Assignment 2

# PART B – Office Products

QUESTION 1:

1. **CREATE** **TABLE** Managers (
2. RegID       NUMBER,
3. Region      VARCHAR2(10 BYTE),
4. RegManager  VARCHAR2(10 BYTE),
5. **PRIMARY** **KEY** (RegID),
6. **CONSTRAINT** ch\_reg **CHECK** (Region IN ('East', 'South', 'Central', 'West')));
8. **CREATE** **TABLE** Products (
9. ProdID        NUMBER,
10. ProdName      VARCHAR2(100 BYTE),
11. ProdCat       VARCHAR2(30 BYTE),
12. ProdSubCat    VARCHAR2(30 BYTE),
13. ProdCont      VARCHAR2(20 BYTE),
14. ProdUnitPrice NUMBER(7,2),
15. ProdMargin    NUMBER(5,3),
16. **PRIMARY** **KEY** (ProdID),
17. **CONSTRAINT** ch\_cat **CHECK** (ProdCat IN ('Technology', 'Furniture', 'Office Supplies')),
18. **CONSTRAINT** ch\_cont **CHECK** (ProdCont IN ('Jumbo Drum', 'Medium Box', 'Jumbo Box', 'Wrap Bag',
19. 'Large Box', 'Small Box', 'Small Pack')));
21. **CREATE** **TABLE** Orders (
22. OrderID   NUMBER,
23. Status    VARCHAR2(10 BYTE),
24. **PRIMARY** **KEY** (OrderID));
26. **CREATE** **TABLE** Customers (
27. CustID      NUMBER,
28. CustName    VARCHAR2(35 BYTE),
29. CustReg     NUMBER(1,0),
30. CustState   VARCHAR2(20 BYTE),
31. CustCity    VARCHAR2(20 BYTE),
32. CustZip     NUMBER(5,0),
33. CustSeg     VARCHAR2(15 BYTE),
34. **PRIMARY** **KEY** (CustID),
35. **FOREIGN** **KEY** (CustReg) **REFERENCES** Managers(RegID) **ON** **DELETE** **CASCADE**,
36. **CONSTRAINT** ch\_seg **CHECK** (CustSeg IN ('Home Office', 'Corporate', 'Small Business', 'Consumer')));
38. **CREATE** **TABLE** OrderDet (
39. OrderID       NUMBER,
40. CustID        NUMBER,
41. ProdID        NUMBER,
42. OrdPriority   VARCHAR2(15 BYTE),
43. OrdDiscount   NUMBER(3,2),
44. OrdShipMode   VARCHAR2(15 BYTE),
45. OrdDate       **DATE**,
46. OrdShipDate   **DATE**,
47. OrdShipCost   NUMBER(5,2),
48. OrdQty        NUMBER,
49. OrdSales      NUMBER(8,2),
50. **PRIMARY** **KEY** (OrderID, CustID, ProdID),
51. **FOREIGN** **KEY** (OrderID) **REFERENCES** Orders(OrderID),
52. **FOREIGN** **KEY** (CustID) **REFERENCES** Customers(CustID),
53. **FOREIGN** **KEY** (ProdID) **REFERENCES** Products(ProdID),
54. **CONSTRAINT** ch\_priority **CHECK** (OrdPriority IN ('Low', 'Medium', 'High', 'Critical', 'Not Specified')),
55. **CONSTRAINT** ch\_mode **CHECK** (OrdShipMode IN ('Regular Air', 'Delivery Truck', 'Express Air')));

The above script was used to create the tables. Once the tables were created, the data was loaded to them from the different Excel spreadsheets.

QUESTION 2: ORDER Cancellations

a)

1. **SELECT** ROUND(R.ReturnCount/O.TotOrders,4) **AS** FracReturned
2. **FROM** (
3. **SELECT** COUNT(OrderID) **AS** ReturnCount
4. **FROM** Orders
5. **WHERE** Status LIKE 'Returned') R,
6. (**SELECT** COUNT(OrderID) **AS** TotOrders
7. **FROM** Orders) O;

|  |
| --- |
| FRACRETURNED |
| 0.0093 |

A fraction of about 0.0093, or 0.93%, of the orders were cancelled.

b)

1. **SELECT** SUM(D.OrdSales) **AS** SalesReturned
2. **FROM** Orders O, OrderDet D
3. **WHERE** O.OrderID = D.OrderID AND O.Status LIKE 'Returned';

|  |
| --- |
| SALESRETURNED |
| 308455.12 |

The total sales from cancelled orders was $308,455.12.

c)

1. **SELECT** CustName, RetOrders **FROM** (
2. **SELECT** C.CustName, COUNT(O.OrderID) RetOrders, RANK() OVER (**ORDER** **BY** COUNT(O.OrderID) **DESC**) **AS** Rank
3. **FROM** Orders O, OrderDet D, Customers C
4. **WHERE** O.OrderID = D.OrderID AND D.CustID = C.CustID AND O.Status LIKE 'Returned'
5. **GROUP** **BY** C.CustName)
6. **WHERE** Rank <= 5;

|  |  |
| --- | --- |
| CUSTNAME | RETORDERS |
| Hazel Jennings | 7 |
| Keith Marsh | 5 |
| Jenny Gold | 5 |
| Maxine Collier Grady | 4 |
| Gordon Brandt | 4 |
| Leigh Burnette Hurley | 4 |
| Billy Perry Browning | 4 |
| Constance Flowers | 4 |

The table shows the result of the 8 customers with the most cancelled orders. There are 8 rather than 5 because 5 customers are tied for the fourth most cancelled orders.

QUESTION 3: CUSTOMER Related

a)

1. **SELECT** CustName, TotSales **FROM** (
2. **SELECT** C.CustName, SUM(D.OrdSales) **AS** TotSales, RANK() OVER (**ORDER** **BY** SUM(D.OrdSales) **DESC**) **AS** Rank
3. **FROM** Customers C, OrderDet D
4. **WHERE** C.CustID = D.CustID
5. **GROUP** **BY** C.CustName)
6. **WHERE** Rank <= 10;

|  |  |
| --- | --- |
| CUSTNAME | TOTSALES |
| Gordon Brandt | 123745.62 |
| Glen Caldwell | 89269.7 |
| Rosemary O'Brien | 86540.75 |
| Leigh Burnette Hurley | 83651.7 |
| Kristine Connolly | 81296.39 |
| Nina Horne Kelly | 78243.6 |
| Neal Wolfe | 69118 |
| Priscilla Kane | 61610.6 |
| Dana Teague | 61298.98 |
| Kim Weiss | 58947.41 |

The table shows the entire result (top 10 customers in terms of total sales/revenues generated).

b)

1. -- Percent of customers who buy all 3 product categories
2. **SELECT** ROUND(100\*(AllCatsCount/TotCount),2) **AS** AllCatPerc
3. **FROM**(
4. **SELECT** COUNT(CatsPurchased) **AS** AllCatsCount
5. **FROM** (
6. **SELECT** CustName, COUNT(ProdCat) **AS** CatsPurchased
7. **FROM** (
8. **SELECT** C.CustName, P.ProdCat
9. **FROM** Customers C, Products P, OrderDet O
10. **WHERE** C.CustID = O.CustID AND O.ProdID = P.ProdID
11. **GROUP** **BY** C.CustName, P.ProdCat
12. **ORDER** **BY** C.CustName)
13. **GROUP** **BY** CustName
14. **ORDER** **BY** CatsPurchased)
15. **WHERE** CatsPurchased = 3),
16. (**SELECT** COUNT(CatsPurchased) **AS** TotCount
17. **FROM** (
18. **SELECT** CustName, COUNT(ProdCat) **AS** CatsPurchased
19. **FROM** (
20. **SELECT** C.CustName, P.ProdCat
21. **FROM** Customers C, Products P, OrderDet O
22. **WHERE** C.CustID = O.CustID AND O.ProdID = P.ProdID
23. **GROUP** **BY** C.CustName, P.ProdCat
24. **ORDER** **BY** C.CustName)
25. **GROUP** **BY** CustName
26. **ORDER** **BY** CatsPurchased));

|  |
| --- |
| ALLCATPERC |
| 24.24 |

The result of this query is the percentage of customers who buy products from all 3 categories. Less than 25% of customers fit this criteria, meaning more than 75% do not buy products from all 3 categories. Clearly there is some potential for this 75% to buy other product categories.

1. -- Percent of sales in each category for each customer
2. **SELECT** X.CustName, Y.ProdCat, Y.CatSales, ROUND(100\*(Y.CatSales/X.CustSales),2) **AS** CatPerc
3. **FROM** (
4. **SELECT** C.CustName, SUM(D.OrdSales) **AS** CustSales
5. **FROM** Customers C, OrderDet D
6. **WHERE** C.CustID = D.CustID
7. **GROUP** **BY** C.CustName) X,
8. (**SELECT** C.CustName, P.ProdCat, SUM(D.OrdSales) **AS** CatSales
9. **FROM** Products P, OrderDet D, Customers C
10. **WHERE** C.CustID = D.CustID AND P.ProdID = D.ProdID
11. **GROUP** **BY** C.CustName, P.ProdCat) Y
12. **WHERE** X.CustName = Y.CustName AND ROUND(100\*(Y.CatSales/X.CustSales),2) < 10
13. **ORDER** **BY** CustName;

|  |  |  |  |
| --- | --- | --- | --- |
| CUSTNAME | PRODCAT | CATSALES | CATPERC |
| Aaron Davies Bruce | Office Supplies | 83.82 | 3.51 |
| Aaron Riggs | Office Supplies | 127.86 | 3.4 |
| Adam G Sawyer | Office Supplies | 292.18 | 9.43 |
| Adam G Sawyer | Furniture | 26.68 | 0.86 |
| Adam Saunders Gray | Office Supplies | 256.72 | 8.02 |
| Adam Saunders Gray | Technology | 233.98 | 7.31 |
| Albert Frost | Technology | 739.9 | 7.56 |
| Albert Frost | Furniture | 342.62 | 3.5 |
| Alex Harding | Furniture | 1348.73 | 7.19 |
| Alex Watkins | Office Supplies | 19.12 | 2.17 |

The table shows the first 10 records from the result. The entire result shows the total amount spent by a customer on a product category and the percentage of their total spending on that category if the percentage is less than 10%. Clearly there are numerous customers who spend a very low percentage on one or more categories. This could indicate that there is potential for these customers to spend more on these product categories.

QUESTION 4:

a)

1. **SELECT** SUM(ActPrice) - SUM(TheorPrice) **AS** TotalDiff **FROM** (
2. **SELECT** D.OrderID, ((P.ProdUnitPrice\*D.OrdQty)\*(1-D.OrdDiscount)+OrdShipCost) **AS** TheorPrice, D.OrdSales **AS** ActPrice
3. **FROM** OrderDet D, Products P
4. **WHERE** D.ProdID = P.ProdID);

|  |
| --- |
| TOTALDIFF |
| -21791.2566 |

The result shows the total difference between actual sales and theoretical sales for all orders. It appears that their actual sales are about $21,791.26 less than they theoretically should be.

b)

1. **SELECT** Region, RegManager, ROUND(AVG(ActPrice),2) **AS** AvgAct, ROUND(AVG(TheorPrice),2) **AS** AvgTheor,
2. ROUND(100\*(AVG(ActPrice) - AVG(TheorPrice))/AVG(TheorPrice),2) **AS** AvgPercDiff
3. **FROM** (
4. **SELECT** D.OrderID, M.Region, M.RegManager, ((P.ProdUnitPrice\*D.OrdQty)\*(1-D.OrdDiscount)+OrdShipCost) **AS** TheorPrice, D.OrdSales **AS** ActPrice
5. **FROM** OrderDet D, Products P, Managers M, Customers C
6. **WHERE** D.ProdID = P.ProdID AND M.RegID = C.CustReg AND C.CustID = D.CustID)
7. **GROUP** **BY** Region, RegManager
8. **ORDER** **BY** AvgPercDiff;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| REGION | REGMANAGER | AVGACT | AVGTHEOR | AVGDIFF |
| West | William | 1041.41 | 1046.82 | -0.52 |
| South | Sam | 808.55 | 810.25 | -0.21 |
| Central | Chris | 866.49 | 867.77 | -0.15 |
| East | Erin | 1042.9 | 1044.01 | -0.11 |

The result shows the average actual price of an order, the average theoretical price of an order, and the percent difference for each region and manager. It appears that all four managers are generally pricing less than the theoretical price, but William in the West region is doing it significantly more than the others.

QUESTION 5: Product Related Questions

a)

1. **SELECT** ProdName
2. **FROM** Products
3. **WHERE** REGEXP\_LIKE (ProdName, '\d');

|  |
| --- |
| PRODNAME |
| APC 7 Outlet Network SurgeArrest Surge Protector |
| AT&T 1430 2.4GHz Analog Phone w/Caller ID |
| AT&T 2230 Dual Handset Phone With Caller ID/Call Waiting |
| AT&T Black Trimline Phone, Model 210 |
| Atlantic Metals Mobile 2-Shelf Bookcases, Custom Colors |
| Atlantic Metals Mobile 3-Shelf Bookcases, Custom Colors |
| Atlantic Metals Mobile 5-Shelf Bookcases, Custom Colors |
| Avanti 1.7 Cu. Ft. Refrigerator |
| Avanti 4.4 Cu. Ft. Refrigerator |
| Avery 05222 Permanent Self-Adhesive File Folder Labels for Typewriters, on Rolls, White, 250/Roll |

The table shows the first 10 records from the result. The entire result shows all products with digits in their name.

b)

1. **SELECT** Rank, ProdName, TotSales **FROM** (
2. **SELECT** P.ProdName, SUM(D.OrdSales) **AS** TotSales, RANK() OVER (**ORDER** **BY** SUM(D.OrdSales) **DESC**) **AS** Rank
3. **FROM** Products P, OrderDet D
4. **WHERE** P.ProdID = D.ProdID AND EXTRACT(YEAR **FROM** D.OrdDate) = 2011
5. **GROUP** **BY** P.ProdName)
6. **WHERE** Rank <=5;

|  |  |  |
| --- | --- | --- |
| RANK | PRODNAME | TOTSALES |
| 1 | Canon imageCLASS 2200 Advanced Copier | 64713.42 |
| 2 | Canon PC1080F Personal Copier | 60380.82 |
| 3 | Sharp AL-1530CS Digital Copier | 58482.4 |
| 4 | Bretford CR8500 Series Meeting Room Furniture | 58279.87 |
| 5 | Global Troy™ Executive Leather Low-Back Tilter | 48602.86 |

The result shows the top 5 selling products and their total sales in the year 2011.

c)

1. **SELECT** Rank, ProdName, TotMargin **FROM** (
2. **SELECT** P.ProdName, SUM(D.OrdSales\*P.ProdMargin) **AS** TotMargin, RANK() OVER (**ORDER** **BY** SUM(D.OrdSales\*P.ProdMargin) **DESC**) **AS** RANK
3. **FROM** Products P, OrderDet D
4. **WHERE** P.ProdID = D.ProdID
5. **GROUP** **BY** P.ProdName)
6. **WHERE** Rank <= 10;

|  |  |  |
| --- | --- | --- |
| RANK | PRODNAME | TOTMARGIN |
| 1 | Riverside Palais Royal Lawyers Bookcase, Royale Cherry Finish | 117920.993 |
| 2 | Global Troy™ Executive Leather Low-Back Tilter | 116415.384 |
| 3 | Bretford CR8500 Series Meeting Room Furniture | 71134.7789 |
| 4 | Chromcraft Bull-Nose Wood 48" x 96" Rectangular Conference Tables | 63456.0774 |
| 5 | Bretford CR4500 Series Slim Rectangular Table | 54207.7652 |
| 6 | Canon PC1080F Personal Copier | 51466.385 |
| 7 | Hon 2090 “Pillow Soft” Series Mid Back Swivel/Tilt Chairs | 48947.0592 |
| 8 | BoxOffice By Design Rectangular and Half-Moon Meeting Room Tables | 48811.1858 |
| 9 | Lexmark 4227 Plus Dot Matrix Printer | 45328.3435 |
| 10 | Hon Multipurpose Stacking Arm Chairs | 44422.7107 |

The result shows the top 10 products with the greatest total profit margin along with their total margins.

d)

1. **SELECT** Rank, ProdName, TotSales **FROM** (
2. **SELECT** P.ProdName, SUM(D.OrdSales) **AS** TotSales, RANK() OVER (**ORDER** **BY** SUM(D.OrdSales)) **AS** Rank
3. **FROM** Products P, OrderDet D
4. **WHERE** P.ProdID = D.ProdID
5. **GROUP** **BY** P.ProdName)
6. **WHERE** Rank <= 5;

|  |  |  |
| --- | --- | --- |
| RANK | PRODNAME | TOTSALES |
| 1 | Alliance Rubber Bands | 7.43 |
| 2 | \*Staples\* Packaging Labels | 11.71 |
| 3 | Blackstonian Pencils | 13.18 |
| 4 | Avery 482 | 16.67 |
| 5 | Sony IBM Color Diskettes, 25/Pack | 18.17 |

The result shows the worst 5 products in terms of sales along with their total sales.