BrightLight Tutorials

Data Analytics

Exercise: Arithmetic Operators

Instructions:

- Write answers on paper with a pen.
- Draw tables of the final outcome.
- In the SELECT statement, choose relevant columns to display, if not specified.
- Scan the completed work into a PDF file and email to:
  rofhiwa@brightlighttutorials.co.za
- Use the provided tables and write SQL queries to solve each question.
- Apply **arithmetic operators** to derive new columns.
- Each question includes the **expected output columns**.

Table 1: Salaries

emp_id	name	base_salary	bonus
1	Alice	4000	500
2	Bob	3500	300
3	Carol	4500	0

Q1. Calculate total pay by adding base_salary and bonus.

Expected Columns: emp_id, name, total_pay

Table 2: Orders

order_id	item_price	quantity
101	20	3
102	15	5
103	8	10

Q2. Calculate the total order cost (item_price * quantity).

Expected Columns: order_id, total_cost

Table 3: Expenses

expense_id	budget	actual_cost
1	1000	850
2	1200	1300
3	500	500

Q3. Calculate difference between budget and actual cost.

Expected Columns: expense_id, variance

Table 4: Sales

sale_id	total_revenue	num_customers
1	1200	10
2	3000	20
3	500	5

Q4. Find average revenue per customer (total_revenue / num_customers).

Expected Columns: sale_id, avg_per_customer

Table 5: Products

product_id	stock	sold
1	100	45
2	60	30
3	40	40

Q5. Calculate remaining stock (stock - sold).

Expected Columns: product_id, remaining_stock

Table 6: Batches

batch_id	items_total	items_per_box
1	103	20
2	58	10
3	75	12

Q6. Find leftover items after packing full boxes using modulo (items_total % items_per_box).

Expected Columns: batch_id, leftover_items

Table 7: Discounts

item_id	original_price	discount_rate
1	100	0.10
2	250	0.20
3	80	0.15

Q7. Calculate discounted price using original_price - (original_price * discount_rate).

Expected Columns: item_id, discounted_price

Table 8: Employees_Hours

emp_id	hours_worked	hourly_rate
1	40	15
2	38	18
3	45	20

Q8. Compute weekly pay (hours_worked * hourly_rate).

Expected Columns: emp_id, weekly_pay

Table 9: Vehicles

vehicle_id	total_miles	fuel_used
1	300	15
2	500	25
3	400	20

Q9. Calculate miles per gallon (total_miles / fuel_used).

Expected Columns: vehicle_id, mpg

Table 10: Tuition

student_id	course_fee	scholarship_amount
1	2000	500
2	1500	1000
3	1800	0

Q10. Calculate net fee to be paid (course_fee - scholarship_amount).

Expected Columns: student_id, net_fee