

Anton Slizh's

U2M5.LW.Advanced SQL, PL/SQL

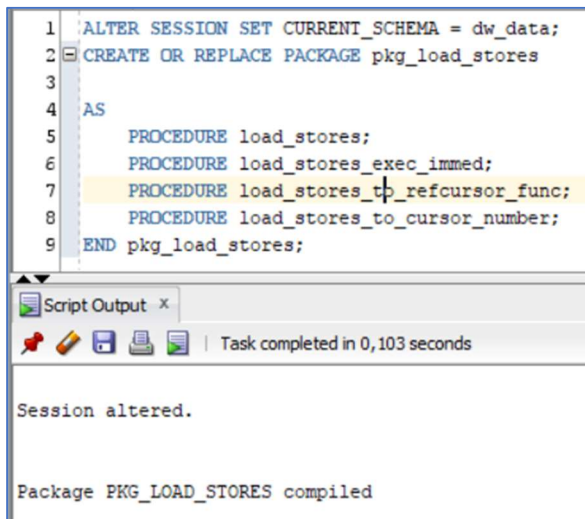
GitHub: <https://github.com/drapejny/DataCamp2022>

Task 1

2.1. Task 01: Create Packages for Reload Dimension from SA_*

The main task was to refactor packages from previous task using EXECUTE IMMEDIATE, TO_REFCURSOR and TO_CURSOR_NUMBER function.

I have added some additional procedures into loading store package:



```
1 ALTER SESSION SET CURRENT_SCHEMA = dw_data;
2 CREATE OR REPLACE PACKAGE pkg_load_stores
3
4 AS
5     PROCEDURE load_stores;
6     PROCEDURE load_stores_exec_immed;
7     PROCEDURE load_stores_to_refcursor_func;
8     PROCEDURE load_stores_to_cursor_number;
9 END pkg_load_stores;
```

Script Output x

Task completed in 0,103 seconds

Session altered.

Package PKG_LOAD_STORES compiled

All scripts are located at *pkg_load_stores_impl.sql*

1. Using EXECUTE IMMEDIATE with Bind Params

PROCEDURE load_stores_exec_immed

```
110         cl.city,  
111         cl.phone  
112     FROM dw_cl.dw_cl_store_data cl  
113     LEFT JOIN dw_data.dw_store_data dw  
114     ON cl.address = dw.address;  
115  
116     FETCH c_store  
117  
118     BULK COLLECT INTO new_stores;  
119  
120     CLOSE c_store;  
121  
122     sql_insert_stmt := 'INSERT INTO dw_data.dw_store_data VALUES( :1, :2, :3, :4, :5, :6)';  
123     sql_update_stmt := 'UPDATE dw_data.dw_store_data SET address = :1, country = :2, region = :3, city = :4, phone = :5 WHERE store_id = :6';  
124  
125     FOR i IN 1 .. new_stores.COUNT LOOP  
126         IF new_stores(i).store_id IS NULL THEN  
127             EXECUTE IMMEDIATE sql_insert_stmt  
128             USING dw_data.seq_stores.NEXTVAL, new_stores(i).address, new_stores(i).country, new_stores(i).region, new_stores(i).city, new_stores(i).phone;  
129         ELSE  
130             EXECUTE IMMEDIATE sql_update_stmt  
131             USING new_stores(i).address, new_stores(i).country, new_stores(i).region, new_stores(i).city, new_stores(i).phone, new_stores(i).store_id;  
132         END IF;  
133     END LOOP;  
134  
135     COMMIT;  
136  
137     END load_stores_exec_immed;
```

Executing:

```
1  begin  
2      dw_data.pkg_load_stores.load_stores_exec_immed;  
3  end;  
4  select * from dw_data.dw_store_data;
```

Script Output x Query Result x

Task completed in 0,039 seconds

PL/SQL procedure successfully completed.


Result:

4

```
select * from dw_data.dw_store_data;
```

Script Output x

Query Result x

 All Rows Fetched: 16 in 0,027 seconds

STORE_ID	ADDRESS	COUNTRY	REGION	CITY	PHONE
1	170 Gomel, Kalinouskaga, 6	Belarus	Gomel	Gomel	+375291110892
2	171 Minks, Byady, 3	Belarus	Minsk	Minsk	+375291122892
3	172 Astana, Kalinouskaga, 90	Kazakhstan	Astana	Astana	+99677131211
4	173 Novogrudok, Kalinouskaga, 1	Belarus	Grodno	Novogrudok	+375788822892
5	174 Mogilev, Kalinouskaga, 17	Belarus	Mogilev	Mogilev	+375290121234
6	175 Minks, Kalinouskaga, 33	Belarus	Minsk	Minsk	+375291122892
7	176 Grodno, Savetskaya, 2	Belarus	Grodno	Grodno	+375291122552
8	177 Grodno, Kirova, 13	Belarus	Grodno	Grodno	+375294322892
9	178 Brest, Kalinouskaga, 47	Belarus	Brest	Brest	+375290120092
10	179 Kyiv, Kalinouskaga, 11	Ukraine	Kyiv	Kyiv	+380291144894
11	180 Minks, Zaporozhskaya, 73	Belarus	Minsk	Minsk	+375291522852
12	181 Grodno, Kalinouskaga, 7	Belarus	Grodno	Grodno	+375290122892
13	182 Moscow, Kalinouskaga, 12	Russian Federation	Moscow	Moscow	+71232131232
14	183 Saint Petersburg, Kalinouskaga, 90	Russian Federation	Leningrad	Saint Petersburg	+71277131232
15	184 Vitebsk, Kalinouskaga, 9	Belarus	Vitebsk	Vitebsk	+375291111892
16	185 Slonim, Skaryny, 18	Belarus	Grodno	Slonim	+375290292892

2. Using DBMS_SQL.TO_REFCURSOR Function

PROCEDURE load_stores_to_refcursor_func

```
161      ON cl.address = dw.address';
162
163      cursor_id := DBMS_SQL.open_cursor;
164
165      DBMS_SQL.PARSE(cursor_id, query_text, DBMS_SQL.NATIVE);
166
167      cur count := DBMS_SQL.EXECUTE(cursor_id);
168
169      ref_cursor := DBMS_SQL.TO_REFCURSOR(cursor_id);
170
171  LOOP
172      FETCH ref_cursor INTO store_row;
173      EXIT WHEN ref_cursor%NOTFOUND;
174      IF store_row.store_id IS NULL THEN
175          INSERT INTO dw_data.dw_store_data
176              VALUES (
177                  dw_data.seq_stores.NEXTVAL,
178                  store_row.address,
179                  store_row.country,
180                  store_row.region,
181                  store_row.city,
182                  store_row.phone
183              );
184      ELSE
185          UPDATE dw_data.dw_store_data
186              SET address = store_row.address,
187                  country = store_row.country,
188                  region = store_row.region,
189                  city = store_row.city.
```

Executing:

```
2  begin
3      dw_data.pkg_load_stores.load_stores_to_refcursor_func;
4  end;
```

Script Output x Query Result x

Task completed in 0,103 seconds

PL/SQL procedure successfully completed.

Result:

5 | select * from dw_data.dw_store_data;

Script Output x Query Result x

SQL | All Rows Fetched: 16 in 0,028 seconds

	STORE_ID	ADDRESS	COUNTRY	REGION	CITY	PHONE
1	186	Gomel, Kalinouskaga, 6	Belarus	Gomel	Gomel	+375291110892
2	187	Minks, Byady, 3	Belarus	Minsk	Minsk	+375291122892
3	188	Astana, Kalinouskaga, 90	Kazakhstan	Astana	Astana	+99677131211
4	189	Novogrudok, Kalinouskaga, 1	Belarus	Grodno	Novogrudok	+375788822892
5	190	Mogilev, Kalinouskaga, 17	Belarus	Mogilev	Mogilev	+375290121234
6	191	Minks, Kalinouskaga, 33	Belarus	Minsk	Minsk	+375291122892
7	192	Grodno, Savetskaya, 2	Belarus	Grodno	Grodno	+375291122552
8	193	Grodno, Kirova, 13	Belarus	Grodno	Grodno	+375294322892
9	194	Brest, Kalinouskaga, 47	Belarus	Brest	Brest	+375290120092
10	195	Kyiv, Kalinouskaga, 11	Ukraine	Kyiv	Kyiv	+380291144894
11	196	Minks, Zaporozhskaya, 73	Belarus	Minsk	Minsk	+375291522852
12	197	Grodno, Kalinouskaga, 7	Belarus	Grodno	Grodno	+375290122892
13	198	Moscow, Kalinouskaga, 12	Russian Federation	Moscow	Moscow	+71232131232
14	199	Saint Petersburg, Kalinouskaga, 90	Russian Federation	Leningrad	Saint Petersburg	+71277131232
15	200	Vitebsk, Kalinouskaga, 9	Belarus	Vitebsk	Vitebsk	+375291111892
16	201	Slonim, Skaryny, 18	Belarus	Grodno	Slonim	+375290292892

3. Using DBMS_SQL.TO_CURSOR_NUMBER Function

PROCEDURE load_stores_to_cursor_number

```
224         ON cl.address = dw.address';
225
226     OPEN src_cur FOR query_text;
227
228     curid := DBMS_SQL.TO_CURSOR_NUMBER(src_cur);
229
230     DBMS_SQL.describe_columns(curid, colcnt, desctab);
231
232     FOR i IN 1 .. colcnt
233     LOOP
234         CASE desctab(i).col_type
235             WHEN 1 THEN DBMS_SQL.define_column (curid, i, varchar2_val, 4000);
236             WHEN 2 THEN DBMS_SQL.define_column (curid, i, number_val);
237             ELSE DBMS_SQL.define_column (curid, i, varchar2_val, 4000);
238         END CASE;
239
240     END LOOP;
241
242     WHILE DBMS_SQL.FETCH_ROWS(curid) > 0
243     LOOP
244         FOR i IN 1 .. colcnt
245         LOOP
246             CASE desctab(i).col_type
247                 WHEN 1 THEN
248                     DBMS_SQL.COLUMN_VALUE (curid, i, varchar2_val);
249                     CASE desctab(i).col_name
250                         WHEN 'ADDRESS' THEN store_row.address := varchar2_val;
251                         WHEN 'COUNTRY' THEN store_row.country := varchar2_val;
252                         WHEN 'REGION' THEN store_row.region := varchar2_val;
```

Executing:

```
2  begin
3      dw_data.pkg_load_stores.load_stores_to_cursor_number;
4  end;
```

Script Output x Query Result x

Task completed in 0,046 seconds

PL/SQL procedure successfully completed.

Result:

```
5  select * from dw_data.dw_store_data;
```

Script Output x Query Result x

All Rows Fetched: 16 in 0,029 seconds

STORE_ID	ADDRESS	COUNTRY	REGION	CITY	PHONE
1	202 Gomel, Kalinouskaga, 6	Belarus	Gomel	Gomel	+375291110892
2	203 Minks, Byady, 3	Belarus	Minsk	Minsk	+375291122892
3	204 Astana, Kalinouskaga, 90	Kazakhstan	Astana	Astana	+99677131211
4	205 Novogrudok, Kalinouskaga, 1	Belarus	Grodno	Novogrudok	+375788822892
5	206 Mogilev, Kalinouskaga, 17	Belarus	Mogilev	Mogilev	+375290121234
6	207 Minks, Kalinouskaga, 33	Belarus	Minsk	Minsk	+375291122892
7	208 Grodno, Savetskaya, 2	Belarus	Grodno	Grodno	+375291122552
8	209 Grodno, Kirova, 13	Belarus	Grodno	Grodno	+375294322892
9	210 Brest, Kalinouskaga, 47	Belarus	Brest	Brest	+375290120092
10	211 Kyiv, Kalinouskaga, 11	Ukraine	Kyiv	Kyiv	+380291144894
11	212 Minks, Zaporozhskaya, 73	Belarus	Minsk	Minsk	+375291522852
12	213 Grodno, Kalinouskaga, 7	Belarus	Grodno	Grodno	+375290122892
13	214 Moscow, Kalinouskaga, 12	Russian Federation	Moscow	Moscow	+71232131232
14	215 Saint Petersburg, Kalinouskaga, 90	Russian Federation	Leningrad	Saint Petersburg	+71277131232
15	216 Vitebsk, Kalinouskaga, 9	Belarus	Vitebsk	Vitebsk	+375291111892
16	217 Slonim, Skaryny, 18	Belarus	Grodno	Slonim	+375290292892