

U2M1.LW.Core SQL

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2.1. Task 01: CREATE Storage Objects

```
/*=====
/* Table: SA_COUPONS_DATA
/*=====

CREATE TABLE SA_COUPONS_DATA (
    COUPON_NAME          VARCHAR2(40),
    COUPON_DESC          VARCHAR2(40),
    MEDIA_TYPE_ID        NUMBER(*,0),
    MEDIA_TYPE           VARCHAR2(40),
    DISCOUNT_PERCENTAGE_AMOUNT NUMBER(4,2),
    VALID_FROM           DATE,
    VALID_TO             DATE,
    INSERT_DT            DATE
)
TABLESPACE TS_SA_COUPONS_DATA_01;
```

```
/*=====
/* Table: SA_PRODUCTS
/*=====

CREATE TABLE SA_PRODUCTS_DATA (
    PRODUCT_NAME         VARCHAR2(40 BYTE),
    PRODUCT_DESC         VARCHAR2(40 BYTE),
    CATEGORY_ID          NUMBER(*, 0),
    CATEGORY_NAME        VARCHAR2(40 BYTE),
    CATEGORY_DESC        VARCHAR2(40 BYTE),
    SUBCATEGORY_ID       NUMBER(*, 0),
    SUBCATEGORY_NAME     VARCHAR2(40 BYTE),
    SUBCATEGORY_DESC     VARCHAR2(40 BYTE),
    FEATURE_ID           NUMBER(*, 0),
    FEATURE_NAME         VARCHAR2(40 BYTE),
    FEATURE_DESC         VARCHAR2(40 BYTE),
    COST_DOLLAR_AMOUNT   NUMBER (5,2),
    INSERT_DT            DATE
)
TABLESPACE TS_SA_PRODUCTS_DATA_01;
```

```
/*=====
/* Table: SA_RESTAURANTS_DATA
/*=====

CREATE TABLE SA_RESTAURANTS_DATA (
    PHONE                VARCHAR2(40 BYTE),
    POSTAL_CODE          NUMBER(10,0),
    ADDRESS              VARCHAR2(40 BYTE),
    INSERT_DT            DATE
)
TABLESPACE TS_SA_RESTAURANTS_DATA_01;
```

```
/*=====
/* Table: SA_PERIODS_DATA
/*=====

CREATE TABLE SA_PERIODS_DATA
(
    PERIOD_NAME VARCHAR2(20),
    PERIOD_DESC VARCHAR2(40),
    BEGIN_DT    DATE DEFAULT TO_DATE('01/01/1990', 'DD/MM/YYYY'),
    END_DT      DATE DEFAULT TO_DATE('31/12/9999', 'DD/MM/YYYY'),
    INSERT_DT   DATE
)
TABLESPACE TS_SA_PERIODS_DATA_01;
```

```
/*=====
/* Table: SA_GEO_DATA
/*=====

CREATE TABLE SA_GEO_DATA (
    COUNTRY_NAME        CHAR(40),
    REGION_NAME         CHAR(40),
    CITY_NAME           CHAR(40),
    INSERT_DT           DATE
)
TABLESPACE TS_SA_GEO_DATA_01;
```

2.2. Task 02: Generate Test Data in Storage Layers

Data generation for SA_PRODUCTS_DATA:

Data about products, categories, subcategories was generated by python utility (code is stored on github) in csv-format.

To add all possible combinations of products and features I create CTE statement and LEFT JOIN.

Result-screenshots:

PRODUCT_NAME	PRODUCT_DESC			CATE...	SU...			FEATURE_NAME	FEATURE_DESC	INSERT_DT	
1 CHEESEBURGER	CHEESEBURGER DESCRIPTION	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	1	SPICY	SPICY CHEESEBURGER	2018-06-19
2 DOUBLE CHICKEN B...	DOUBLE CHICKEN BURGER DESCR...	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	1	SPICY	SPICY DOUBLE CHICKEN BURGER	2017-08-18
3 CHICKENBURGER	CHICKENBURGER DESCRIPTION	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	1	SPICY	SPICY CHICKENBURGER	2016-09-29
4 CHEFBURGER	CHEFBURGER DESCRIPTION	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	1	SPICY	SPICY CHEFBURGER	2016-09-02
5 SANDERSBURGER	SANDERSBURGER DESCRIPTION	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	1	SPICY	SPICY SANDERSBURGER	2019-06-16
6 STRIPS	STRIPS DESCRIPTION	1	FOOD	FOOD CATEG...	2	CHICKEN	CHICKE...	2	SPICY	SPICY STRIPS	2015-05-24
7 DRUMSTICK	DRUMSTICK DESCRIPTION	1	FOOD	FOOD CATEG...	2	CHICKEN	CHICKE...	2	SPICY	SPICY DRUMSTICK	2020-07-29
8 BITES	BITES DESCRIPTION	1	FOOD	FOOD CATEG...	2	CHICKEN	CHICKE...	2	SPICY	SPICY BITES	2016-06-17
9 NUGGETS	NUGGETS DESCRIPTION	1	FOOD	FOOD CATEG...	2	CHICKEN	CHICKE...	2	SPICY	SPICY NUGGETS	2020-05-25
10 FRENCH FRIES	FRENCH FRIES DESCRIPTION	1	FOOD	FOOD CATEG...	3	SNACKS	SNACKS...	3	SPICY	SPICY FRENCH FRIES	2016-03-30
11 HOMEMADE POTATOES	HOMEMADE POTATOES DESCRIPTION	1	FOOD	FOOD CATEG...	3	SNACKS	SNACKS...	3	SPICY	SPICY HOMEMADE POTATOES	2019-08-23
12 HASH BROWN	HASH BROWN DESCRIPTION	1	FOOD	FOOD CATEG...	3	SNACKS	SNACKS...	3	SPICY	SPICY HASH BROWN	2019-09-05
13 BUCKET 8 DRUMSTI...	BUCKET 8 DRUMSTIKS DESCRIPTI...	1	FOOD	FOOD CATEG...	4	BUCKETS	BUCKET...	4	SPICY	SPICY BUCKET 8 DRUMSTIKS	2016-05-15
14 BUCKET DUET	BUCKET DUET DESCRIPTION	1	FOOD	FOOD CATEG...	4	BUCKETS	BUCKET...	4	SPICY	SPICY BUCKET DUET	2018-08-17
15 BUCKET	BUCKET DESCRIPTION	1	FOOD	FOOD CATEG...	4	BUCKETS	BUCKET...	4	SPICY	SPICY BUCKET	2021-11-22
16 BUCKET BITES	BUCKET BITES DESCRIPTION	1	FOOD	FOOD CATEG...	4	BUCKETS	BUCKET...	4	SPICY	SPICY BUCKET BITES	2020-05-09
17 CHEESEBURGER	CHEESEBURGER DESCRIPTION	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	5	ORIGINAL	ORIGINAL CHEESEBURGER	2018-06-19
18 DOUBLE CHICKEN B...	DOUBLE CHICKEN BURGER DESCR...	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	5	ORIGINAL	ORIGINAL DOUBLE CHICKEN BURGER	2017-08-18
19 CHICKENBURGER	CHICKENBURGER DESCRIPTION	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	5	ORIGINAL	ORIGINAL CHICKENBURGER	2016-09-29
20 CHEFBURGER	CHEFBURGER DESCRIPTION	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	5	ORIGINAL	ORIGINAL CHEFBURGER	2016-09-02
21 SANDERSBURGER	SANDERSBURGER DESCRIPTION	1	FOOD	FOOD CATEG...	1	BURGERS	BURGER...	5	ORIGINAL	ORIGINAL SANDERSBURGER	2019-06-16
22 STRIPS	STRIPS DESCRIPTION	1	FOOD	FOOD CATEG...	2	CHICKEN	CHICKE...	6	ORIGINAL	ORIGINAL STRIPS	2015-05-24
23 DRUMSTICK	DRUMSTICK DESCRIPTION	1	FOOD	FOOD CATEG...	2	CHICKEN	CHICKE...	6	ORIGINAL	ORIGINAL DRUMSTICK	2020-07-29
24 BITES	BITES DESCRIPTION	1	FOOD	FOOD CATEG...	2	CHICKEN	CHICKE...	6	ORIGINAL	ORIGINAL BITES	2016-06-17
25 NUGGETS	NUGGETS DESCRIPTION	1	FOOD	FOOD CATEG...	2	CHICKEN	CHICKE...	6	ORIGINAL	ORIGINAL NUGGETS	2020-05-25
26 FRENCH FRIES	FRENCH FRIES DESCRIPTION	1	FOOD	FOOD CATEG...	3	SNACKS	SNACKS...	7	ORIGINAL	ORIGINAL FRENCH FRIES	2016-03-30
27 HOMEMADE POTATOES	HOMEMADE POTATOES DESCRIPTION	1	FOOD	FOOD CATEG...	3	SNACKS	SNACKS...	7	ORIGINAL	ORIGINAL HOMEMADE POTATOES	2019-08-23
28 HASH BROWN	HASH BROWN DESCRIPTION	1	FOOD	FOOD CATEG...	3	SNACKS	SNACKS...	7	ORIGINAL	ORIGINAL HASH BROWN	2019-09-05
29 BUCKET 8 DRUMSTI...	BUCKET 8 DRUMSTIKS DESCRIPTI...	1	FOOD	FOOD CATEG...	4	BUCKETS	BUCKET...	8	ORIGINAL	ORIGINAL BUCKET 8 DRUMSTIKS	2016-05-15
30 BUCKET DUET	BUCKET DUET DESCRIPTION	1	FOOD	FOOD CATEG...	4	BUCKETS	BUCKET...	8	ORIGINAL	ORIGINAL BUCKET DUET	2018-08-17
31 BUCKET	BUCKET DESCRIPTION	1	FOOD	FOOD CATEG...	4	BUCKETS	BUCKET...	8	ORIGINAL	ORIGINAL BUCKET	2021-11-22
32 BUCKET BITES	BUCKET BITES DESCRIPTION	1	FOOD	FOOD CATEG...	4	BUCKETS	BUCKET...	8	ORIGINAL	ORIGINAL BUCKET BITES	2020-05-09
33 ICE-CREAM SUMMER...	ICE-CREAM SUMMER FANTASY DES...	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	9	CHOCOLATE	CHOCOLATE ICE-CREAM SUMMER FANTASY	2021-05-10
34 SUMMER ICE-CREAM	SUMMER ICE-CREAM DESCRIPTION	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	9	CHOCOLATE	CHOCOLATE SUMMER ICE-CREAM	2016-05-23
35 DONUT	DONUT DESCRIPTION	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	9	CHOCOLATE	CHOCOLATE DONUT	2016-03-21
36 MUFFIN	MUFFIN DESCRIPTION	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	9	CHOCOLATE	CHOCOLATE MUFFIN	2018-11-19
37 ICE-CREAM SUMMER...	ICE-CREAM SUMMER FANTASY DES...	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	10	CARAMEL	CARAMEL ICE-CREAM SUMMER FANTASY	2021-05-10
38 SUMMER ICE-CREAM	SUMMER ICE-CREAM DESCRIPTION	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	10	CARAMEL	CARAMEL SUMMER ICE-CREAM	2016-05-23
39 DONUT	DONUT DESCRIPTION	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	10	CARAMEL	CARAMEL DONUT	2016-03-21
40 MUFFIN	MUFFIN DESCRIPTION	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	10	CARAMEL	CARAMEL MUFFIN	2018-11-19
41 ICE-CREAM SUMMER...	ICE-CREAM SUMMER FANTASY DES...	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	11	STRAWBERRY	STRAWBERRY ICE-CREAM SUMMER FANTASY	2021-05-10
42 SUMMER ICE-CREAM	SUMMER ICE-CREAM DESCRIPTION	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	11	STRAWBERRY	STRAWBERRY SUMMER ICE-CREAM	2016-05-23
43 DONUT	DONUT DESCRIPTION	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	11	STRAWBERRY	STRAWBERRY DONUT	2016-03-21
44 MUFFIN	MUFFIN DESCRIPTION	1	FOOD	FOOD CATEG...	5	DESERTS	DESERT...	11	STRAWBERRY	STRAWBERRY MUFFIN	2018-11-19
45 PEPSI	PEPSI DESCRIPTION	2	DRINKS	DRINKS CAT...	1	COLD DRIN...	COLD D...	12	WITH ICE	WITH ICE PEPSI	2019-06-22
46 JUICE	JUICE DESCRIPTION	2	DRINKS	DRINKS CAT...	1	COLD DRIN...	COLD D...	12	WITH ICE	WITH ICE JUICE	2020-05-29
47 WATER	WATER DESCRIPTION	2	DRINKS	DRINKS CAT...	1	COLD DRIN...	COLD D...	12	WITH ICE	WITH ICE WATER	2021-07-15
48 COCA-COLA	COCA-COLA DESCRIPTION	2	DRINKS	DRINKS CAT...	1	COLD DRIN...	COLD D...	12	WITH ICE	WITH ICE COCA-COLA	2017-08-13
49 FANTA	FANTA DESCRIPTION	2	DRINKS	DRINKS CAT...	1	COLD DRIN...	COLD D...	12	WITH ICE	WITH ICE FANTA	2016-04-19
50 SCHWEPES	SCHWEPES DESCRIPTION	2	DRINKS	DRINKS CAT...	1	COLD DRIN...	COLD D...	12	WITH ICE	WITH ICE SCHWEPES	2018-02-20

SELECT COUNT(*) FROM SA_PRODUCTS_DATA;
1 row
"COUNT(*)"
1 64

Data generation for SA_RESTAURANTS_DATA:

Result-screenshots:

```
/*=====*/
/* Table: SA_RESTAURANTS_DATA */
/*=====*/

INSERT INTO SA_RESTAURANTS_DATA(PHONE, POSTAL_CODE, ADDRESS, INSERT_DT)
SELECT '+'|| TO_CHAR(TRUNC(dbms_random.value(1000000000, 9999999999))),
       TRUNC(dbms_random.value(1000000000, 9999999999)),
       'STREET '||
       dbms_random.STRING('U', LEN: TRUNC(dbms_random.value(2, 15))) || ' ' ||
       TO_CHAR(TRUNC(dbms_random.value(1,100))),
       TO_DATE(
         TRUNC(
           DBMS_RANDOM.VALUE(TO_CHAR(DATE '2015-01-01', 'J')
                             , TO_CHAR(DATE '2022-01-01', 'J')
                             )
         ), 'J'
       )
FROM DUAL
CONNECT BY LEVEL <= 150;
```

	PHONE	POSTAL_CODE	ADDRESS	INSERT_DT
1	+97214054721	4620057438	STREET CTL 96	2021-11-23
2	+47248504833	7127801055	STREET PFDWILFLC 39	2020-03-21
3	+93016486919	3016490712	STREET AS 59	2020-04-24
4	+22626061500	1467470147	STREET ZFRDIQFNNOFWZ 79	2019-04-05
5	+56323871181	5607676048	STREET SVUTL 5	2017-12-29
6	+88612743997	7311768084	STREET PAWJXHS0 79	2015-08-02
7	+84859694689	9723132053	STREET QZJNNTPHKLO 89	2018-07-18
8	+93327981822	4545017060	STREET JQY 66	2015-08-10
9	+90387225703	4667783098	STREET XLUWLMGXRFIH 20	2019-05-25
10	+75417893376	3657247962	STREET BMN 79	2020-06-02

```
SELECT count(*) FROM SA_RESTAURANTS_DATA;
```

1	150
---	-----

Data generation for SA_COUPONS_DATA:

Result-screenshots:

```
INSERT INTO SA_COUPONS_DATA(COUPON_NAME,DISCOUNT_PERCENTAGE_AMOUNT,VALID_FROM,INSERT_DT, MEDIA_TYPE_ID, MEDIA_TYPE)
WITH
CTE_COUPON_NAME AS(
SELECT 'COUPON ' || TO_CHAR(TRUNC(dbms_random.value(1, 10)*10000)) AS NAME
,TRUNC(dbms_random.value(1, 20)) AS DISCONT
,TO_CHAR(TRUNC(dbms_random.value(1, 5))) AS MEDIA_ID
,TO_DATE(
TRUNC(
DBMS_RANDOM.VALUE(TO_CHAR(DATE '2015-01-01', 'J')
, TO_CHAR(DATE '2022-01-01', 'J')
), 'J'
)AS INSERTION_DT
,TO_DATE(
TRUNC(
DBMS_RANDOM.VALUE(TO_CHAR(DATE '2015-01-01', 'J')
, TO_CHAR(DATE '2022-01-01', 'J')
), 'J'
)AS VALID_FROM_DT
FROM DUAL
CONNECT BY LEVEL <= 1000
),
CTE_MEDIA_TYPE AS (
SELECT 1 AS ID, 'ONLINE' AS TYPE FROM DUAL UNION ALL
SELECT 2 AS ID, 'OUTDOOR' AS TYPE FROM DUAL UNION ALL
SELECT 3 AS ID, 'MOBILE' AS TYPE FROM DUAL UNION ALL
SELECT 4 AS ID, 'PRINT' AS TYPE FROM DUAL
)
SELECT NAME, DISCONT, VALID_FROM_DT, INSERTION_DT, MEDIA_ID,TYPE FROM CTE_COUPON_NAME
INNER JOIN CTE_MEDIA_TYPE ON MEDIA_ID=CTE_MEDIA_TYPE.ID;

UPDATE SA_COUPONS_DATA
SET VALID_TO = ADD_MONTHS(VALID_FROM,3);
COMMIT;

UPDATE SA_COUPONS_DATA
SET COUPON_DESC = COUPON_NAME || ' ' || MEDIA_TYPE || ' ' || VALID_FROM || ' - ' || VALID_TO;

COMMIT;
SELECT COUNT(*) FROM SA_COUPONS_DATA
```

COUPON...	COUPON_DESC	MEDIA_TYPE_ID	MEDIA_TYPE	DISCOUNT_PERCENTAGE_AMOUNT	VALID_FROM	VALID_TO	INSERT_DT
1 COUPON 10039	COUPON 10039 OUTDOOR 13.05.20 - 13.08.20	2 OUTDOOR		4.00	2020-05-13	2020-08-13	2021-06-17
2 COUPON 10075	COUPON 10075 MOBILE 04.02.16 - 04.05.16	3 MOBILE		3.00	2016-02-04	2016-05-04	2017-12-08
3 COUPON 10169	COUPON 10169 ONLINE 07.04.20 - 07.07.20	1 ONLINE		3.00	2020-04-07	2020-07-07	2016-01-22
4 COUPON 10308	COUPON 10308 PRINT 13.04.21 - 13.07.21	4 PRINT		16.00	2021-04-13	2021-07-13	2020-06-17
5 COUPON 10421	COUPON 10421 MOBILE 12.03.15 - 12.06.15	3 MOBILE		16.00	2015-03-12	2015-06-12	2019-08-09
6 COUPON 10427	COUPON 10427 ONLINE 21.09.21 - 21.12.21	1 ONLINE		8.00	2021-09-21	2021-12-21	2021-10-07
7 COUPON 10430	COUPON 10430 OUTDOOR 19.01.15 - 19.04.15	2 OUTDOOR		19.00	2015-01-19	2015-04-19	2020-09-02
8 COUPON 10776	COUPON 10776 ONLINE 25.04.18 - 25.07.18	1 ONLINE		11.00	2018-04-25	2018-07-25	2020-05-05
9 COUPON 10839	COUPON 10839 OUTDOOR 02.03.21 - 02.06.21	2 OUTDOOR		17.00	2021-03-02	2021-06-02	2020-11-25
10 COUPON 10923	COUPON 10923 MOBILE 15.12.19 - 15.03.20	3 MOBILE		11.00	2019-12-15	2020-03-15	2020-01-11
11 COUPON 10955	COUPON 10955 PRINT 03.07.15 - 03.10.15	4 PRINT		6.00	2015-07-03	2015-10-03	2021-03-08
12 COUPON 10986	COUPON 10986 ONLINE 16.04.19 - 16.07.19	1 ONLINE		1.00	2019-04-16	2019-07-16	2017-05-18
13 COUPON 11174	COUPON 11174 OUTDOOR 01.03.17 - 01.06.17	2 OUTDOOR		9.00	2017-03-01	2017-06-01	2020-06-22
14 COUPON 11340	COUPON 11340 OUTDOOR 12.07.19 - 12.10.19	2 OUTDOOR		4.00	2019-07-12	2019-10-12	2020-05-26
15 COUPON 11426	COUPON 11426 PRINT 02.04.15 - 02.07.15	4 PRINT		15.00	2015-04-02	2015-07-02	2015-05-27
16 COUPON 11456	COUPON 11456 OUTDOOR 01.02.15 - 01.05.15	2 OUTDOOR		2.00	2015-02-01	2015-05-01	2016-03-15
17 COUPON 11471	COUPON 11471 OUTDOOR 07.06.18 - 07.09.18	2 OUTDOOR		17.00	2018-06-07	2018-09-07	2018-02-08
18 COUPON 11524	COUPON 11524 OUTDOOR 26.09.16 - 26.12.16	2 OUTDOOR		9.00	2016-09-26	2016-12-26	2018-05-05
19 COUPON 11559	COUPON 11559 PRINT 03.11.21 - 03.02.22	4 PRINT		2.00	2021-11-03	2022-02-03	2020-08-01
20 COUPON 11615	COUPON 11615 MOBILE 12.11.17 - 12.02.18	3 MOBILE		9.00	2017-11-12	2018-02-12	2021-03-25

"COUNT(*)"

1 1000

Data generation for SA_GEO_DATA:

Was loaded from the source csv file.

Result-screenshots:

	COUNTRY_NAME	REGION_NAME	CITY_NAME	INSER...
1	Argentina	Tucumán	San Miguel de Tucumán	2021-12-30
2	Belgium	Flanders	Nijlen	2021-12-30
3	Australia	New South Wales	Cessnock	2021-12-30
4	Belgium	Wallonia	Visé	2021-12-28
5	Czech Republic	Ústecký	Litoměřice	2021-12-28
6	China	Shandong Sheng	Gaomi	2021-12-26
7	Chile	Maule	Molina	2021-12-25
8	Belgium	Wallonia	Saint-Ghislain	2021-12-25
9	Australia	New South Wales	Caringbah	2021-12-25
10	China	Hubei	Huangmei	2021-12-25
11	China	Yunnan	Haikou	2021-12-24
12	Chile	Aisén	Puerto Aisén	2021-12-23
13	Switzerland	Vaud	Nyon	2021-12-21
14	Colombia	Antioquia	Chigorodó	2021-12-21
15	Germany	North Rhine-Westphalia	Wipperfürth	2021-12-21
16	China	Hunan	Leiyang	2021-12-20
17	Australia	Victoria	Langwarrin	2021-12-18
18	Australia	New South Wales	Wollongong	2021-12-17
19	Belgium	Flanders	Lommel	2021-12-16
20	China	Heilongjiang Sheng	Qinggang	2021-12-15

Data generation for SA_PERIODS_DATA:

Result-screenshots:

```
/*=====*/
/* Table: SA_PERIODS_DATA */
/*=====*/

INSERT INTO SA_PERIODS_DATA (PERIOD_NAME,BEGIN_DT, INSERT_DT)
SELECT 'PERIOD ' || TO_CHAR(ROWNUM),
       TO_DATE(
           TRUNC(
               DBMS_RANDOM.VALUE(TO_CHAR(DATE '2015-01-01', 'J')
                                , TO_CHAR(DATE '2022-01-01', 'J')
                                )
           ), 'J'
       ),
       TO_DATE(
           TRUNC(
               DBMS_RANDOM.VALUE(TO_CHAR(DATE '2015-01-01', 'J')
                                , TO_CHAR(DATE '2022-01-01', 'J')
                                )
           ), 'J'
       )
FROM DUAL
CONNECT BY LEVEL <= 100;

UPDATE SA_PERIODS_DATA
SET END_DT = ADD_MONTHS(BEGIN_DT,12),
    PERIOD_DESC = PERIOD_NAME || ' DESC';
COMMIT;
```

	PERIOD_NAME	PERIOD_DESC	BEGIN_DT	END_DT	INSERT_DT
1	PERIOD 1	PERIOD 1 DESC	2021-01-12	2022-01-12	2015-08-18
2	PERIOD 2	PERIOD 2 DESC	2019-02-06	2020-02-06	2016-02-24
3	PERIOD 3	PERIOD 3 DESC	2017-01-27	2018-01-27	2017-05-29
4	PERIOD 4	PERIOD 4 DESC	2021-10-02	2022-10-02	2021-08-20
5	PERIOD 5	PERIOD 5 DESC	2018-12-07	2019-12-07	2019-04-13
6	PERIOD 6	PERIOD 6 DESC	2021-02-08	2022-02-08	2020-09-12
7	PERIOD 7	PERIOD 7 DESC	2020-12-27	2021-12-27	2015-06-14
8	PERIOD 8	PERIOD 8 DESC	2021-08-18	2022-08-18	2017-11-10
9	PERIOD 9	PERIOD 9 DESC	2018-10-10	2019-10-10	2017-05-28
10	PERIOD 10	PERIOD 10 DESC	2017-11-23	2018-11-23	2016-06-16

2.3. Task 03: Create Group by Plan

Transactions table structure:

```
CREATE TABLE TRANSACTIONS(  
    PRODUCT_NAME      VARCHAR2(40 BYTE) ,  
    PRODUCT_DESC      VARCHAR2(40 BYTE),  
    CATEGORY_ID       NUMBER(*, 0),  
    CATEGORY_NAME     VARCHAR2(40 BYTE),  
    CATEGORY_DESC     VARCHAR2(40 BYTE),  
    SUBCATEGORY_ID    NUMBER(*, 0),  
    SUBCATEGORY_NAME  VARCHAR2(40 BYTE),  
    SUBCATEGORY_DESC  VARCHAR2(40 BYTE),  
    FEATURE_ID        NUMBER(*, 0),  
    FEATURE_NAME      VARCHAR2(40 BYTE),  
    FEATURE_DESC      VARCHAR2(40 BYTE),  
    COST_DOLLAR_AMOUNT NUMBER(5,3),  
    PHONE             VARCHAR2(40 BYTE),  
    POSTAL_CODE       NUMBER(10,0) ,  
    ADDRESS           VARCHAR2(40 BYTE) ,  
    COUPON_NAME        VARCHAR2(40),  
    COUPON_DESC        VARCHAR2(40),  
    MEDIA_TYPE_ID     NUMBER(*,0) ,  
    MEDIA_TYPE         VARCHAR2(40),  
    DISCOUNT_PERCENTAGE_AMOUNT NUMBER(4,2),  
    VALID_FROM        DATE ,  
    VALID_TO          DATE ,  
    COUNTRY_NAME      CHAR(40),  
    REGION_NAME       CHAR(40),  
    CITY_NAME         CHAR(40),  
    PERIOD_NAME       VARCHAR2(20),  
    PERIOD_DESC       VARCHAR2(40),  
    BEGIN_DT         DATE DEFAULT TO_DATE('01/01/1990', 'DD/MM/YYYY'),  
    END_DT           DATE DEFAULT TO_DATE('31/12/9999', 'DD/MM/YYYY'),  
    INSERT_DT        DATE  
);
```


Population of the table with data:

```
INSERT INTO TRANSACTIONS(PRODUCT_NAME, PRODUCT_DESC, CATEGORY_ID, CATEGORY_NAME, CATEGORY_DESC,
    SUBCATEGORY_ID, SUBCATEGORY_NAME, SUBCATEGORY_DESC,
    FEATURE_ID, FEATURE_NAME, FEATURE_DESC, COST_DOLLAR_AMOUNT,
    PHONE, POSTAL_CODE, ADDRESS, COUPON_NAME,
    COUPON_DESC, MEDIA_TYPE_ID, MEDIA_TYPE,
    DISCOUNT_PERCENTAGE_AMOUNT, VALID_FROM, VALID_TO,
    COUNTRY_NAME, REGION_NAME, CITY_NAME,
    PERIOD_NAME, PERIOD_DESC, BEGIN_DT, END_DT)

WITH
CTE_PRODUCTS_COUPONS_RESTAURANTS AS (
    SELECT P.PRODUCT_NAME, PRODUCT_DESC,
        P.CATEGORY_ID, P.CATEGORY_NAME, P.CATEGORY_DESC,
        P.SUBCATEGORY_ID, P.SUBCATEGORY_NAME, P.SUBCATEGORY_DESC,
        P.FEATURE_ID, P.FEATURE_NAME, P.FEATURE_DESC, P.COST_DOLLAR_AMOUNT,
        R.PHONE, R.POSTAL_CODE, R.ADDRESS,
        C.COUPON_NAME, C.COUPON_DESC, C.MEDIA_TYPE_ID, C.MEDIA_TYPE, C.DISCOUNT_PERCENTAGE_AMOUNT, C.VALID_FROM,
        C.VALID_TO,
        TRUNC(DBMS_RANDOM.VALUE(1,3648)) AS GEO_ID,
        TRUNC(DBMS_RANDOM.VALUE(1,100)) AS PERIOD_ID
    FROM SA_PRODUCTS_DATA P CROSS JOIN SA_COUPONS_DATA C, SA_RESTAURANTS_DATA R ORDER BY dbms_random.value
    FETCH FIRST 300000 ROWS ONLY
),
CTE_GEO AS (
    SELECT COUNTRY_NAME, REGION_NAME, CITY_NAME, ROWNUM AS GEO_ID FROM SA_GEO_DATA
),
CTE_PERIODS AS (
    SELECT PERIOD_NAME, PERIOD_DESC, BEGIN_DT, END_DT, ROWNUM AS PERIOD_ID FROM SA_PERIODS_DATA
)
SELECT PRODUCT_NAME, PRODUCT_DESC, CATEGORY_ID, CATEGORY_NAME, CATEGORY_DESC,
    SUBCATEGORY_ID, SUBCATEGORY_NAME, SUBCATEGORY_DESC,
    FEATURE_ID, FEATURE_NAME, FEATURE_DESC, COST_DOLLAR_AMOUNT,
    PHONE, POSTAL_CODE, ADDRESS, COUPON_NAME,
    COUPON_DESC, MEDIA_TYPE_ID, MEDIA_TYPE,
    DISCOUNT_PERCENTAGE_AMOUNT, VALID_FROM, VALID_TO,
    COUNTRY_NAME, REGION_NAME, CITY_NAME,
    PERIOD_NAME, PERIOD_DESC, BEGIN_DT, END_DT
    FROM CTE_PRODUCTS_COUPONS_RESTAURANTS
    INNER JOIN CTE_GEO ON CTE_GEO.GEO_ID = CTE_PRODUCTS_COUPONS_RESTAURANTS.GEO_ID
    INNER JOIN CTE_PERIODS ON CTE_PERIODS.PERIOD_ID = CTE_PRODUCTS_COUPONS_RESTAURANTS.PERIOD_ID;
COMMIT;
```

Examples of using group by plan:

```
SELECT
PRODUCT_NAME, COUNTRY_NAME, COUNT(*) AS QUANTITY, SUM(COST_DOLLAR_AMOUNT) AS TOATAL_SALE_DOLLAR_AMOUNT
FROM TRANSACTIONS
GROUP BY PRODUCT_NAME, COUNTRY_NAME
ORDER BY TOATAL_SALE_DOLLAR_AMOUNT DESC;
```

	PRODUCT_NAME	COUNTRY_NAME	QUANTITY	TOATAL_SALE_DOLLAR_AMOUNT
1	NUGGETS	China	2071	23257.33
2	STRIPS	China	2069	23234.87
3	DRUMSTICK	China	2059	23122.57
4	CHICKENBURGER	China	2137	22652.2
5	CHEESEBURGER	China	2122	22493.2
6	BITES	China	1998	22437.54
7	SANDERSBURGER	China	2069	21931.4
8	CHEFBURGER	China	2067	21910.2
9	DOUBLE CHICKEN BURGER	China	2042	21645.2
10	NUGGETS	Germany	1925	21617.75
11	DRUMSTICK	Germany	1923	21595.29
12	BUCKET 8 DRUMSTIKS	China	2083	21392.41
13	BUCKET	China	2076	21320.52
14	BUCKET BITES	China	2071	21269.17
15	DOUBLE CHICKEN BURGER	Germany	2000	21200
16	STRIPS	Germany	1884	21157.32
17	BUCKET DUET	China	2023	20776.21
18	BITES	Germany	1846	20730.58
19	CHEFBURGER	Germany	1914	20288.4
20	BUCKET	Germany	1959	20118.93
21	SANDERSBURGER	Germany	1888	20012.8
22	CHICKENBURGER	Germany	1885	19981
23	CHEESEBURGER	Germany	1843	19535.8
24	BUCKET 8 DRUMSTIKS	Germany	1883	19338.41
25	BUCKET DUET	Germany	1872	19225.44
26	BUCKET BITES	Germany	1863	19133.01
27	HASH BROWN	China	2078	12260.2
28	HOMEMADE POTATOES	China	2039	12030.1
29	FRENCH FRIES	China	2024	11941.6
30	FRENCH FRIES	Germany	1892	11162.8