

## Homework 5 – Warren Payne

### 1. SQL and Query:

```
2 • SELECT table_name, table_rows
3     FROM INFORMATION_SCHEMA.TABLES
4     WHERE TABLE_SCHEMA = 'aw'
```

Result Grid		
Filter Rows: <input type="text"/>		
#	TABLE_NAME	TABLE_ROWS
1	DimCurrency	105
2	DimCustomer	18343
3	DimEmployee	296
4	DimGeography	655
5	DimProduct	158
6	DimProductCategory	4
7	DimProductSubcategory	37
8	DimPromotion	16
9	DimSalesTerritory	11
10	DimTime	1158
11	FactInternetSales	59808

a.

### 2. SQL and Query:

```
5
6 • SELECT table_rows
7     FROM INFORMATION_SCHEMA.TABLES
8     WHERE table_name = 'FactInternetSales'
```

Result Grid	
Filter Rows: <input type="text"/>	
#	TABLE_ROWS
1	59808

a.

- The designers named all Dimensional Tables with names starting with “Dim” and all Fact Tables with table names starting with “Fact”; albeit only one Fact Table in this case.
- The reason for the recursive relationship in DimEmployee is likely to handle the case of an Employee having a Parent Employee (bosses). Thus, an instance of DimEmployee (a boss) may have one or many sub-instances of Dimemployee (lower-level employees). So, the table needs to be able to access other instances of itself.
- Three bike models: Mountain Bikes, Road Bikes, Touring Bikes

6.

```

2 • SELECT DimProduct.ProductSubCategoryKey, DimTime.CalendarYear, sum(FactInternetSales.SalesAmount) as total_sales
3 FROM FactInternetSales
4 JOIN DimProduct
5 ON FactInternetSales.ProductKey = DimProduct.ProductKey
6 JOIN DimTime
7 ON FactInternetSales.OrderDateKey = DimTime.TimeKey
8 WHERE (DimProduct.ProductSubcategoryKey = 1
9        OR DimProduct.ProductSubcategoryKey = 2
10       OR DimProduct.ProductSubcategoryKey = 3)
11 AND (
12     DimTime.CalendarYear = '2001'
13     OR DimTime.CalendarYear = '2002'
14     OR DimTime.CalendarYear = '2003'
15     OR DimTime.CalendarYear = '2004')
16 GROUP BY DimTime.CalendarYear, DimProduct.ProductSubCategoryKey

```

Result Grid Filter Rows: Export: Wrap Cell Content:

#	ProductSubCategoryKey	CalendarYear	total_sales
1	1	2001	585975.00
2	2	2001	2680193.00
3	1	2002	1562362.00
4	2	2002	4967698.00
5	2	2003	3951673.00
6	1	2003	3989373.00
7	3	2003	1417351.00
8	3	2004	2427229.00
9	1	2004	3814544.00
10	2	2004	2919874.00

a.

b. ProductSubcategoryKey of 2 represents Road Bikes. So 2002 was the best year of sales for Road Bikes.

7. Code and the last of the 72 rows of the output

```

1  -- USE aw
2  • SELECT COUNT(*) as total_bike_sales, DimCustomer.Gender, DimTime.MonthNumberOfYear, DimTime.CalendarYear
3  FROM FactInternetSales
4  JOIN DimProduct
5  ON FactInternetSales.ProductKey = DimProduct.ProductKey
6  JOIN DimCustomer
7  ON FactInternetSales.CustomerKey = DimCustomer.CustomerKey
8  JOIN DimTime
9  ON FactInternetSales.OrderDateKey = DimTime.TimeKey
10 WHERE (DimProduct.ProductSubcategoryKey = 1
11        OR DimProduct.ProductSubcategoryKey = 2
12        OR DimProduct.ProductSubcategoryKey = 3)
13 GROUP BY DimCustomer.Gender, DimTime.CalendarYear, DimTime.MonthNumberOfYear
14 ORDER BY DimTime.CalendarYear ASC, DimTime.MonthNumberOfYear ASC

```

Result Grid				
Filter Rows: <input type="text"/>				
Export: <input type="text"/> Wrap Cell Content: <input type="text"/>				
#	total_bike_sales	Gender	MonthNumberOfYear	CalendarYear
64	410	F	2	2004
65	453	M	3	2004
66	428	F	3	2004
67	513	F	4	2004
68	462	M	4	2004
69	583	F	5	2004
70	554	M	5	2004
71	597	M	6	2004
72	589	F	6	2004

8. Note that I've assumed that profit can be calculated as: Product Sales Amount – ( ProductCost – tax amount – discount price)
- this is revenue – production cost (I think) – taxes owed – discount given
  - Margin is given by the following: credit to <https://www.patriotsoftware.com/accounting/training/blog/margin-vs-markup-chart-infographic/#:~:targetText=To%20find%20the%20margin%2C%20divide%20gross%20profit%20by%20the%20revenue.&targetText=To%20make%20the%20margin%20a%20percentage%2C%20multiply%20the%20result%20by%20100.&targetText=The%20margin%20is%2025%25%25%20of%20your%20total%20revenue.>

### FIND THE MARGIN

#### STEP 1: FIND THE GROSS PROFIT

$\$200 - \$150 = \$50$  Gross Profit

#### STEP 2: GROSS PROFIT / REVENUE

$\$50 / \$200 = 0.25$  Margin

i.

c. Thus, the highest margin model from 2003 is the “Road Tire Tube”

```
1  -- USE aw
2  •  SELECT DimProduct.ModelName, DimTime.CalendarYear,
3         SUM((FactInternetSales.SalesAmount) - ( FactInternetSales.TotalProductCost + FactInternetSales.TaxAmt + FactInternetSales.DiscountAmount)) as Profit,
4         format(SUM((FactInternetSales.SalesAmount) - ( FactInternetSales.TotalProductCost + FactInternetSales.TaxAmt + FactInternetSales.DiscountAmount))
5         / SUM(FactInternetSales.SalesAmount), 2) as Margin
6  FROM FactInternetSales
7  JOIN DimProduct
8  ON FactInternetSales.ProductKey = DimProduct.ProductKey
9  JOIN DimTime
10 ON FactInternetSales.OrderDateKey = DimTime.TimeKey
11 WHERE DimTime.CalendarYear = '2003'
12 GROUP BY DimProduct.ModelName, FactInternetSales.SalesAmount
13 ORDER BY Margin DESC
```

Result Grid					
Filter Rows:		Export: Wrap Cell Content:			
#	ModelName	CalendarYear	Profit	Margin	
1	Road Tire Tube	2003	2997	0.75	
2	Touring Tire Tube	2003	1773	0.60	
3	Water Bottle	2003	5226	0.60	
4	Mountain Tire Tube	2003	3939	0.60	
5	ML Mountain Tire	2003	8500	0.57	
6	LL Mountain Tire	2003	5082	0.56	
7	Road Bottle Cage	2003	3535	0.56	
8	Racing Socks	2003	1240	0.56	
9	ML Road Tire	2003	5502	0.56	
10	LL Road Tire	2003	10252	0.55	