

# TASK 1

## SALES\_CUBE Mapping

The screenshot displays the Oracle BI Developer tool interface for configuring the SALES\_CUBE mapping. The left pane shows the database hierarchy with OLAPTRAIN\_S4761003 selected. The middle pane shows the mapping table with columns for Measures, Dimensions, and Time. The right pane shows the source columns for each measure and dimension.

| Measures | Source Column                          |
|----------|--|
| SALES    | OLAPTRAIN_S4761003.SALES_FACT.SALES    |
| QUANTITY | OLAPTRAIN_S4761003.SALES_FACT.QUANTITY |

| Dimensions     | Source Column   |
|----------------|---|
| ALL_CHANNELS   |   |
| CLASS          |   |
| CHANNEL        | OLAPTRAIN_S4761003.CHANNELS.CHANNEL_KEY   |
| Join Condition | OLAPTRAIN_S4761003.SALES_FACT.CHANNEL = OLAPTRAIN_S4761003.CHANNELS.CHANNEL_KEY |

| Time             | Source Column  |
|------------------|--|
| ALL_YEARS        |  |
| CALENDAR_YEAR    |  |
| CALENDAR_QUARTER |  |
| MONTH            | OLAPTRAIN_S4761003.TIMES.MONTH_ID  |
| Join Condition   | OLAPTRAIN_S4761003.SALES_FACT.DAY_KEY = OLAPTRAIN_S4761003.TIMES.DAY_KEY |

| Geography      | Source Column  |
|----------------|--|
| ALL_REGIONS    |  |
| REGION         |  |
| COUNTRY        |  |
| STATE_PROVINCE | OLAPTRAIN_S4761003.CUSTOMERS.STATE_PROVINCE_KEY                                    |
| Join Condition | OLAPTRAIN_S4761003.SALES_FACT.CUSTOMER = OLAPTRAIN_S4761003.CUSTOMERS.CUSTOMER_KEY |

| Product        | Source Column  |
|----------------|--|
| ALL_PRODUCTS   |  |
| DEPARTMENT     |  |
| CATEGORY       |  |
| TYPE           |  |
| SUBTYPE        |  |
| ITEM           | OLAPTRAIN_S4761003.PRODUCTS.ITEM_KEY   |
| Join Condition | OLAPTRAIN_S4761003.SALES_FACT.PRODUCT = OLAPTRAIN_S4761003.PRODUCTS.ITEM_KEY |

| Filter | Source Column |
|--------|---------------|
|--------|---------------|

## SALES\_YTD Definition

The screenshot displays the Oracle BI Developer tool interface for defining the SALES\_YTD measure. The left pane shows the database hierarchy with OLAPTRAIN\_S4761003 selected. The right pane shows the definition of the SALES\_YTD measure, including its name, ID, short label, long label, description, and calculation type.

**General**

Specify General Calculated Measure Information

Name: SALES\_YTD

ID: OLAPTRAIN\_S4761003.SALES\_CUBE.SALES\_YTD

Short Label: sales ytd

Long Label: sales ytd

Description: sales ytd

Calculation Type: Period To Date

Calculation: [Ancestor At Level](#) TIME.CALENDAR\_YEAR to date for [SALES \(L\)](#) in the TIME dimension and TIME.CALENDAR hierarchy. Aggregate using [SUM](#) from the [beginning](#) of the period.

Expression

SUM(SALES\_CUBE.SALES) OVER (HIERARCHY "TIME" CALENDAR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT DIMENSION LEVEL "TIME" CALENDAR\_YEAR)

☒ Advanced

| Create | Name  | Short Label | Long Label | Description | Expression |
|--------|-------|-------------|------------|-------------|------------|
|        | SALES | sales       | sales      | sales       |            |

**Databases**

- OLAPTRAIN\_04761003
  - OLAPTRAIN\_04761003
  - OLAPTRAIN\_04761003 - OLAP 11g
  - Schemas
    - OLAPTRAIN\_04584589
    - OLAPTRAIN\_04761003
    - Analytic Workspaces
    - OLAPTRAIN\_04761003 (attached RW)**
      - Dimensions
        - CHANNEL
        - GEOGRAPHY
        - PRODUCT
        - TIME
      - Cubes
        - SALES\_CUBE
          - Measures
            - QUANTITY
            - SALES
          - Calculated Measures
            - SALES\_YTD
            - SALES\_YTD\_PY**
          - Mappings
            - Views
              - Cube Scripts
            - Data Security
              - Measure Folders
              - Languages
            - OLAP DML Programs
            - Maintenance Scripts
            - Maintenance Reports
            - Data Security Roles
          - Reports

General

Specify General Calculated Measure Information

Name:

SALES\_YTD\_PY

ID:

OLAPTRAIN\_04761003.SALES\_CUBE.SALES\_YTD\_PY

Short Label:

Sales Ytd Pr Year

Long Label:

Sales Ytd Pr Year

Description:

Sales Ytd Pr Year

Calculation Type:

Parallel Period

Calculation:

Parallel period for SALES\_YTD (.) in the TIME dimension and TIME.CALENDAR hierarchy 1 TIME.CALENDAR.YEAR, ago based on position from beginning to ending of period.

Expression:

LAG(SALES\_CUBE.SALES\_YTD, 1) OVER (HIERARCHY "TIME" CALENDAR BY ANCESTOR AT DIMENSION LEVEL "TIME" CALENDAR\_YEAR POSITION FROM BEGINNING)

✓ Advanced

References

Dependencies

Expressions

| Create | Name      | Short Label | Long Label | Description | Expression  |
|--------|-----------|-------------|------------|-------------|---|
|        | SALES_YTD | sales ytd   | sales ytd  | sales ytd   | SUM(OLAPTRAIN_04761003.SALES_CUBE.SALES) OVER (HIERARCHY OLAPTRAIN_04761003."TIME".CALENDAR |
|        | SALES     | Sales       | Sales      | Sales       |   |

## Maintenance Record

The screenshot displays the SAP Data Warehouse Manager interface, specifically the Maintenance Log for the SALES\_CUBE. The left sidebar shows the project structure, including Dimensions (CHANNEL, GEOGRAPHY, PRODUCT, TIME), Measures (QUANTITY, SALES), and Views (SALES\_YTD, SALES\_YTD\_FY). The main area shows the Maintenance Log for the SALES\_CUBE, which is currently in a 'Completed' state. The log details the following steps:

- Maintenance Steps:** 28 of 28 Completed. The steps include loading and updating data for various dimensions and measures.
- Maintenance Load Summary:** A table showing the results of the maintenance operations. The table has columns for Object, Object Type, Partition, Rows Added, Rows Deleted, Rows Rejected, and Refresh Method.
- Maintenance Status:** A dialog box indicating that the maintenance is completed.
- Summary Log:** A table providing detailed information about the maintenance operations, including the start and end times and the number of rows affected.

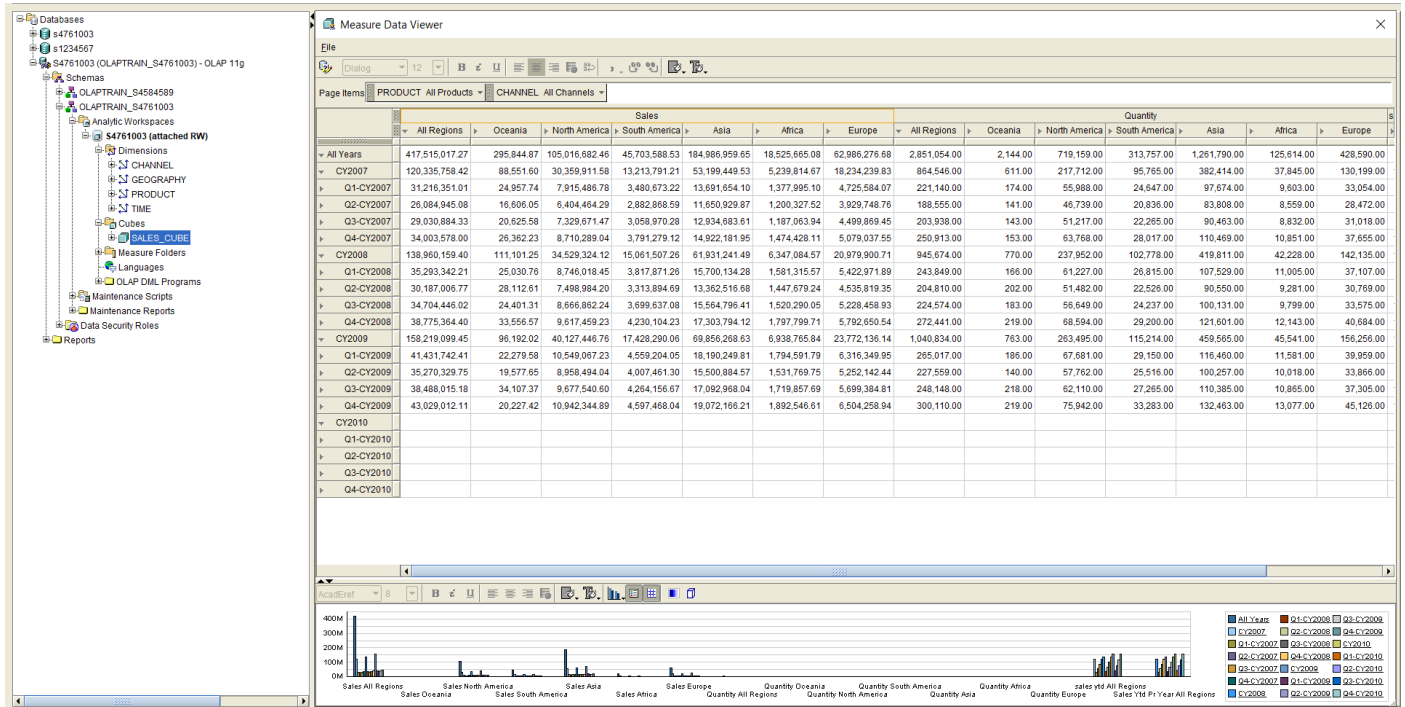
| Object     | Object Type | Partition | Rows Added | Rows Deleted | Rows Rejected | Refresh Method |
|------------|-------------|-----------|------------|--------------|---------------|----------------|
| CHANNEL    | DIMENSION   |           | 0          | 0            | 0             | COMPLETE       |
| TIME       | DIMENSION   |           | 0          | 0            | 0             | COMPLETE       |
| GEOGRAPHY  | DIMENSION   |           | 0          | 0            | 0             | COMPLETE       |
| PRODUCT    | DIMENSION   |           | 2903       | 0            | 0             | COMPLETE       |
| SALES_CUBE | CUBE        | P4.CY20.  | 0          | 0            | 0             | COMPLETE       |
| SALES_CUBE | CUBE        | P3.CY20.  | 541469     | 0            | 0             | COMPLETE       |
| SALES_CUBE | CUBE        | P2.CY20.  | 502806     | 0            | 0             | COMPLETE       |
| SALES_CUBE | CUBE        | P1.CY20.  | 462976     | 0            | 0             | COMPLETE       |
| SALES_CUBE | CUBE        | P0        | 0          | 0            | 0             | COMPLETE       |

| Main Id | Object     | Object Type | Partition | Operation   | Start Date | Start Time  | End Time    | Elapsed Time | Detail                  |
|---------|------------|-------------|-----------|-------------|------------|-------------|-------------|--------------|-------------------------|
| 148     | PRODUCT    | DIMENSION   |           | UPDATE      | 01/SEP/22  | 02:34:06 PM | 02:34:12 PM | 5.62         |                         |
| 148     | SALES_CUBE | CUBE        | P4.CY.    | LOAD        | 01/SEP/22  | 02:34:12 PM | 02:34:13 PM | 1.43         |                         |
| 148     | SALES_CUBE | CUBE        | P4.CY.    | LOAD - GENE | 01/SEP/22  | 02:34:12 PM | 02:34:13 PM | 0.03         | <SQL> <[CDAT]SELECT /*> |
| 148     | SALES_CUBE | CUBE        | P3.CY.    | UPDATE      | 01/SEP/22  | 02:34:13 PM | 02:34:14 PM | 0.03         |                         |
| 148     | SALES_CUBE | CUBE        | P3.CY.    | LOAD        | 01/SEP/22  | 02:34:14 PM | 02:34:19 PM | 5.32         |                         |
| 148     | SALES_CUBE | CUBE        | P3.CY.    | LOAD - GENE | 01/SEP/22  | 02:34:14 PM | 02:34:19 PM | 0.03         | <SQL> <[CDAT]SELECT /*> |
| 148     | SALES_CUBE | CUBE        | P3.CY.    | SOLVE       | 01/SEP/22  | 02:34:19 PM | 02:34:41 PM | 22.54        |                         |
| 148     | SALES_CUBE | CUBE        | P3.CY.    | UPDATE      | 01/SEP/22  | 02:34:41 PM | 02:34:42 PM | 0.69         |                         |
| 148     | SALES_CUBE | CUBE        | P2.CY.    | LOAD        | 01/SEP/22  | 02:34:42 PM | 02:34:47 PM | 4.92         |                         |
| 148     | SALES_CUBE | CUBE        | P2.CY.    | LOAD - GENE | 01/SEP/22  | 02:34:42 PM | 02:34:47 PM | 4.92         | <SQL> <[CDAT]SELECT /*> |
| 148     | SALES_CUBE | CUBE        | P2.CY.    | SOLVE       | 01/SEP/22  | 02:34:47 PM | 02:35:04 PM | 17.21        |                         |
| 148     | SALES_CUBE | CUBE        | P2.CY.    | UPDATE      | 01/SEP/22  | 02:35:04 PM | 02:35:05 PM | 0.62         |                         |
| 148     | SALES_CUBE | CUBE        | P1.CY.    | LOAD        | 01/SEP/22  | 02:35:05 PM | 02:35:10 PM | 5.29         |                         |
| 148     | SALES_CUBE | CUBE        | P1.CY.    | LOAD - GENE | 01/SEP/22  | 02:35:05 PM | 02:35:10 PM | 5.29         | <SQL> <[CDAT]SELECT /*> |

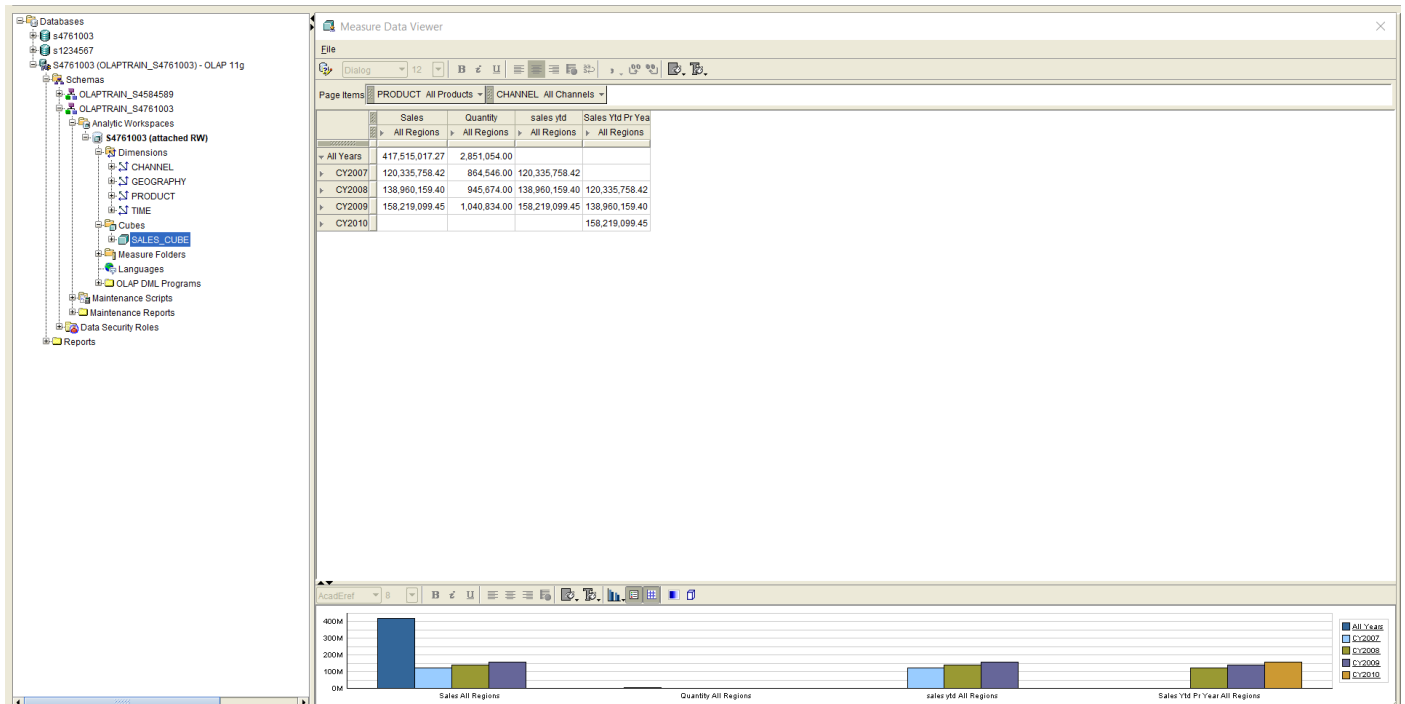
## TASK 3

### Roll-up operation

**Before view** - Here we can see the sales and quantity of different regions in their respective Yearly Quarters



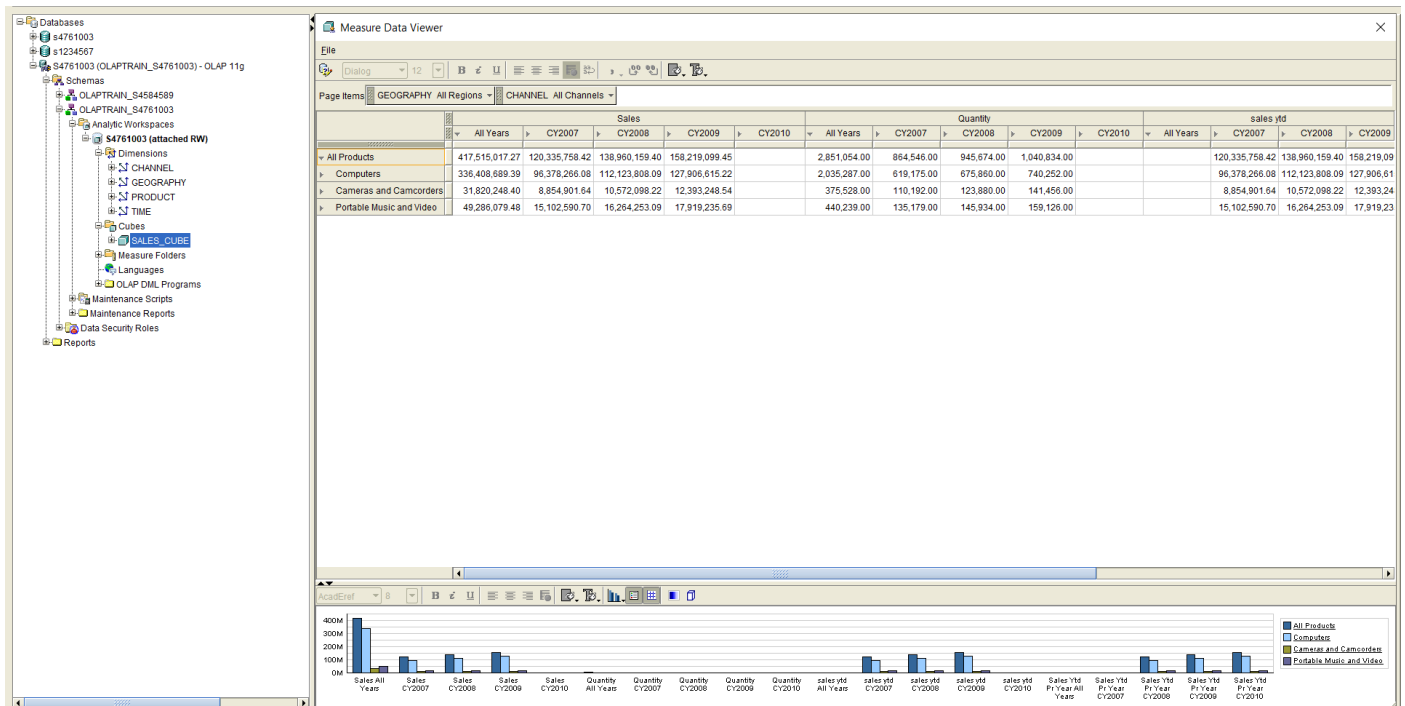
**After view** - Here we can see the sales and quantity for ALL Region in each Year



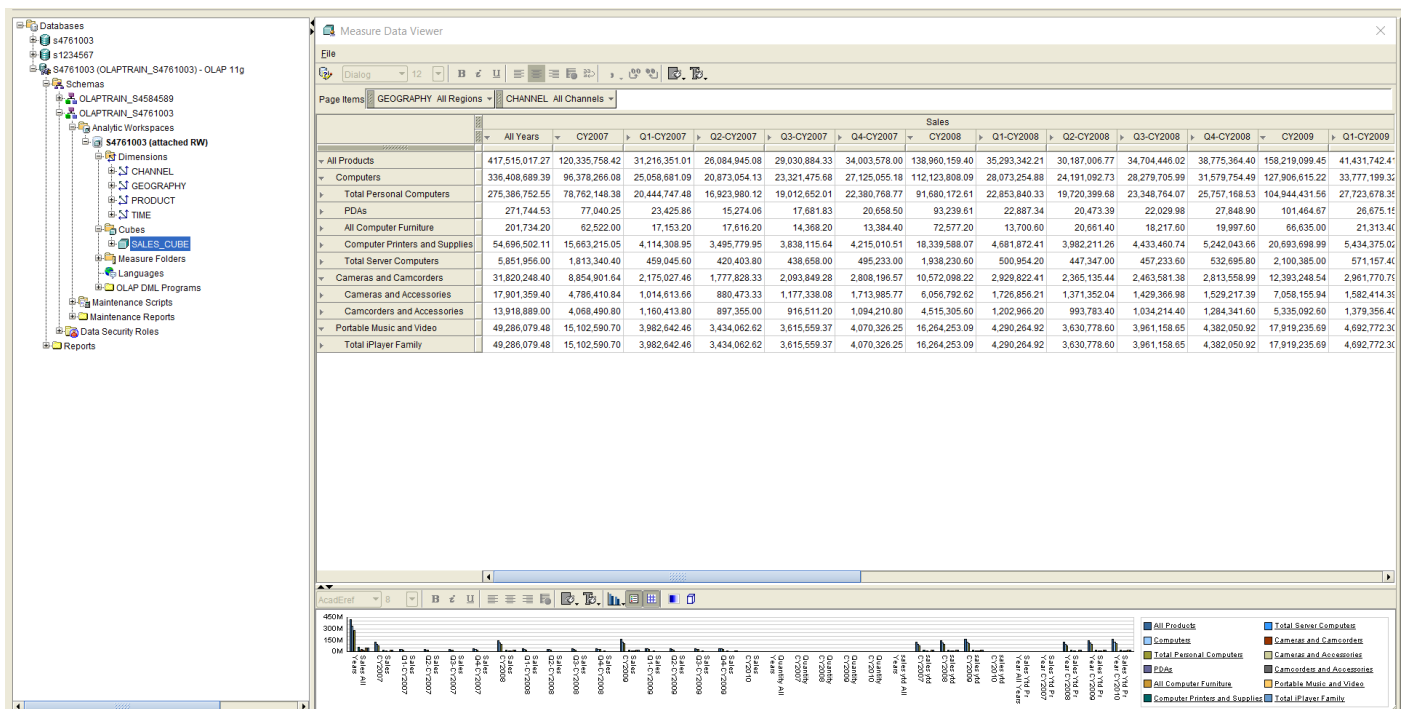
- Individual regions rolled into ALL Region
- Yearly Quarters rolled into Years

## Drill-down operation

**Before view** - Here we can see the sales and quantity of different product category in each Year



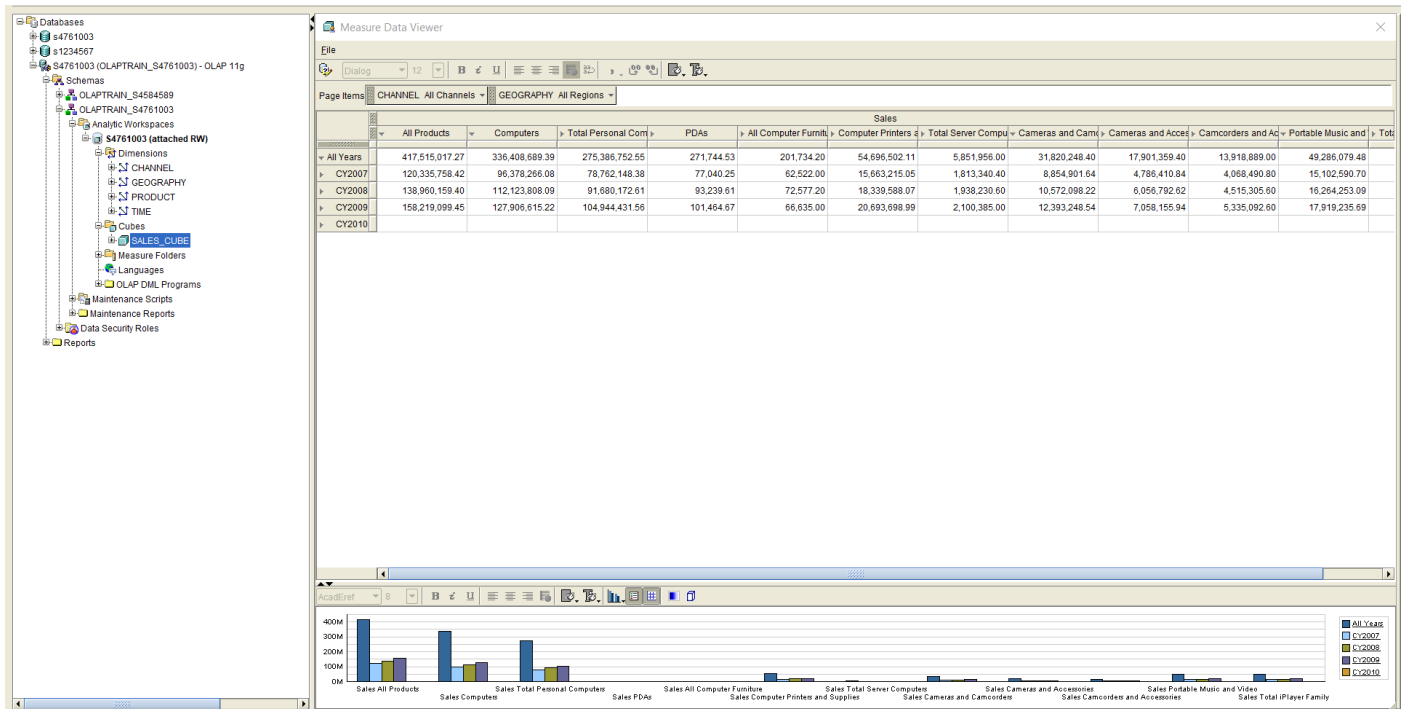
**After view** - Here we can see the sales and quantity of different products in each Year's Quarter



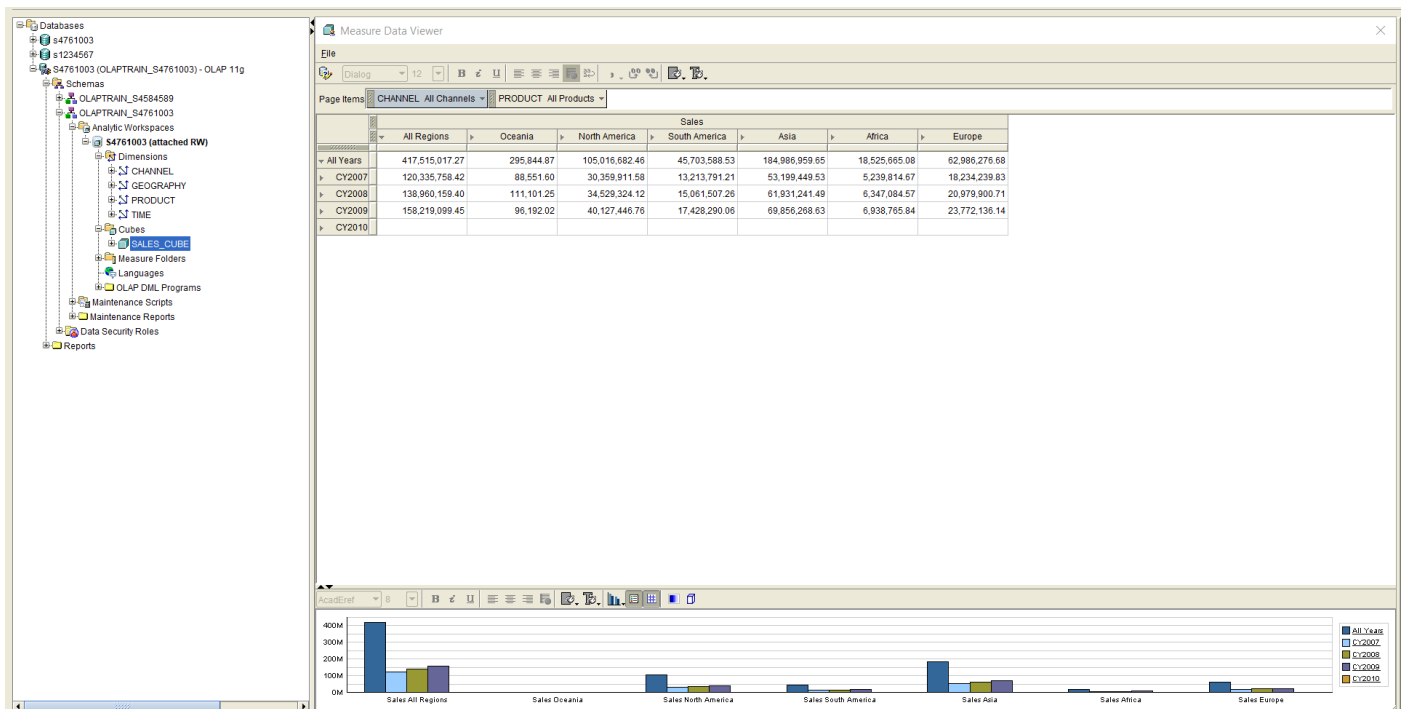
- Product categories drilled down into various Products
- Years drilled down into each year's quarters

## Pivot operation

### Before view – Sales of Products vs Years

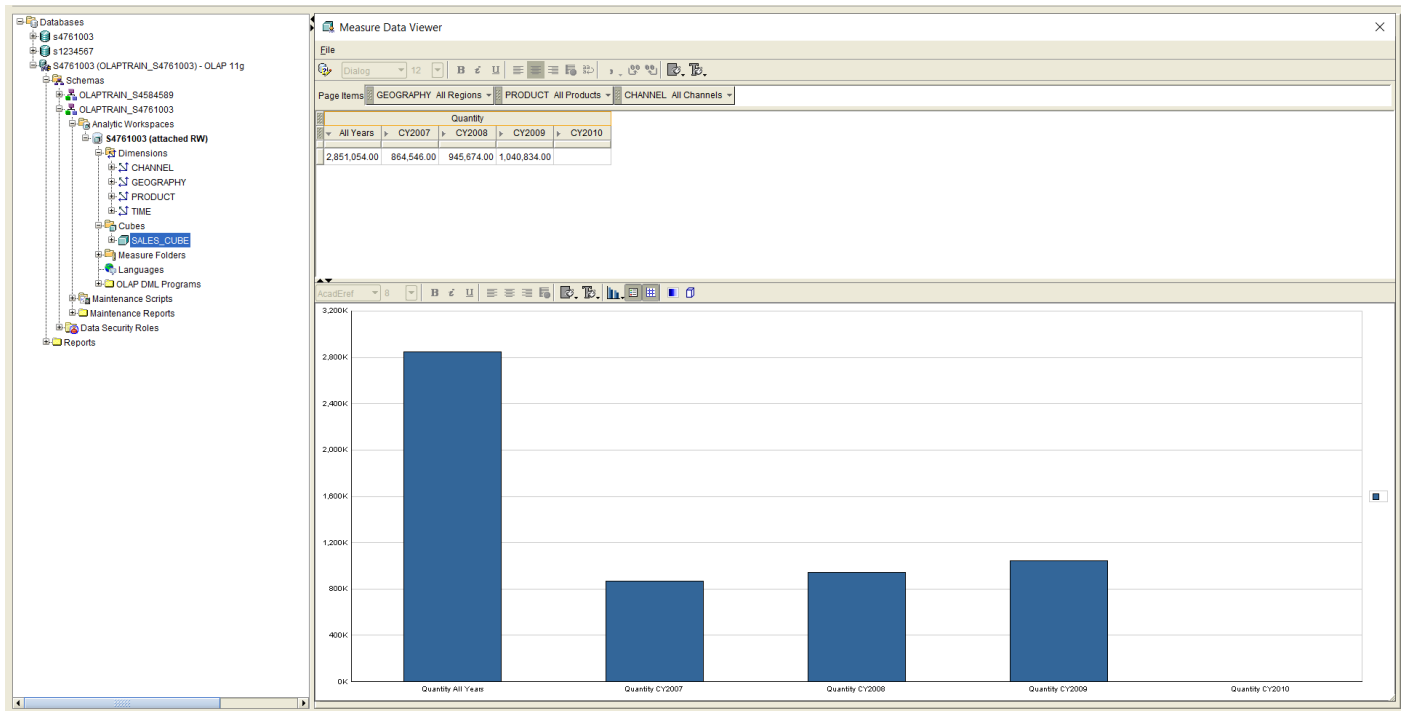


### After view – Sales in Regions vs Years

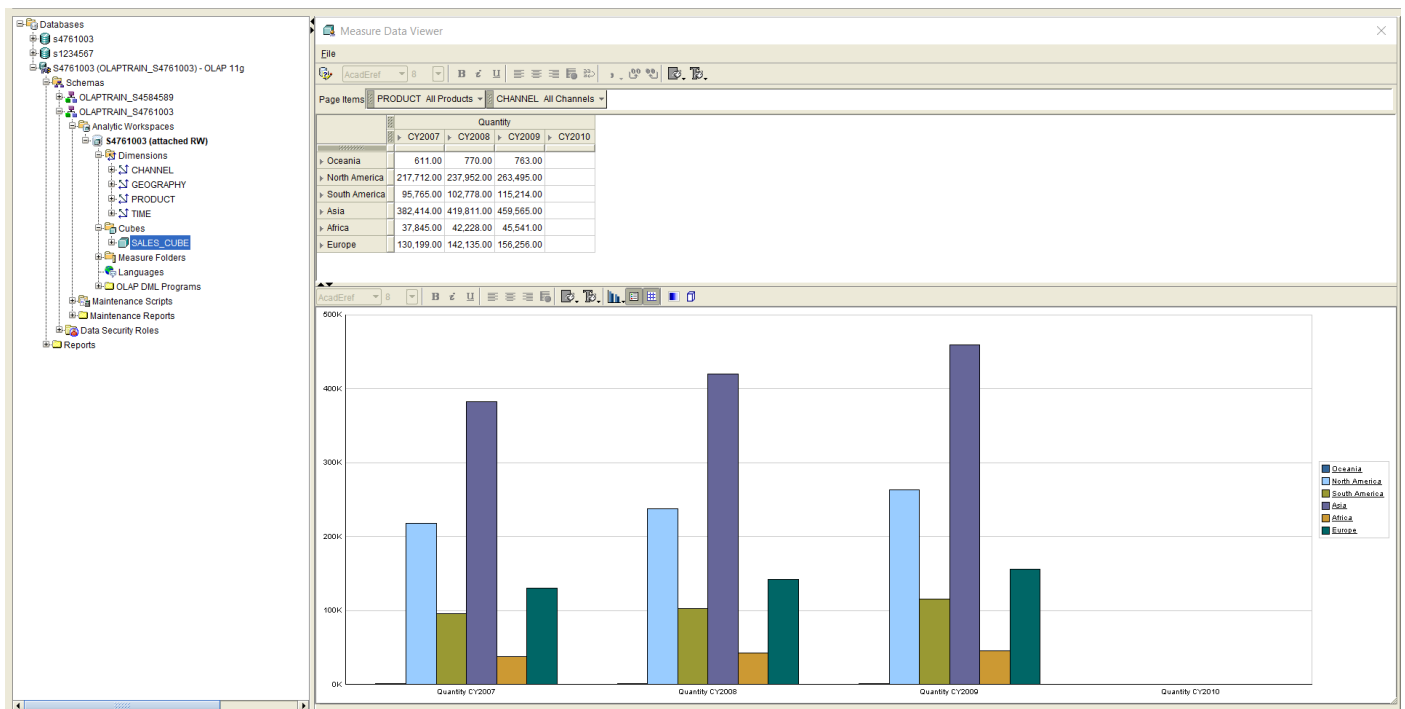


- Keeping the year as constant, Products have been pivoted with Region

## View One: Quantity across all years, and broken down by each CY (2007–2010)



## View Two: Quantity broken down by each CY (2007–2010), and grouped by location



## TASK 4

### Query -

```
select c.class_short_description as class,  
       p.department_long_descript as dept,  
       t.calendar_quarter_long_de as qtr,  
       round(s.sales) as sales  
from channel_sales_channel_view c,  
     product_standard_view p,  
     geography_regional_view g,  
     time_view t,  
     sales_cube_view s  
where s.product = p.dim_key  
     and p.level_name = 'DEPARTMENT'  
     and s.channel = c.dim_key  
     and c.level_name = 'CLASS'  
     and s.geography = g.dim_key  
     and g.level_name = 'ALL_REGIONS'  
     and s.time = t.dim_key  
     and t.level_name = 'CALENDAR_QUARTER'  
     and t.calendar_quarter_short_d like '%CY2009%'  
order by c.class_short_description,  
         p.department_long_descript,  
         t.calendar_quarter_long_de;
```

### OUTPUT 1

The screenshot displays the Oracle SQL Developer interface. On the left, the 'Connections' pane shows a connection to 'DW\_S4761003'. Below it, the 'Reports' pane lists various report types. The main 'Worksheet' area contains a SQL query that filters data by department, class, geography, and time, and orders it by class description, department, and quarter. The 'Query Result' pane at the bottom shows the output of the query, which consists of 10 rows of data. The status bar at the bottom indicates that 24 rows were fetched in 0.015 seconds.

| CLASS     | DEPT                     | QTR       | SALES    |
|-----------|--------------------------|-----------|----------|
| 1 Direct  | Cameras and Camcorders   | Q1-CY2009 | 1242385  |
| 2 Direct  | Cameras and Camcorders   | Q2-CY2009 | 1125521  |
| 3 Direct  | Cameras and Camcorders   | Q3-CY2009 | 1354490  |
| 4 Direct  | Cameras and Camcorders   | Q4-CY2009 | 1443028  |
| 5 Direct  | Computers                | Q1-CY2009 | 13917490 |
| 6 Direct  | Computers                | Q2-CY2009 | 11756607 |
| 7 Direct  | Computers                | Q3-CY2009 | 12865030 |
| 8 Direct  | Computers                | Q4-CY2009 | 14308176 |
| 9 Direct  | Portable Music and Video | Q1-CY2009 | 1945639  |
| 10 Direct | Portable Music and Video | Q2-CY2009 | 1666430  |

## OUTPUT 2

The screenshot displays the Oracle SQL Developer environment. On the left, the 'Connections' pane shows a connection to 'DW\_S4761003'. Below it, the 'Reports' pane lists various report types. The main workspace is divided into a 'Worksheet' and a 'Query Builder' tab. The 'Query Builder' tab shows a SQL query: `select c.class_short_description as class,`. Below the query, the 'Query Result' pane displays 24 rows of data. The data is organized into columns: CLASS, DEPT, QTR, and SALES. The rows are numbered 1 through 24. The data shows a mix of direct and indirect sales across different departments and quarters.

|    | CLASS    | DEPT                     | QTR       | SALES    |
|----|----------|--------------------------|-----------|----------|
| 1  | Direct   | Cameras and Camcorders   | Q1-CY2009 | 1242385  |
| 2  | Direct   | Cameras and Camcorders   | Q2-CY2009 | 1125521  |
| 3  | Direct   | Cameras and Camcorders   | Q3-CY2009 | 1354490  |
| 4  | Direct   | Cameras and Camcorders   | Q4-CY2009 | 1443028  |
| 5  | Direct   | Computers                | Q1-CY2009 | 13917490 |
| 6  | Direct   | Computers                | Q2-CY2009 | 11756607 |
| 7  | Direct   | Computers                | Q3-CY2009 | 12865030 |
| 8  | Direct   | Computers                | Q4-CY2009 | 14308176 |
| 9  | Direct   | Portable Music and Video | Q1-CY2009 | 1945639  |
| 10 | Direct   | Portable Music and Video | Q2-CY2009 | 1666430  |
| 11 | Direct   | Portable Music and Video | Q3-CY2009 | 1812649  |
| 12 | Direct   | Portable Music and Video | Q4-CY2009 | 2045273  |
| 13 | Indirect | Cameras and Camcorders   | Q1-CY2009 | 1719385  |
| 14 | Indirect | Cameras and Camcorders   | Q2-CY2009 | 1573766  |
| 15 | Indirect | Cameras and Camcorders   | Q3-CY2009 | 1837557  |
| 16 | Indirect | Cameras and Camcorders   | Q4-CY2009 | 2097116  |
| 17 | Indirect | Computers                | Q1-CY2009 | 19859709 |
| 18 | Indirect | Computers                | Q2-CY2009 | 16824419 |
| 19 | Indirect | Computers                | Q3-CY2009 | 18117883 |
| 20 | Indirect | Computers                | Q4-CY2009 | 20257301 |
| 21 | Indirect | Portable Music and Video | Q1-CY2009 | 2747134  |
| 22 | Indirect | Portable Music and Video | Q2-CY2009 | 2323586  |
| 23 | Indirect | Portable Music and Video | Q3-CY2009 | 2500406  |
| 24 | Indirect | Portable Music and Video | Q4-CY2009 | 2878119  |