

EXERCISE 4: SQL JOINS

Question 1 : Inner Join

: Join Students and Grades to display Only Student who have grades.

SELECT S.Student_id, Student_name,
Grade

From Students AS S

Inner join Grade AS G

On S.Student_id = G.Student_id;

Student_id	Student Name	Grade
2	Bob	B
3	Charlie	A
3		

Question 2 : LEFT JOIN

: Display all employees and the department they belong to. Include employees with no department.

SELECT Emp_id, Emp_Name,
Dept_name

From Employees AS E

LEFT JOIN Department AS D

On E.Emp_id = D.Emp_id;

Emp_id	Emp_Name	Dept_name
1	John	Null
2	Lisa	HR
3	Mike	Null

Question 3 : Full Outer Join

: Display a complete list of products & their quantities Sold. Include products with ~~their~~ no sales & sales for unknown product

SELECT P.Product_id, Product_name,
Quantity

From Products AS P

Full OUTER JOIN Sales AS S

On P.Product_id = S.Product_id;

Product_id	Product Name	Quantity
1	Laptop	Null
2	Mouse	50
3	Keyboard	Null
4	Null	30

Question 4 : LEFT JOIN & CASE

: Display all orders & indicate whether the customer is 'New' or 'Returning'

SELECT Order_id, Customer_id,

Amount, Customer_Name,

Count(Order_id) AS Order_Count,

CASE

WHEN Order_Count <= 1 THEN 'New'
ELSE 'Returning'

END AS Customer_Type

From Orders AS O

LEFT JOIN Customers AS C

On O.Order_id = C.Order_id

GROUP BY Order_id, Customer_id, Customer_Type

Amount, Customer_Name

Order_id	Customer_id	Amount	Customer Name	Customer type	Order
1	101	500	Paul	New	1
2	102	300	Sarah	New	1
3	103	0	Null	New	1

Question 5 : LEFT Join + Group By + Sum

: Show total sales per region & include regions with no sales

SELECT Region_id, Region_name,
Sum(Amount) AS Total_Sales

FROM Sales AS S

FULL OUTER JOIN Regions AS R

ON S.Region_id = R.Region_id

GROUP BY Region_id, Region_name ;

Region_id	Region_Name	Total Sales
1	North	2000
2	South	3500
3	East	Null
4	Null	Null

Question 6 : LEFT Join + CASE

: Classify students based on attendance

SELECT Student_id, Name,

Days_present,

CASE

WHEN Days_present Between 0

AND 5 THEN 'Poor_Attendance'

WHEN Days_present Between 6

AND 15 THEN 'Needs_Improvement'

WHEN Days_present > 16 THEN 'Excellent'

END AS Attendance_Status

FROM Students AS S

LEFT JOIN Attendance AS A

ON S.Student_id = A.Students_id;

Student_id	Name	Days_Present	Attendance_Status
1	Alice	18	Excellent
2	Bob	5	Poor Attendance
3	Charlie	Null	Poor Attendance

Question 7: Inner Join + Count + Group By

: Show number of tasks per project. Only include projects that have tasks.

SELECT Project_id, Name,
Count(task_id) AS Task_Count

FROM Projects AS P

INNER JOIN Tasks AS T

ON P.Project_id = T.Product_id

GROUP BY Project_id, Name;

Project_id	Name	Task Count
1	AI Chatbot	2
2	Website	1
3	Data Report	Null

Question 8 : Full Outer Join + CASE + WHERE

: Classify customers based on whether they returned anything and filter by high Order total

SELECT Cust_id, Order_Total,
Return_total,
CASE

WHEN Return_Total is null THEN 'No Return'

WHEN Return_Total = 0 THEN "No_Return"

ELSE 'Returned'

END AS Return_Status

From Orders AS O

Full Outer Join Returns AS R

On O.Cust_id = R.Cust_id

WHERE Order Total > 150;

Cust_id	Order total	Return total	Return Status
12	250	Null	No_Return
13	180	Null	No_Return

Question 9 : LEFT Join + Count + ORDER BY

: Count how many times each user logged in

SELECT User_id, Name,

Count(Login date) AS login Count

From Users AS U

LEFT Join Logins AS L

On U.User_id = L.User_id

GROUP BY User_id, Name

ORDER BY Login Count DESC;

User_Id	Name	Login Count
2	Gloria	2
3	Steve	1
1	Nelson	Null

Question 10 : LEFT JOIN + CASE + ORDER BY

: Show all teachers & the subjects they teach. If no subject, label appropriately

SELECT Teacher_Id, teacher_name,

~~Subject_Name~~,

CASE

WHEN Subject_Name Is null

THEN 'Appropriately'

ELSE 'Subject_name'

END AS 'Subject_Name'

FROM Teacher AS T

LEFT JOIN Subjects AS S

On T.Teacher_id = S.Teaching_id

On T.Teacher_id = S.Teacher_id

ORDER BY Teacher_name Asc;

Teacher Id	Teacher Name	Subject Name
Ms 2	Ms. Ndaba	Appropriately
3	Mr. Dlamini	Appropriately
1	Mr. Hlongwane	Math
1	Mr. Hongwane	Science