

SQL Business Questions with Queries & Outputs

Q1. How many total records are present in the Orders dataset?

```
SELECT COUNT(*) FROM orders;
```

Screenshot of Output

COUNT(*)	
1	9994

Q2. Are there any missing values in Sales, Discount, Profit, or Quantity?

```
SELECT *
FROM orders
WHERE sales IS NULL OR discount IS NULL OR profit IS NULL OR quantity IS NULL;
```

Output:No null

Q3. Are there duplicate Order IDs?

```
SELECT orderID, COUNT(*)
FROM orders
GROUP BY orderID
HAVING COUNT(*) > 1;
```

Screenshot of Output

	OrderID	COUNT(*)
27	CA-2014-103989	7
28	CA-2014-104178	4
29	CA-2014-104283	3
30	CA-2014-104472	2
31	CA-2014-104563	4
32	CA-2014-104738	5
33	CA-2014-105165	5
34	CA-2014-105249	3
35	CA-2014-105270	2
36	CA-2014-105417	2
37	CA-2014-105984	2
38	CA-2014-106264	2
39	CA-2014-106376	2
40	CA-2014-106439	9
41	CA-2014-106803	2
42	CA-2014-107181	2
43	CA-2014-107398	3
44	CA-2014-107454	2
45	CA-2014-107524	2

Q4. How many unique orders are there in total?

```
SELECT COUNT(DISTINCT orderid) AS total_orders
FROM orders;
```

Screenshot of Output:

total_orders
1 5009

Q5. What is the earliest and latest order date in the dataset?

```
SELECT MIN(orderdate), MAX(orderdate)
FROM orders;
```

 **Screenshot of Output:**

	MIN(orderdate)	MAX(orderdate)
1	2014-01-03	2017-12-30

Q6. How many orders resulted in a loss (negative profit)?

```
SELECT COUNT(*) AS loss_count  
FROM orders  
WHERE profit < 0;
```

 **Screenshot of Output:**

	loss_count
1	1871

Q7. What are the Total Sales, Total Profit, and Total Orders?

```
SELECT ROUND(SUM(sales),2) AS Total_sales,  
       ROUND(SUM(profit),2) AS Total_profit,  
       COUNT(DISTINCT orderid) AS total_orders  
FROM orders;
```

 **Screenshot of Output:**

	Total_sales	Total_profit	total_orders
1	2297200.86	286397.02	5009

Q8. What is the sales distribution across different Regions?

```
SELECT region, SUM(sales) AS revenue  
FROM orders  
GROUP BY region  
ORDER BY revenue DESC;
```

Screenshot of Output:

	Region	revenue
1	West	725457.8245
2	East	678781.24
3	Central	501239.8908
4	South	391721.905

Q9. Which are the Top 5 Products by Sales?

```
SELECT productname, SUM(sales) AS revenue  
FROM orders  
GROUP BY productname  
ORDER BY revenue DESC  
LIMIT 5;
```

Screenshot of Output:

	productname	revenue
1	Canon imageCLASS 2200 Advanced Copier	61599.824
2	Fellowes PB500 Electric Punch Plastic...	27453.384
3	Cisco TelePresence System EX90 ...	22638.48
4	HON 5400 Series Task Chairs for Big ...	21870.576
5	GBC DocuBind TL300 Electric Binding ...	19823.479

Q10. What is the Monthly Sales Trend?

```
SELECT strftime('%Y-%m', DATE(orderdate)) AS month,  
       SUM(sales) AS revenue  
FROM orders  
GROUP BY month  
ORDER BY month;
```

Screenshot of Output:

	month	revenue
1	2014-01	14236.895
2	2014-02	4519.892
3	2014-03	55691.009
4	2014-04	28295.345
5	2014-05	23648.287
6	2014-06	34595.1276
7	2014-07	33946.393
8	2014-08	27909.4685
9	2014-09	81777.3508
10	2014-10	31453.393
11	2014-11	78628.7167
12	2014-12	69545.6205
13	2015-01	18174.0756
14	2015-02	11951.411
15	2015-03	38726.252
16	2015-04	34195.2085
17	2015-05	30131.6865
18	2015-06	24797.292
...

Q11. Who are the Top 10 Customers by Sales Revenue?

```
SELECT customername, SUM(sales) AS revenue
FROM orders
GROUP BY customername
ORDER BY revenue DESC
LIMIT 10;
```

 **Screenshot of Output:**

	CustomerName	revenue
1	Sean Miller	25043.05
2	Tamara Chand	19052.218
3	Raymond Buch	15117.339
4	Tom Ashbrook	14595.62
5	Adrian Barton	14473.571
6	Ken Lonsdale	14175.229
7	Sanjit Chand	14142.334
8	Hunter Lopez	12873.298
9	Sanjit Engle	12209.438
10	Christopher Conant	12129.072

Q12. How does Discount affect Profit?

```
SELECT discount, SUM(profit) AS total_profit  
FROM orders  
GROUP BY discount  
ORDER BY total_profit DESC;
```

 **Screenshot of Output:**

	Discount	total_profit
1	0	320987.6032
2	0.2	90337.306
3	0.1	9029.177
4	0.15	1418.9915
5	0.32	-2391.1377
6	0.45	-2493.1111
7	0.6	-5944.6552
8	0.3	-10369.2774
9	0.5	-20506.4281
10	0.4	-23057.0504
11	0.8	-30539.0392
12	0.7	-40075.3569

Q13. What is the Average Order Value?

```
SELECT (SUM(sales)/COUNT(DISTINCT orderid)) AS avg_order_value
FROM orders;
```

Screenshot of Output:

	avg_order_value
1	458.614665661809

Q14. Which are the Top 10 Loss-Making Products?

```
SELECT productname, ROUND(SUM(profit),2) AS total_loss
FROM orders
GROUP BY productname
HAVING SUM(profit) < 0
ORDER BY total_loss ASC
LIMIT 10;
```

Screenshot of Output:

	productname	total_loss
1	Cubify CubeX 3D Printer Double Head ...	-8879.97
2	Lexmark MX611dhe Monochrome Laser ...	-4589.97
3	Cubify CubeX 3D Printer Triple Head ...	-3839.99
4	Chromcraft Bull-Nose Wood Oval ...	-2876.12
5	Bush Advantage Collection Racetrack ...	-1934.4
6	GBC DocuBind P400 Electric Binding ...	-1878.17
7	Cisco TelePresence System EX90 ...	-1811.08
8	Martin Yale Chadless Opener Electric...	-1299.18
9	Balt Solid Wood Round Tables	-1201.06
10	BoxOffice By Design Rectangular and ...	-1148.44

Q15. What is the Sales Contribution of each Customer Segment?

```
SELECT segment, SUM(sales) AS revenue
FROM orders
GROUP BY segment
ORDER BY revenue DESC;
```

Screenshot of Output:

	Segment	revenue
1	Consumer	1161401.345
2	Corporate	706146.3668
3	Home Office	429653.1485

Q16. Find the Top 3 Products by Sales in Each Region.

```
WITH productsale AS (
  SELECT region,
    SUM(sales) AS totalsale,
    productname,
    RANK() OVER(PARTITION BY region ORDER BY SUM(sales) DESC) AS salesrank
  FROM orders
  GROUP BY region, productname
)
SELECT region, productname, totalsale, salesrank
```

```

FROM productsale
WHERE salesrank <= 3
ORDER BY region, salesrank;

```

Screenshot of Output:

	region	productname	totalsale	salesrank
1	Central	Canon imageCLASS 2200 Advanced Copier	17499.95	1
2	Central	Lexmark MX611dhe Monochrome Laser ...	14279.916	2
3	Central	Ibico EPK-21 Electric Binding System	11339.94	3
4	East	Canon imageCLASS 2200 Advanced Copier	30099.914	1
5	East	3D Systems Cube Printer, 2nd ...	14299.89	2
6	East	Riverside Palais Royal Lawyers ...	11717.034	3
7	South	Cisco TelePresence System EX90 ...	22638.48	1
8	South	HP Designjet T520 Inkjet Large Forma...	11374.935	2
9	South	GBC DocuBind TL300 Electric Binding ...	8342.007	3
10	West	Canon imageCLASS 2200 Advanced Copier	13999.96	1
11	West	High Speed Automatic Electric Letter...	13100.24	2
12	West	Global Troy Executive Leather Low-...	10019.6	3

Q17. Calculate Month-on-Month Growth (%) of Sales.

```

WITH monthlysale AS (
    SELECT strftime('%Y-%m', DATE(orderdate)) AS month,
           SUM(sales) AS totalsale
        FROM orders
       GROUP BY month
      ORDER BY month
)
SELECT month,
       totalsale,
       LAG(totalsale) OVER(ORDER BY month) AS previousmonthsale,
       ((totalsale - LAG(totalsale) OVER(ORDER BY month)) /
       LAG(totalsale) OVER(ORDER BY month)) * 100 AS growthpercentage
    FROM monthlysale
   ORDER BY month;

```

Screenshot of Output:

	month	totalsale	previousmonthsale	growthpercentage
2	2014-02	4519.892	14236.895	-68.2522628705206
3	2014-03	55691.009	4519.892	1132.13140933456
4	2014-04	28295.345	55691.009	-49.1922565094843
5	2014-05	23648.287	28295.345	-16.4234010930066
6	2014-06	34595.1276	23648.287	46.2902052905566
7	2014-07	33946.393	34595.1276	-1.87521956126563
8	2014-08	27909.4685	33946.393	-17.7836994345761
9	2014-09	81777.3508	27909.4685	193.009344839369
10	2014-10	31453.393	81777.3508	-61.5377696974747
11	2014-11	78628.7167	31453.393	149.984848057569
12	2014-12	69545.6205	78628.7167	-11.5518815277828
13	2015-01	18174.0756	69545.6205	-73.867404634056
14	2015-02	11951.411	18174.0756	-34.2392358046535
15	2015-03	38726.252	11951.411	224.030794355579
16	2015-04	34195.2085	38726.252	-11.7001859617089
17	2015-05	30131.6865	34195.2085	-11.8833081541234
18	2015-06	24797.292	30131.6865	-17.7036041444278
19	2015-07	28765.325	24797.292	16.0018803666142
20	2015-08	36898.3322	28765.325	28.2736496111203

Q18. Find the Customer with the Highest Profit in Each Segment.

```

WITH customerprofit AS (
    SELECT customername,
           segment,
           SUM(profit) AS totalprofit,
           RANK() OVER(PARTITION BY segment ORDER BY SUM(profit) DESC) AS profitrank
    FROM orders
   GROUP BY segment, customername
)
SELECT customername, segment, totalprofit, profitrank
  FROM customerprofit
 WHERE profitrank = 1;

```

 **Screenshot of Output:**

	customername	segment	totalprofit	profitrank
1	Raymond Buch	Consumer	6976.0959	1
2	Tamara Chand	Corporate	8981.3239	1
3	Tom Ashbrook	Home Office	4703.7883	1

Q19. Calculate Cumulative Sales Over Time (Running Total).

```
WITH monthlysales AS (
    SELECT strftime('%Y-%m', DATE(orderdate)) AS month,
           SUM(sales) AS totalsale
    FROM orders
   GROUP BY month
)
SELECT month,
       totalsale,
       SUM(totalsale) OVER(ORDER BY month) AS cumulativesales
  FROM monthlysales
 ORDER BY month;
```

 **Screenshot of Output:**

	month	totalsale	cumulativesales
1	2014-01	14236.895	14236.895
2	2014-02	4519.892	18756.787
3	2014-03	55691.009	74447.796
4	2014-04	28295.345	102743.141
5	2014-05	23648.287	126391.428
6	2014-06	34595.1276	160986.5556
7	2014-07	33946.393	194932.9486
8	2014-08	27909.4685	222842.4171
9	2014-09	81777.3508	304619.7679
10	2014-10	31453.393	336073.1609
11	2014-11	78628.7167	414701.8776
12	2014-12	69545.6205	484247.4981
13	2015-01	18174.0756	502421.5737
14	2015-02	11951.411	514372.9847
15	2015-03	38726.252	553099.2367
16	2015-04	34195.2085	587294.4452
17	2015-05	30131.6865	617426.1317
18	2015-06	24797.292	642223.4237

Q20. Find the Average Discount per Category vs Overall Average Discount.

```

SELECT category,
       AVG(discount) AS avgdiscount,
       (SELECT AVG(discount) FROM orders) AS overalldiscount,
       AVG(discount) - (SELECT AVG(discount) FROM orders) AS difference
  FROM orders
 GROUP BY category;

```

Screenshot of Output:

	Category	avgdiscount	overalldiscount	difference
1	Furniture	0.173922677982084	0.15620272163298	0.0177199563491041
2	Office Supplies	0.157285097909061	0.15620272163298	0.00108237627608096
3	Technology	0.132322685435842	0.15620272163298	-0.0238800361971379

