

■ Grouping and Aggregation

- **Grouping:** determines the distinct groups
- **Aggregation:** compute aggregate $f(B)$ per group
- Column list can only contain **grouping columns**, **aggregates**, or **literals**
- **Having:** selection predicate on groups and aggregates

■ Example

- Sales (Customer, Location, Product, Quantity, Price)
- **Q:** Compute number of sales sumQ
and revenue per product sumQP

| Product | SumQ | SumQP |
|---------|------|-------|
| A | 3 | 30 |
| B | 4 | 80 |

```
SELECT Product,
       sum(Quantity) AS SumQ,
       sum(Quantity*Price) AS SumQP
FROM Sales
GROUP BY Product
```



| Product | Quantity | Price |
|---------|----------|-------|
| A | 1 | 10 |
| B | 3 | 20 |
| A | 2 | 10 |
| B | 1 | 20 |



[[SQL]]