< 40000), "Mid" (40000-59999), "High" (≥ 60000) 6. Label "New Hire" if hire_date is in 2024 or later 7. Count employees in each salary_bracket 8. Calculate average salary per department and classify department: "Low", "Average", "High"

Question 4
Table: product_inventory

product_id	product_name	category	price	stock_quantity
301	Office Chair	Furniture	899.99	5
302	Pen Pack	Stationery	45.00	100
303	Monitor 24"	Electronics	1850.00	0
304	Stapler	Stationery	55.00	10
305	Desk Lamp	Electronics	299.99	2
306	Whiteboard	Furniture	599.00	8

Tasks: Add stock_status: "In Stock" if > 0, else "Out of Stock" 10. Add price_category: "Budget" (< 300), "Standard" (300-999), "Premium" (≥ 1000) 11. Count products in each price_category 12.
Label reorder_status: "Reorder" if stock_quantity < 10

Question 5
Table: student_courses

student_id	full_name	course	marks	enrollment_year
401	Lerato Nkosi	Math	78	2023
402	Daniel Mthembu	Physics	62	2022
403	Nthabiseng Molefe	Chemistry	49	2024
404	John Mashaba	Biology	53	2023
405	Lesedi Maleka	Math	84	2022
406	Siphesihle Dube	Physics	90	2023

Tasks: Add grade: "A" (>= 80), "B" (70-79), "C" (60-69), "D" (50-59), "F" (< 50) 14. Add student_level: "Senior" (<= 2022), "Junior" (2023+) 15. Count students in each grade 16. Add scholarship_eligibility: "Yes" if marks >= 75 AND course IN ('Math', 'Physics')

Question 6
Table: website_traffic_logs

visit_id	user_id	visit_date	page_visited	session_duration
601	901	2025-03-18	/home	45
602	902	2025-03-18	/products	200
603	901	2025-03-19	/about	360
604	903	2025-03-20	/contact	90
605	902	2025-03-20	/pricing	180
606	904	2025-03-21	/home	25

Tasks: Add session_type: "Short" (< 60), "Medium" (60-299), "Long" (≥300) 18. Label each user as "Frequent Visitor" if total visits > 1 19. Add day_type: "Weekday" or "Weekend" based on visit_date 20. Count how many visits fall into each session_type

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Question 7
Table: customer_feedback

feedback_id	customer_name	feedback_score	product_category
701	Alice	9	Electronics
702	Bob	5	Furniture
703	Charlie	10	Stationery
704	David	3	Furniture
705	Eva	7	Electronics
706	Frank	4	Stationery

Tasks: Add feedback_label: "Excellent" (>= 9), "Good" (7-8), "Average" (5-6), "Poor" (< 5) 22. Count feedback entries by product_category and filter only those with more than 1 "Poor" label

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Question 8
Table: employee_attendance

employee_id	employee_name	days_present	total_days
801	Thabo	20	22
802	Zanele	15	22
803	Lungile	22	22
804	Themba	18	22
805	Palesa	21	22
806	Sipho	12	22

Tasks: Add attendance_rating: "Excellent" (>= 95%), "Good" (80-94%), "Needs Improvement" (< 80%) 24. Group by attendance_rating and count how many employees fall into each

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Question 9
Table: order_returns

return_id	order_id	customer_id	return_reason	return_amount

901	101	301	Defective	450.00
902	102	302	Changed Mind	100.00
903	103	303	Late Delivery	200.00
904	104	301	Defective	350.00
905	105	302	Other	150.00
906	106	304	Changed Mind	90.00

Tasks: 25. Add return_type: "High Value" if return_amount > 300, otherwise "Low Value" 26. GROUP BY return_reason and count total returns with total amount > 100

Question 10
Table: campaign_engagement

campaign_id	user_id	engagement_score	region
1001	100	85	Gauteng
1002	101	55	KZN
1003	102	20	Gauteng
1004	103	75	Western Cape
1005	104	95	Gauteng
1006	105	60	KZN

Task: Add engagement_level: "High" (>= 80), "Medium" (50-79), "Low" (< 50) 28. Count users in each engagement_level per region