**Summation Types in Data Warehousing**

Summation types define how facts (metrics) can be **aggregated** over **different dimensions**, such **as time or location**. The three primary summation types are:

**1. Flow (Additive Facts)**

* Represents a **period-based measure** that can be summed over time.
* **Aggregation:** **SUM, MIN, MAX, AVG, COUNT**
* **Example:** **Order quantity of an article per day** (total quantity can be summed for a week or month).

**2. Stock (Semi-Additive Facts)**

* Represents a **point-in-time measure** (e.g., stock levels).
* Can be summed **across locations** but **not over time**.
* **Aggregation:** **MIN, MAX, AVG** (but not SUM over time).
* **Example:** **Stock in a warehouse** (total stock across multiple locations can be summed, but summing across time periods doesn’t make sense).

**3. Value per Unit (VPU) (Non-Additive Facts)**

* Represents a **rate or ratio** that cannot be summed directly.
* **Aggregation:** **Only MIN, MAX, or AVG**.
* **Example:** **Exchange rate** (you can calculate the average rate but not sum exchange rates).

