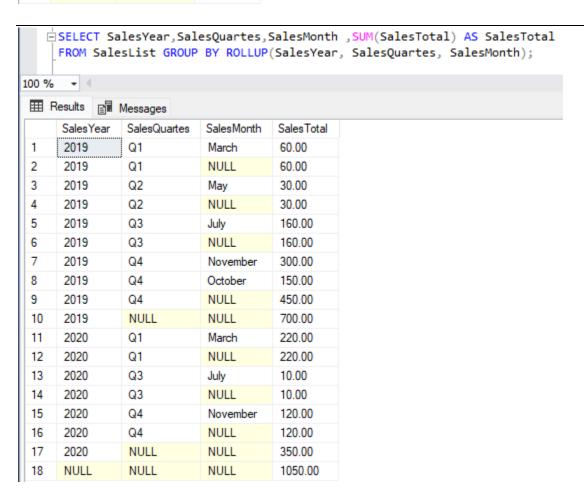# Hands On – MS SQL

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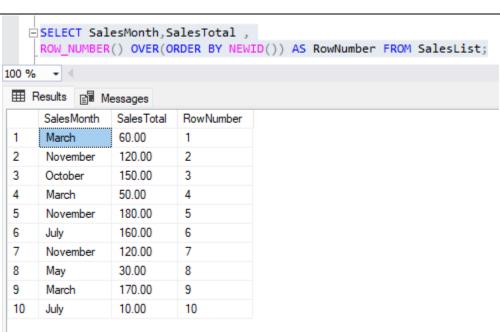
Day 3 – 6/11/2024 (Wednesday)

```sql
CREATE TABLE SalesList
(SalesMonth NVARCHAR(20), SalesQuartes VARCHAR(5), SalesYear SMALLINT, SalesTotal MONEY);

INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'March','Q1',2019,60);
INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'March','Q1',2020,50);
INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'May','Q2',2019,30);
INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'July','Q3',2020,10);
INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'November','Q4',2019,120);
INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'October','Q4',2019,150);
INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'November','Q4',2019,180);
INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'November','Q4',2020,120);
INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'July','Q3',2019,160);
INSERT INTO SalesList(SalesMonth,SalesQuartes,SalesYear,SalesTotal) VALUES (N'March','Q1',2020,170);

select * from SalesList;
```

100 %

Results | Messages

	SalesMonth	SalesQuartes	SalesYear	SalesTotal
1	March	Q1	2019	60.00
2	March	Q1	2020	50.00
3	May	Q2	2019	30.00
4	July	Q3	2020	10.00
5	November	Q4	2019	120.00
6	October	Q4	2019	150.00
7	November	Q4	2019	180.00
8	November	Q4	2020	120.00
9	July	Q3	2019	160.00
10	March	Q1	2020	170.00

```sql
SELECT SalesYear, SUM(SalesTotal) AS SalesTotal FROM SalesList
GROUP BY ROLLUP(SalesYear);
```

100 %

Results | Messages

	SalesYear	SalesTotal
1	2019	700.00
2	2020	350.00
3	NULL	1050.00

```sql
SELECT SalesYear,SalesQuartes, SUM(SalesTotal) AS SalesTotal
FROM SalesList GROUP BY ROLLUP(SalesYear, SalesQuartes);
```

100 %

Results | Messages

	SalesYear	SalesQuartes	SalesTotal
1	2019	Q1	60.00
2	2019	Q2	30.00
3	2019	Q3	160.00
4	2019	Q4	450.00
5	2019	NULL	700.00
6	2020	Q1	220.00
7	2020	Q3	10.00
8	2020	Q4	120.00
9	2020	NULL	350.00
10	NULL	NULL	1050.00

```sql
SELECT SalesYear,SalesQuartes,SalesMonth ,SUM(SalesTotal) AS SalesTotal
FROM SalesList GROUP BY ROLLUP(SalesYear, SalesQuartes, SalesMonth);
```

100 %

Results | Messages

	SalesYear	SalesQuartes	SalesMonth	SalesTotal
1	2019	Q1	March	60.00
2	2019	Q1	NULL	60.00
3	2019	Q2	May	30.00
4	2019	Q2	NULL	30.00
5	2019	Q3	July	160.00
6	2019	Q3	NULL	160.00
7	2019	Q4	November	300.00
8	2019	Q4	October	150.00
9	2019	Q4	NULL	450.00
10	2019	NULL	NULL	700.00
11	2020	Q1	March	220.00
12	2020	Q1	NULL	220.00
13	2020	Q3	July	10.00
14	2020	Q3	NULL	10.00
15	2020	Q4	November	120.00
16	2020	Q4	NULL	120.00
17	2020	NULL	NULL	350.00
18	NULL	NULL	NULL	1050.00

```
SELECT SalesYear,
SalesQuartes,
SUM(SalesTotal) AS SalesTotal ,
GROUPING(SalesQuartes) AS SalesQuarterGrp,
GROUPING(SalesYear) AS SYearGrp
FROM SalesList
GROUP BY ROLLUP(SalesYear, SalesQuartes);
```

100 %

Results | Messages

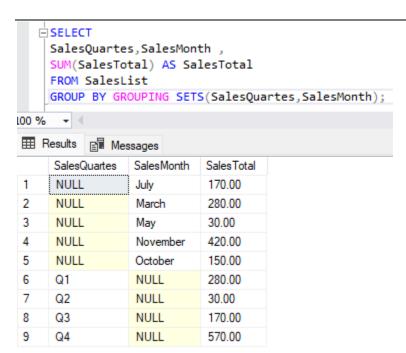|	SalesYear	SalesQuartes	SalesTotal	SalesQuarterGrp	SYearGrp
1	2019	Q1	60.00	0	0
2	2019	Q2	30.00	0	0
3	2019	Q3	160.00	0	0
4	2019	Q4	450.00	0	0
5	2019	NULL	700.00	1	0
6	2020	Q1	220.00	0	0
7	2020	Q3	10.00	0	0
8	2020	Q4	120.00	0	0
9	2020	NULL	350.00	1	0
10	NULL	NULL	1050.00	1	1

```sql
SELECT CASE
  WHEN GROUPING(SalesQuartes)=1 AND GROUPING(SalesYear)=0
  THEN 'SubTotal'
  WHEN GROUPING(SalesQuartes)=1 AND GROUPING(SalesYear)=1
  THEN 'Grand Total'
  ELSE CAST(SalesYear AS varchar(10))
  END AS SalesYear,
  SalesQuartes,
  SUM(SalesTotal) AS SalesTotal
  FROM SalesList
  GROUP BY ROLLUP(SalesYear,SalesQuartes);
```

.00 % ▾ ◀

▦ Results 🗐 Messages

	SalesYear	SalesQuartes	SalesTotal
1	2019	Q1	60.00
2	2019	Q2	30.00
3	2019	Q3	160.00
4	2019	Q4	450.00
5	SubTotal	NULL	700.00
6	2020	Q1	220.00
7	2020	Q3	10.00
8	2020	Q4	120.00
9	SubTotal	NULL	350.00
10	Grand Total	NULL	1050.00

```sql
SELECT SalesMonth,SalesTotal ,
  ROW_NUMBER() OVER(ORDER BY NEWID()) AS RowNumber FROM SalesList;
```

100 % ▾ ◀

▦ Results 🗐 Messages

	SalesMonth	SalesTotal	RowNumber
1	March	60.00	1
2	November	120.00	2
3	October	150.00	3
4	March	50.00	4
5	November	180.00	5
6	July	160.00	6
7	November	120.00	7
8	May	30.00	8
9	March	170.00	9
10	July	10.00	10

```sql
WITH CTE AS (
SELECT SalesMonth,SalesTotal ,
ROW_NUMBER() OVER(ORDER BY NEWID())
AS RowNumber FROM SalesList
)
SELECT RowNumber ,SalesMonth,SUM(SalesTotal) AS SalesTotal
FROM CTE
GROUP BY ROLLUP(SalesMonth, RowNumber);
```

100 %

Results | Messages

	RowNumber	SalesMonth	SalesTotal
1	2	July	10.00
2	8	July	160.00
3	NULL	July	170.00
4	3	March	170.00
5	7	March	60.00
6	9	March	50.00
7	NULL	March	280.00
8	4	May	30.00
9	NULL	May	30.00
10	1	November	120.00
11	5	November	180.00
12	6	November	120.00
13	NULL	November	420.00
14	10	October	150.00
15	NULL	October	150.00
16	NULL	NULL	1050.00

```sql
WITH CTE AS (
SELECT SalesMonth,SalesTotal ,
ROW_NUMBER() OVER(ORDER BY NEWID())
AS RowNumber FROM SalesList
)
SELECT CASE WHEN GROUPING(RowNumber) =1 THEN 'SubTotal'
ELSE SalesMonth
END AS SalesMonth,SUM(SalesTotal) AS SalesTotal
FROM CTE
GROUP BY ROLLUP(SalesMonth, RowNumber);
```

100 %

Results | Messages

	SalesMonth	SalesTotal
1	July	10.00
2	July	160.00
3	SubTotal	170.00
4	March	170.00
5	March	50.00
6	March	60.00
7	SubTotal	280.00
8	May	30.00
9	SubTotal	30.00
10	November	180.00
11	November	120.00
12	November	120.00
13	SubTotal	420.00
14	October	150.00
15	SubTotal	150.00
16	SubTotal	1050.00

```sql
WITH CTE AS (
    SELECT SalesMonth, SalesTotal,
            ROW_NUMBER() OVER(ORDER BY NEWID()) AS RowNumber
    FROM SalesList
)
SELECT SalesMonth,
    SUM(SalesTotal) AS SalesTotal
FROM CTE
GROUP BY SalesMonth;
```

100 %

Results | Messages

	SalesMonth	SalesTotal
1	July	170.00
2	March	280.00
3	May	30.00
4	November	420.00
5	October	150.00

```sql
SELECT NULL AS SalesQuarter, SalesMonth,
SUM(SalesTotal) AS SalesTotal
FROM SalesList
GROUP BY SalesMonth
UNION ALL
SELECT SalesQuartes, NULL AS SalesMonth,
SUM(SalesTotal) AS SalesTotal
FROM SalesList
GROUP BY SalesQuartes;
```

100 % ▼ ◄

⊞ Results ▤ Messages

	SalesQuarter	SalesMonth	SalesTotal
1	NULL	July	170.00
2	NULL	March	280.00
3	NULL	May	30.00
4	NULL	November	420.00
5	NULL	October	150.00
6	Q1	NULL	280.00
7	Q2	NULL	30.00
8	Q3	NULL	170.00
9	Q4	NULL	570.00

```sql
SELECT
SalesQuartes,SalesMonth ,
SUM(SalesTotal) AS SalesTotal
FROM SalesList
GROUP BY GROUPING SETS(SalesQuartes,SalesMonth);
```

100 % ▼ ◄

⊞ Results ▤ Messages

	SalesQuartes	SalesMonth	SalesTotal
1	NULL	July	170.00
2	NULL	March	280.00
3	NULL	May	30.00
4	NULL	November	420.00
5	NULL	October	150.00
6	Q1	NULL	280.00
7	Q2	NULL	30.00
8	Q3	NULL	170.00
9	Q4	NULL	570.00

```sql
SELECT CASE
  WHEN GROUPING(SalesQuartes)=1 AND GROUPING(SalesYear)=0
  THEN 'SubTotal'
  WHEN GROUPING(SalesQuartes)=1 AND GROUPING(SalesYear)=1
  THEN 'Grand Total'
  ELSE CAST(SalesYear AS varchar(10))
  END AS SalesYear,
  SalesQuartes,
  SUM(SalesTotal) AS SalesTotal
  FROM SalesList
  GROUP BY GROUPING SETS(SalesYear,(SalesYear,SalesQuartes),());
```

100 %

Results | Messages

	SalesYear	SalesQuartes	SalesTotal
1	2019	Q1	60.00
2	2019	Q2	30.00
3	2019	Q3	160.00
4	2019	Q4	450.00
5	SubTotal	NULL	700.00
6	2020	Q1	220.00
7	2020	Q3	10.00
8	2020	Q4	120.00
9	SubTotal	NULL	350.00
10	Grand Total	NULL	1050.00