Online Analytical Processing Operations

- Relational representation of cross-tab that we saw earlier, but with *null* in place of **all**, can be computed by

    select *item_name*, *color*, **sum**(*number*)
    from *sales*
    group by cube(*item_name, color*)

- The function **grouping()** can be applied on an attribute

    - Returns 1 if the value is a null value representing all, and returns 0 in all other cases.

select case when grouping(*item_name*) = 1 **then 'all**'
                   else *item_name* **end as** *item_name*,
         case when grouping(*color*) = 1 **then 'all**'
                   else *color* **end as** *color*,
            'all' as *clothes size*, **sum**(*quantity*) **as** *quantity*
from *sales*
group by cube(*item name*, *color*);