SQL Test for Business Analyst

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **"Employee"**table & sample data | |  | | |  |  |  | |
| staff\_id | staff\_name | Salary (Monthly) | department\_id |  | | | |
| 10001 | Billy Jones | 24000 | 103 |  | | | |
| 10002 | Alex Silva | 35000 | 101 |  | | | |
| 10003 | Delores Black | 67000 | 101 |  | | | |
| 10004 | Sue Tin | 28000 | 103 |  | | | |
| 10005 | Jessica Smith | 29000 | 102 |  | | | |
| 10006 | Alice Wong | 44500 | 101 |  | | | |
| 10007 | Sanjay Patel | 33000 | 103 |  | | | |
| 10008 | Frank White | 26000 | 101 |  | | | |
| 10009 | Louis Lee | 21000 | 102 |  | | | |
| 10010 | Edmond Ma | 45000 | 102 |  | | | |
| 10011 | Bob Nicolo | 66000 | 101 |  | | | |
| 10012 | Man Chan | 31000 | 102 |  | | | |
| 10013 | Joe Lang | 44000 | 103 |  | | | |

# **“Invoice"**

# table & sample data

|  |  |  |  |
| --- | --- | --- | --- |
| order\_id | staff\_id | invoice\_amount |  |
| a103789 | 10001 | 39030 |  |
| a103790 | 10007 | 45300 |  |
| a103791 | 10013 | 3475 |  |
| a103792 | 10001 | 3560 |  |
| a103793 | 10005 | 54600 |  |
| a103794 | 10005 | 46500 |  |
| a103795 | 10013 | 4350 |  |
| a103796 | 10001 | 3480 |  |
| a103797 | 10007 | 8700 |  |
| a103798 | 10005 | 9870 |  |
| a103799 | 10013 | 5650 |  |
| a103800 | 10001 | 23410 |  |
| a103801 | 10005 | 23400 |  |

# **Question 1:** **Write a SQL to get the details of the employee to compare the total sales against their monthly salary.**

# **Expected result:**

|  |  |  |  |
| --- | --- | --- | --- |
| staff\_id | staff\_name | Salary (Monthly) | Sales amount |
| 10001 | Billy Jones | 24000 | 69480 |
| 10002 | Alex Silva | 35000 | 0 |
| 10003 | Delores Black | 67000 | 0 |
| 10004 | Sue Tin | 28000 | 0 |
| 10005 | Jessica Smith | 29000 | 110970 |
| 10006 | Alice Wong | 44500 | 0 |
| 10007 | Sanjay Patel | 33000 | 54000 |
| 10008 | Frank White | 26000 | 0 |
| 10009 | Louis Lee | 21000 | 0 |
| 10010 | Edmond Ma | 45000 | 0 |
| 10011 | Bob Nicolo | 66000 | 0 |
| 10012 | Man Chan | 31000 | 0 |
| 10013 | Joe Lang | 44000 | 132475 |

SELECT

e.staff\_id,

e.staff\_name,

e.salary,

i.Sales\_amount

FROM

Employee e

LEFT JOIN (

SELECT

staff\_id,

SUM(invoice\_amount) AS Sales\_amount

FROM

Invoice

GROUP BY

staff\_id

) i ON e.staff\_id = i.staff\_id

;

# **Question 2:** **Write the SQL to give the average department salary for departments where the minimum salary is less than 25000, Expected result:**

|  |  |
| --- | --- |
| department\_id | average\_salary |
| 102 | 31500 |
| 103 | 32250 |

SELECT

department\_id,

AVG(salary) AS average\_salary

FROM

Employee

GROUP BY

department\_id

HAVING

MIN(salary) < 25000

;

# **Question 3: Write the SQL which will give the total sales of all employees who made at least one sale where the invoice amount was greater than 10000, expected result:**

|  |  |  |
| --- | --- | --- |
| staff\_id | staff\_name | Sales amount |
| 10001 | Billy Jones | 69480 |
| 10005 | Jessica Smith | 110970 |
| 10007 | Sanjay Patel | 54000 |

SELECT

e.staff\_id,

e.staff\_name,

SUM(i.invoice\_amount) AS Sales\_amount

FROM

Employee e

JOIN Invoice i ON e.staff\_id = i.staff\_id

WHERE

e.staff\_id IN (SELECT DISTINCT staff\_id FROM Invoice WHERE invoice\_amount > 10000)

GROUP BY

e.staff\_id;

# **Question 4:** **Write the SQL which will give Sales amount by department name where department name 101 is Finance, 102 is Marketing and 103 is Sales,**

# **Expected result:**

|  |  |
| --- | --- |
| department\_name | sales\_amount |
| Finance | 134370 |
| Marketing | 0 |
| Sales | 136995 |
|  |  |

Question:

101 is Marketing, 102 is Finance right? Otherwise the expected result would be different from above

SELECT

department\_name,

SUM(sales\_amount) AS sales\_amount

FROM

(

SELECT

CASE e.department\_id

WHEN 101 THEN 'Finance'

WHEN 102 THEN 'Marketing'

WHEN 103 THEN 'Sales'

END AS department\_name,

i.invoice\_amount AS sales\_amount

FROM

Employee e

JOIN Invoice i ON e.staff\_id = i.staff\_id

) AS subquery

GROUP BY

department\_name;

# **Question 5:** **Write a SQL to extract the team with highest productivity.**

WITH department\_salaries AS (

SELECT

department\_id,

SUM(salary) AS total\_salary

FROM

Employee

GROUP BY

department\_id

),

productivity AS (

SELECT

CASE d.department\_id

WHEN 101 THEN 'Finance'

WHEN 102 THEN 'Marketing'

WHEN 103 THEN 'Sales'

END AS department\_name,

SUM(i.invoice\_amount) AS sales\_amount,

ds.total\_salary

FROM

department\_salaries ds

JOIN Employee e ON ds.department\_id = e.department\_id

JOIN Invoice i ON e.staff\_id = i.staff\_id

GROUP BY

d.department\_id, ds.total\_salary

)

SELECT

department\_name,

sales\_amount / total\_salary AS productivity\_ratio

FROM

productivity

ORDER BY

productivity\_ratio DESC

LIMIT 1;