**Report**

**on the**

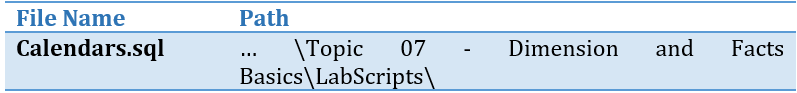
U1M7.LW.Dimension and Facts Basics

**Alina Sadovskaya**

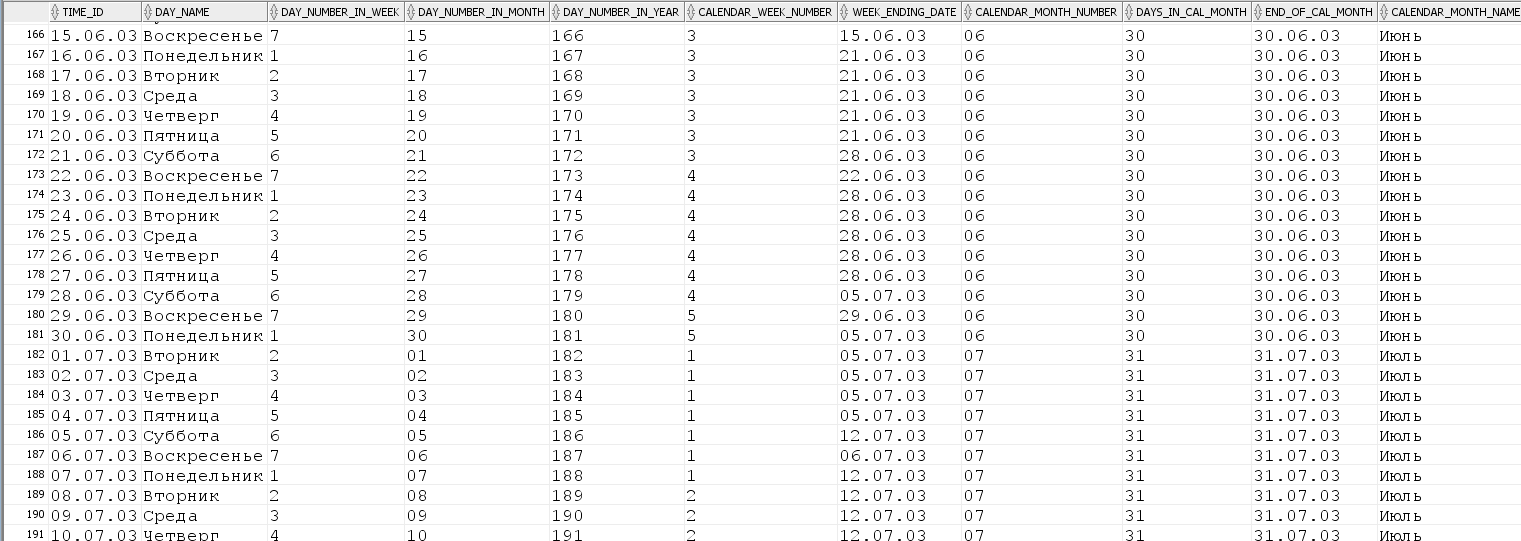
# 2. Create and populate Dimension of TIME DW – Layer

**Notes:**

To Populate Time dims we used External Resources:

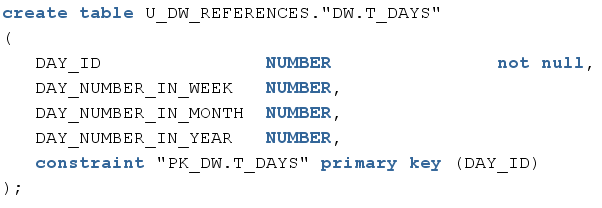
****

Example of generated data:

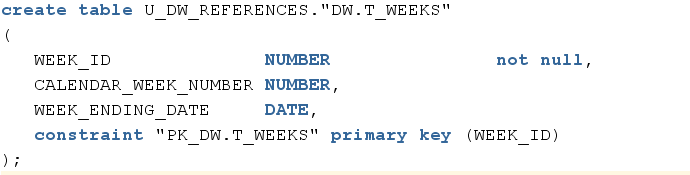


## 2.1. Task 01: CREATE DW.T\_DAYS

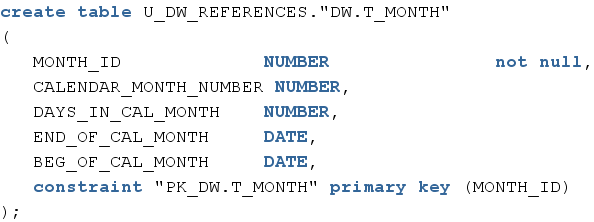
**The Main Task** is to create Physical diagram and Objects on DW layer:



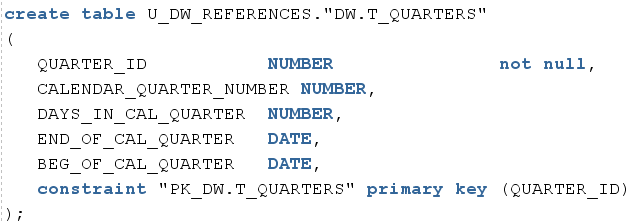
## 2.2. Task 02: CREATE DW.T\_WEEKS



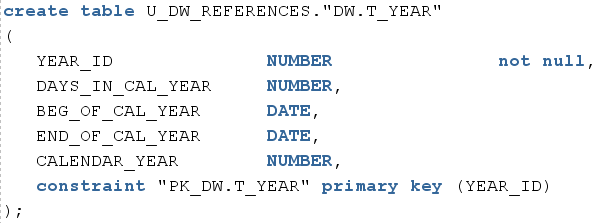
## 2.3. Task 03: CREATE DW.T\_MONTHS



## 2.4. Task 04: CREATE DW.T\_QUARTERS



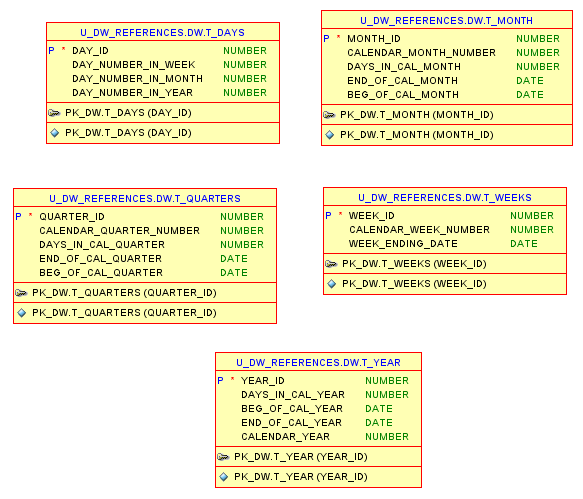
## 2.5. Task 05: CREATE DW.T\_YEARS



Physical diagram:



How it’s look in SQL Developer:



# 3. OLAP – Business analyses task

## 3.1. Task 06 – Solution concept – Add: Chapter Dimensions Types

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Type | Size | DW – Merged Dimensions | Descriptions |
| DIM\_GEN\_TIMES | SCD1 | BIG | DW.T\_DAYS, DW.T\_WEEKS, DW.T\_MONTHS, DW.T\_QUARTERS,  DW.T\_YEARS | TBD – Example row |
| DIM\_GEO\_LOCATIONS | SCD1 | SMALL | Geo\_id  Geo\_group\_id  Geo\_group\_desc  Geo\_sub\_group\_id  Geo\_dub\_group\_desc  Geo\_system\_code  Geo\_system\_desc  Geo\_region\_id  Geo\_region\_desc  Geo\_country\_code\_a2  Geo\_country\_code\_a3  Geo\_country\_id  Geo\_country\_desc | This kind of dimension contains information about all countries, subregions, regions of the world where the company's stores are located. And also enters information on the types of economic development and unions according to the international classification. |
| DIM\_CUSTOMER | SCD1 | BIG | customer\_id  first\_name  last\_name  email  phone  age  address  city  country  region | This kind of dimension contains detailed information about clients (including age and address of the residence for informative presentation). |
| DIM\_PRODUCT | SCD1 | BIG | PRODUCT\_ID  PRODUCT\_NAME  PRODUCT\_DESCRIPTION  LINE\_ID  LINE\_NAME  LINE\_DESCRIPTION  COLLECTION\_ID  SEASON\_ID  SEASON  COLLECTION\_DESCRIPTION  COLLECTION\_DATE  PRODUCT\_TYPE\_ID  PRODUCT\_TYPE  HEIGHT  HIP\_GIRTH  COLOR  PRICE | This kind of dimension contains detailed information about the company's products, including the name of an individual product, category and subcategory. To do so, provided the opportunity for dimension Type SCD 2 perfectly partitions history because each detailed version of a dimensional entity is correctly connected to the span of fact table records for which that version is exactly correct |
| DIM\_STORE | SCD1 | SMALL | store\_id  manager\_id  phone  address  city  country  region | Provides information about store including the store's address, it’s phone and information about the Manager |
| DIM\_GEN\_PERIOD | SCD2 | BIG | period\_id  valid\_from  valid\_to  promotions\_id  decription | A specific type of dimension that allows grouping facts based on logic (the duration of product discounts). |
| DIM\_PAYMENT\_METHODS | SCD1 | SMALL | PAYMENT\_METHOD\_ID  PAYMENT\_METHOD\_NAME  BANK\_NAME | Provides information about the payment method used |
| DIM\_EMPLOYEE | SCD1 | SMALL | employee\_id  first\_name  last\_name  email  phone  store\_id  POSITION\_NAME  POSITION\_GRADE  HIRE\_DATE  FIRE\_DATE  MANAGER\_ID M\_FIRST\_NAME  M\_LAST\_NAME  M\_POSITION\_NAME | Provides information about the company's employees(including theres Manager) |
| DIM\_PROMOTIONS | SCD1 | SMALL | PROMOTION\_ID  PROMOTION\_TYPE\_ID  PROMOTION\_TYPE  PROMOTION\_DESCRIPTION  PROMOTION\_ PERCENT PRICE\_DECREASING\_PERCENT  FREE\_UNIT\_AMOUNT | provides information about discounts, their description, amount, and so on |
| DIM\_DATE | SCD1 | BIG | date\_id  full\_date  day\_name  day\_of\_month  day\_of\_week  day\_of\_quarter  day\_of\_year  week\_of\_month  week\_of\_quarter  week\_of\_year  month\_number  month\_name month\_of\_quarter  month\_of\_year  quarter\_name  quarter\_of\_year  year\_number  firstday\_of\_month  lastday\_of\_month  firstday\_of\_quarter  lastday\_of\_quarter  firstday\_of\_year lastday\_of\_year | These dimention consists days, weeks, months, quarters and so on. |

## 

## 3.2. Task 07 – Solution concept – Add: Chapter Dimensions Hierarchies

**DATE\_DIMENSION:**

**Hierarchy DAY-WEEK-MONTH-YEAR**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | LEVEL\_CODE | LEVEL\_DESC | LEVEL\_NATURAL\_KEY |
| **DAY** | DAY | Store all day at the week | DAY\_OF\_WEEK |
| **WEEK** | WEEK | Store all weeks at the month | WEEK\_OF\_MONTH |
| **MONTH** | MONTH | Store all months at the year | MONTH\_OF\_YEAR |
| **YEAR** | YEAR | Store all years | YEAR\_NUMBER |

**Hierarchy DAY-MONTH- QUARTER -YEAR**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | LEVEL\_CODE | LEVEL\_DESC | LEVEL\_NATURAL\_KEY |
| **DAY** | DAY | Store all day at the month | DAY\_ OF\_MONTH |
| **MONTHS** | MONTH | Store all months at the quarter | MONTH\_ OF\_ QUARTER |
| **QUARTER** | QUARTER | Store all quarters at the year | QUARTER\_ OF\_YEAR |
| **YEAR** | YEAR | Store all years | YEAR\_NUMBER |

**Hierarchy DAY - QUARTER -YEAR**

|  |  |  |  |
| --- | --- | --- | --- |
| **DAY** | DAY | Store all day at the quarter | DAY\_OF\_ QUARTER |
| **QUARTER** | QUARTER | Store all quarters at the calendar year | QUARTER\_ OF\_YEAR |
| **YEAR** | YEAR | Store all years | YEAR\_NUMBER |

**CUSTOMER\_DIMENSION:**

**Hierarchy PRODUCT–TYPE**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | LEVEL\_CODE | LEVEL\_DESC | LEVEL\_NATURAL\_KEY |
| **PRODUCT** | PRODUCT\_NAME | Store all possible products for each type. | PRODUCT\_ID |
| **TYPE** | PRODUCT\_TYPE | Store all product types of our company. | PRODUCT\_TYPE \_ID |

**Hierarchy PRODUCT–LINE-COLLECTION**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | LEVEL\_CODE | LEVEL\_DESC | LEVEL\_NATURAL\_KEY |
| **PRODUCT** | PRODUCT\_NAME | Store all possible products for each LINE. | PRODUCT\_ID |
| **LINE** | LINE\_NAME | Store all possible LINES for each COLLECTIONS. | LINE\_ID |
| **COLLECTION** | COLLECTION\_NAME | Store all COLLECTIONS of our company. | COLLECTION\_ID |

**GEO\_LOCATIONS\_DIMENSION:**

**Hierarchy COUNTRY – REGION - GEO\_GROUP - GEO\_SUB\_GROUP**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | LEVEL\_CODE | LEVEL\_DESC | LEVEL\_NATURAL\_KEY |
| COUNTRIES | GEO\_COUNTRY | Store all countries for each region. | GEO\_COUNTRY\_ID |
| REGIONS | GEO\_REGION | Store all regions for each GEO\_GROUP . | GEO\_REGION\_ID |
| GEO\_GROUP | GEO\_GROUP | Store all regions for each GEO\_SUB\_GROUP. | GEO\_GROUP\_ID |
| GEO\_SUB\_GROUP | GEO\_SUB\_GROUP | Store all Geo\_sub\_group of the world. | GEO\_SUB\_GROUP\_ID |

**EMPLOYEE\_DIMENSION**

**Hierarchy EMPLOYEE -** **MANAGER**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | LEVEL\_CODE | LEVEL\_DESC | LEVEL\_NATURAL\_KEY |
| **EMPLOYEE** | EMPLOYEE | Store all employees for each Manager | EMPLOYEE\_ID |
| **MANAGER** | MANAGER | Store all Manager of the company. | MANAGER\_ID |

3.3. Task 08 – Solution concept – Add: Chapter Facts

* + Facts Aggregations for table RETAIL\_SALES\_FACT

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Code | Table Name | Additive | Descriptions |
| value of the total sum of products sold | SALE\_SUM | RETAIL\_FACT \_SALES | + | Calculate the total amount of sales in the selected period. |
| value of the total number of products sold | SALES\_AMOUNT | RETAIL\_FACT \_SALES | + | Сalculates the number of sales for a specific period |

* + Facts Aggregations for table FACT\_PRODUCT\_BALANCES

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Code | Table Name | Additive | Descriptions |
| тumber of products in stock | STOCK\_VALUE | PRODUCT\_FACT\_BALANCES | + | Calculate amount of products in stock |
| total cost of the remaining product | TOTAL\_PRODUCT\_BALANCE | PRODUCT\_FACT\_BALANCES | + | Сalculate the total cost of the remaining product |