Grouping Results sets

- ➢ Aggregate functions
- ➢ Eliminate duplicates from result sets
- ➢ Describe how to further restrict a result set

Aggregate Functions

Aggregate Functions - An aggregate function performs a calculation on a set of values, and returns a single value.
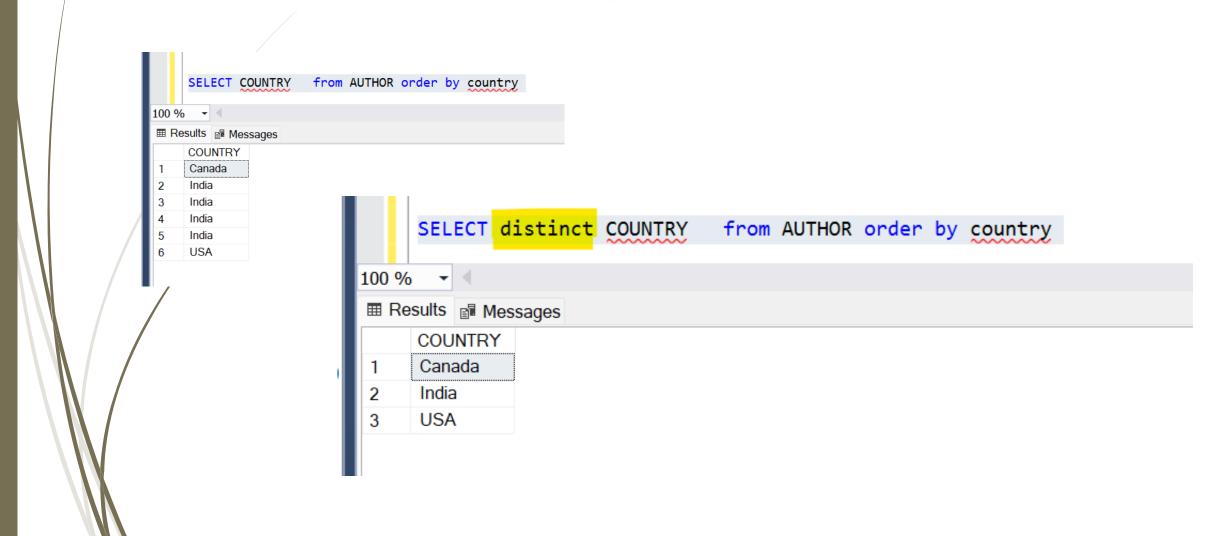Aggregate functions are often used with the GROUP BY clause of the SELECT statement.

Use Aggregate Functions as Expressions only in following situations:
• The select list of a **SELECT** statement (either a subquery or an outer query).
•A HAVING clause.

- **SUM**
- **AVG**
- **COUNT**
- **GROUPING**
- **GROUPING_ID**
- **MAX**
- **MIN**
- **VAR**
- **VARP**

Eliminate Duplicates

```
SELECT COUNTRY    from AUTHOR order by country
```

100 %

Results | Messages

	COUNTRY
1	Canada
2	India
3	India
4	India
5	India
6	USA

```
SELECT distinct COUNTRY    from AUTHOR order by country
```

100 %

Results | Messages

	COUNTRY
1	Canada
2	India
3	USA

Using Group BY

```sql
SELECT   COUNTRY, Count(COUNTRY)    from AUTHOR
Group by COUNTRY
```

100 %

▦ Results ▦ Messages

	COUNTRY	(No column name)
1	Canada	1
2	India	4
3	USA	1

```sql
SELECT  COUNTRY, Count(COUNTRY) as [Author count]    from AUTHOR
Group by COUNTRY
```

100 %

▦ Results ▦ Messages

	COUNTRY	Author count
1	Canada	1
2	India	4
3	USA	1

Using Group BY Having Clause

```sql
SELECT  COUNTRY,Count(COUNTRY) as [Author count]   from AUTHOR
Group by COUNTRY
having count(COUNTRY) > 3
```

100 %

▦ Results ▧ Messages

	COUNTRY	Author count
1	India	4