

## Medium Queries:

Medium queries have from 2 to 3 tables joined and use built-in SQL functions and group by summarization.

**Premise 01:** How many vacation hours did each department take?

**Detailed explanation of the problem:** Return the total vacation hours grouped by the department names.

**Query:**

```
USE adventureworks2014;
```

```
SELECT sales.specialofferproduct.productid
FROM   sales.specialoffer
       INNER JOIN sales.specialofferproduct
              ON sales.specialoffer.specialofferid =
                 sales.specialofferproduct.specialofferid;
```

**Sample Output:**

	Name	TotalVacationHours
1	Production	8832
2	Information Services	695
3	Purchasing	694
4	Facilities and Maintenance	623
5	Finance	595
6	Shipping and Receiving	573
7	Quality Assurance	544
8	Sales	499
9	Marketing	445
10	Document Control	385
11	Human Resources	309
12	Production Control	273
13	Research and Development	202
14	Executive	99
15	Tool Design	72
16	Engineering	69

**Premise 02:** What are the average pay rates for each gender?

**Detailed explanation of the problem:** Provide the average pay rate for both genders.

**Query:**

```
USE adventureworks2014;

SELECT Employee_1.gender,
       Avg(rate) AS AvgRate
FROM   humanresources.employeepayhistory
       INNER JOIN humanresources.employee AS Employee_1
              ON humanresources.employeepayhistory.businessentityid =
                  Employee_1.businessentityid
GROUP BY Employee_1.gender;
```

**Sample Output:**

	Gender	AvgRate
1	F	19.7182
2	M	17.0025

**Premise 03:** What were the total sales last year for each country?

**Detailed explanation of the problem:** Return all countries and the total sales they made last year.

**Query:**

```
USE adventureworks2014;

SELECT sales.salesterritory.countryregioncode,
       Sum(sales.salesterritory.saleslastyear) AS TotalSalesLastYear
FROM   sales.salesterritory
       INNER JOIN person.stateprovince
              ON sales.salesterritory.territoryid =
                  person.stateprovince.territoryid
GROUP BY sales.salesterritory.countryregioncode
ORDER BY TotalSalesLastYear;
```

**Sample Output:**

	CountryRegionCode	TotalSalesLastYear
1	GB	1635823.3967
2	DE	9155648.5419
3	AU	20506940.7984
4	CA	74021855.18
5	US	202290962.8618
6	FR	230067816.9696

**Premise 04:** How many emails are signed up for each promotion?

**Detailed explanation of the problem:** Return the amount of Email Addresses grouped by the promotions.

**Query:**

```
USE adventureworks2014;

SELECT Count(person.emailaddress.emailaddress) AS NumberOfEmails,
       person.person.emailpromotion
FROM   person.emailaddress
       INNER JOIN person.person
              ON person.emailaddress.businessentityid =
                 person.person.businessentityid
GROUP  BY person.person.emailpromotion;
```

**Sample Output:**

	NumberOfEmails	EmailPromotion
1	11158	0
2	5044	1
3	3770	2

**Premise 05:** How many employees are in each department?

**Detailed explanation of the problem:** Return all departments and their employee amount.

**Query:**

```
USE adventureworks2014;

SELECT humanresources.department.NAME,
       Count(Employee_1.nationalidnumber) AS NumberOfEmployees
FROM   humanresources.department
       INNER JOIN humanresources.employeedepartmenthistory
              ON humanresources.department.departmentid =
                 humanresources.employeedepartmenthistory.departmentid
       INNER JOIN humanresources.employee AS Employee_1
              ON humanresources.employeedepartmenthistory.businessentityid =
                 Employee_1.businessentityid
GROUP  BY humanresources.department.NAME
ORDER  BY numberofemployees DESC;
```

**Sample Output:**

	Name	NumberOfEmployees
1	Production	180
2	Sales	18
3	Purchasing	13
4	Finance	11
5	Information Services	10
6	Marketing	10
7	Engineering	7
8	Quality Assurance	7
9	Facilities and Maintenance	7
10	Shipping and Receiving	6
11	Production Control	6
12	Human Resources	6
13	Document Control	5
14	Research and Development	4
15	Tool Design	4
16	Executive	2

**Premise 06:** What is the average commission for each country?

**Detailed explanation of the problem:** Return the country region codes and their average commission.

**Query:**

```
USE adventureworks2014;

SELECT sales.salesterritory.countryregioncode,
       Avg(sales.salesperson.commissionpct) AS AverageCommission
FROM   sales.salesterritory
       INNER JOIN sales.salesperson
              ON sales.salesterritory.territoryid =
                 sales.salesperson.territoryid
GROUP BY sales.salesterritory.countryregioncode
ORDER BY averagecommission;
```

**Sample Output:**

	CountryRegionCode	AverageCommission
1	AU	0.018
2	CA	0.0125
3	DE	0.018
4	FR	0.016
5	GB	0.02
6	US	0.0128

**Premise 07:** Provide the addresses for orders made in November 2011.

**Detailed explanation of the problem:** Return the order dates from November 2011, and return the address information pertaining to each one.

**Query:**

```
USE adventureworks2014;

SELECT sales.salesorderheader.orderdate,
       person.address.addressline1,
       person.address.city,
       person.address.stateprovinceid,
       person.address.postalcode
FROM   sales.salesorderheader
       INNER JOIN person.address
           ON sales.salesorderheader.billtoaddressid =
              person.address.addressid
          AND sales.salesorderheader.shiptoaddressid =
              person.address.addressid
WHERE  Month(orderdate) = 11
       AND Year(orderdate) = 2011;
```

**Sample Output:**

	OrderDate	AddressLine1	City	StateProvinceID	PostalCode
1	2011-11-20 00:00:00.000	1082 Crivello Avenue	Glendale	9	91203
2	2011-11-08 00:00:00.000	1162 Relief Valley Ct	Seaford	77	3198
3	2011-11-10 00:00:00.000	121 Keith Court	West Covina	9	91791
4	2011-11-02 00:00:00.000	1226 Shoenic	Coronado	9	92118
5	2011-11-22 00:00:00.000	1265 Orchard Ln	Sunbury	77	3429
6	2011-11-03 00:00:00.000	12bis, boulevard du Montpamasse	Metz	143	57000
7	2011-11-30 00:00:00.000	1367 Sheppard Way	Woodland Hills	9	91364
8	2011-11-21 00:00:00.000	137 Lancelot Dr	Bellingham	79	98225
9	2011-11-11 00:00:00.000	137 Lancelot Dr	Issaquah	79	98027
10	2011-11-16 00:00:00.000	1399 Firestone Drive	Port Orchard	79	98366
11	2011-11-25 00:00:00.000	1510 Bidwell Street	Colma	9	94014
12	2011-11-07 00:00:00.000	1592 Working Drive	Caloundra	64	4551
13	2011-11-18 00:00:00.000	16, rue des Grands Champs	Villeneuve-d'Ascq	145	59491
14	2011-11-20 00:00:00.000	1612 Geary Ct.	Imperial Beach	9	91932
15	2011-11-03 00:00:00.000	1631 Via Cordona	Townsville	64	4810
16	2011-11-06 00:00:00.000	1652 Willcrest Circle	Cloverdale	66	6105
17	2011-11-03 00:00:00.000	1667 Warren Street	Chula Vista	9	91910

**Premise 08:** How many orders were made by each country in 2012?

**Detailed explanation of the problem:** Return all country region codes and the number of sales that were made in 2012 for each one.

**Query:**

```
USE adventureworks2014;

SELECT sales.salesterritory.countryregioncode,
       Count(sales.salesorderheader.salesorderid) AS NumberOfOrders
FROM   sales.salesorderheader
       INNER JOIN sales.salesterritory
              ON sales.salesorderheader.territoryid =
                 sales.salesterritory.territoryid
WHERE  ( Year(sales.salesorderheader.orderdate) = 2012 )
GROUP BY sales.salesterritory.countryregioncode
ORDER BY numberoforders;
```

**Sample Output:**

	CountryRegionCode	NumberOfOrders
1	DE	249
2	FR	290
3	GB	323
4	CA	460
5	AU	892
6	US	1701

**Premise 09:** How many sales were made year to date for each tax rate?

**Detailed explanation of the problem:** Return all tax rates, and the total amount of sales made year to date for each one.

**Query:**

```
USE adventureworks2014;

SELECT sales.salestaxrate.taxrate,
       Sum(sales.salesterritory.salesytd) AS TotalSalesToDate
FROM   sales.salestaxrate
       INNER JOIN person.stateprovince
              ON sales.salestaxrate.stateprovinceid =
                 person.stateprovince.stateprovinceid
       INNER JOIN sales.salesterritory
              ON person.stateprovince.territoryid =
                 sales.salesterritory.territoryid
GROUP BY sales.salestaxrate.taxrate
ORDER BY totalsalestodate DESC;
```

**Sample Output:**

	TaxRate	TotalSalesToDate
1	5.00	7887186.7882
2	6.75	3072175.118
3	7.00	83664126.4988
4	7.25	5610842.3695
5	7.50	10510853.8739
6	7.75	10510853.8739
7	8.00	2538667.2515
8	8.75	10510853.8739
9	8.80	7887186.7882
10	10.00	5977814.9154
11	14.00	6771829.1376
12	14.25	13543658.2752
13	16.00	3805202.3478
14	17.50	5012905.3656
15	19.60	4772398.3078

**Premise 10:** What are the top 5 scrap reasons?

**Detailed explanation of the problem:** Return the top 5 scrap reasons with the most scrapped products.

**Query:**

```
USE adventureworks2014;
```

```
SELECT TOP (5) production.scrapreason.NAME,
               Sum(production.workorder.scrapedqty) AS TotalScrapped
FROM   production.workorder
       INNER JOIN production.scrapreason
               ON production.workorder.scrapreasonid =
                  production.scrapreason.scrapreasonid
GROUP BY production.scrapreason.NAME
ORDER BY totalscrapped DESC;
```

**Sample Output:**

	Name	TotalScrapped
1	Paint process failed	1271
2	Trim length too long	981
3	Thermoform temperature too low	876
4	Drill size too small	826
5	Wheel misaligned	804

**Premise 11:** How many sales were made for each sales reason?

**Detailed explanation of the problem:** Return all sales reasons and the amount of sales for each one.

**Query:**

```
USE adventureworks2014;

SELECT sales.salesreason.NAME,
       Count(sales.salesorderheadersalesreason.salesorderid) AS TotalSales
FROM   sales.salesreason
       INNER JOIN sales.salesorderheadersalesreason
              ON sales.salesreason.salesreasonid =
                 sales.salesorderheadersalesreason.salesreasonid
GROUP  BY sales.salesreason.NAME
ORDER  BY totalsales;
```

**Sample Output:**

	Name	TotalSales
1	Television Advertisement	722
2	Review	1245
3	Other	1395
4	Quality	1551
5	Manufacturer	1746
6	On Promotion	3515
7	Price	17473

**Premise 12:** What is the average freight of each city?

**Detailed explanation of the problem:** Return all the cities and the average freight for each one.

**Query:**

```
USE adventureworks2014;

SELECT person.address.city,
       Avg(sales.salesorderheader.freight) AS AverageFreight
FROM   sales.salesorderheader
       INNER JOIN person.address
              ON sales.salesorderheader.billtoaddressid =
                 person.address.addressid
              AND sales.salesorderheader.shiptoaddressid =
                 person.address.addressid
GROUP  BY person.address.city
ORDER  BY averagefreight DESC;
```

**Sample Output:**



	City	AverageFreight
1	Sand City	4277.5792
2	Bad Soden	2610.1943
3	Union City	2441.4387
4	La Mesa	2374.2841
5	Tooele	2223.7478
6	Greeley	2146.8167
7	Nashua	2094.2988
8	Moline	2075.4013
9	Femley	2059.4263
10	College Station	1858.7982
11	Lacey	1854.9621
12	Lake George	1835.5652
13	Ellensburg	1796.9105
14	Odessa	1783.7588
15	City Of Commerce	1751.2532
16	Sillery	1722.6668
17	Newark	1713.6324
18	Edmonton	1683.0137
19	Gulfport	1677.1876
20	Idaho Falls	1644.1969

**Premise 13:** What are the average ratings for the products?

**Detailed explanation of the problem:** Return all products and their average product rating.

**Query:**

```
USE adventureworks2014;
```

```
SELECT production.product.NAME,
       Avg(production.productreview.rating) AS AverageRating
FROM   production.productreview
       INNER JOIN production.product
           ON production.productreview.productid =
              production.product.productid
GROUP  BY production.product.NAME
ORDER  BY averagerating DESC;
```

**Sample Output:**

	Name	AverageRating
1	Mountain Bike Socks, M	5
2	Road-550-W Yellow, 40	5
3	HL Mountain Pedal	3

**Premise 14:** What are the total costs for each product category?

**Detailed explanation of the problem:** Return all product categories and their total cost.

**Query:**

```
USE adventureworks2014;

SELECT production.productsubcategory.NAME,
       Sum(production.product.standardcost) AS TotalCost
FROM   production.productsubcategory
       INNER JOIN production.product
           ON production.productsubcategory.productsubcategoryid =
              production.product.productsubcategoryid
GROUP  BY production.productsubcategory.NAME
ORDER  BY totalcost DESC;
```

**Sample Output:**

	Name	TotalCost
1	Road Bikes	42721.6278
2	Mountain Bikes	29880.6408
3	Touring Bikes	19490.5544
4	Road Frames	15852.432
5	Mountain Frames	10218.2052
6	Touring Frames	6812.4686
7	Wheels	1373.2964
8	Cranksets	371.6148
9	Jerseys	320.2584
10	Handlebars	262.4575
11	Forks	245.6209
12	Pedals	198.97
13	Shorts	177.5125
14	Saddles	158.3751
15	Bottom Brackets	122.8638
16	Headsets	115.9817
17	Bib-Shorts	111.3627
18	Brakes	94.572
19	Derailleurs	94.5498
20	Tights	82.8002

**Premise 15:** Which 3 departments have the lowest pay rates?

**Detailed explanation of the problem:** Return the top 3 departments with the lowest average pay rates.

**Query:**

```
USE adventureworks2014;

SELECT TOP (3) humanresources.department.NAME,
               Avg(humanresources.employeepayhistory.rate) AS AverageRate
FROM   humanresources.employeepayhistory
       INNER JOIN humanresources.employeedepartmenthistory
               ON humanresources.employeepayhistory.businessentityid =
                  humanresources.employeedepartmenthistory.businessentityid
       INNER JOIN humanresources.department
               ON humanresources.employeedepartmenthistory.departmentid =
                  humanresources.department.departmentid
GROUP BY humanresources.department.NAME
ORDER BY averagerate;
```

**Sample Output:**

	Name	AverageRate
1	Shipping and Receiving	10.8718
2	Facilities and Maintenance	13.0316
3	Production	13.5409