U1M6.LW.Star Schema Basics
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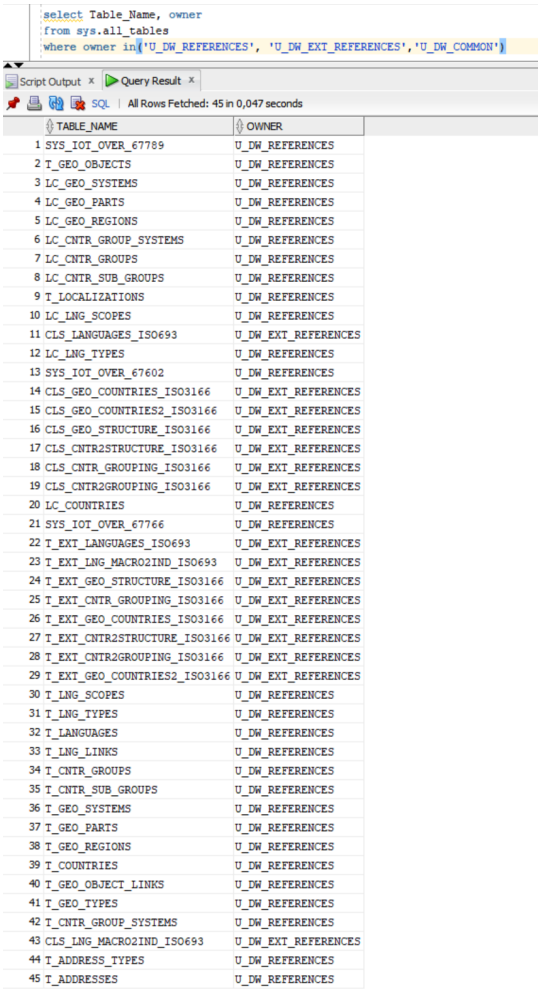
2. OLTP – Load External References – Normalization of Data

2.1. Task 01 – Install and expand load of external references T_Languages

The Main Task is to running preparing SQL scripts and install needed objects for load external reference T_Languages.

Task Results:

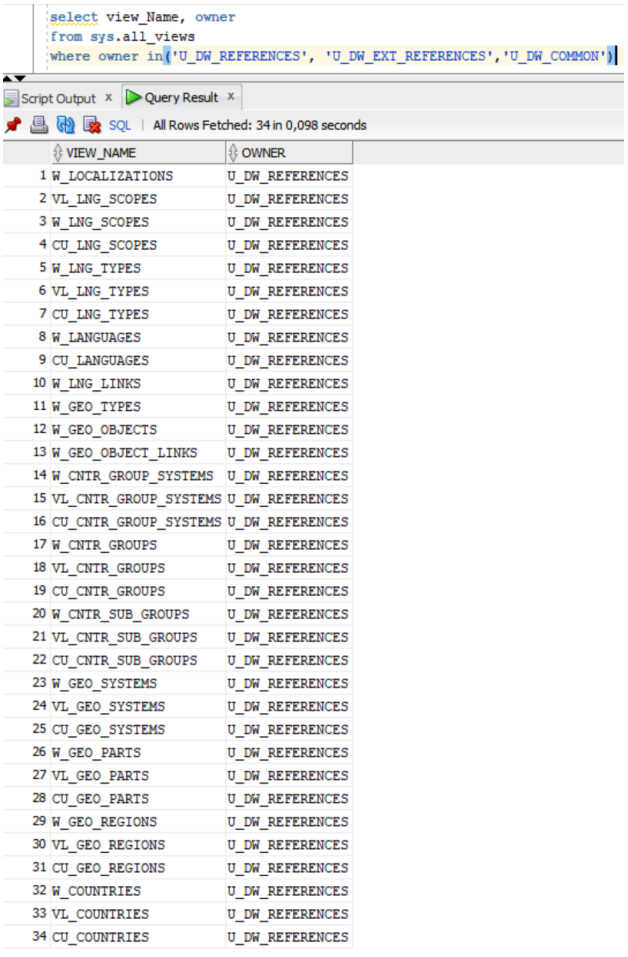
- **Create sql scripts to show All created Tables and Views – Screenshot**



```
select Table_Name, owner
from sys.all_tables
where owner in('U_DW_REFERENCES', 'U_DW_EXT_REFERENCES','U_DW_COMMON')
```

Script Output | Query Result | SQL | All Rows Fetched: 45 in 0,047 seconds

	TABLE_NAME	OWNER
1	SYS_IOT_OVER_67789	U_DW_REFERENCES
2	T_GEO_OBJECTS	U_DW_REFERENCES
3	LC_GEO_SYSTEMS	U_DW_REFERENCES
4	LC_GEO_PARTS	U_DW_REFERENCES
5	LC_GEO_REGIONS	U_DW_REFERENCES
6	LC_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
7	LC_CNTR_GROUPS	U_DW_REFERENCES
8	LC_CNTR_SUB_GROUPS	U_DW_REFERENCES
9	T_LOCALIZATIONS	U_DW_REFERENCES
10	LC_LNG_SCOPES	U_DW_REFERENCES
11	CLS_LANGUAGES_ISO693	U_DW_EXT_REFERENCES
12	LC_LNG_TYPES	U_DW_REFERENCES
13	SYS_IOT_OVER_67602	U_DW_REFERENCES
14	CLS_GEO_COUNTRIES_ISO3166	U_DW_EXT_REFERENCES
15	CLS_GEO_COUNTRIES2_ISO3166	U_DW_EXT_REFERENCES
16	CLS_GEO_STRUCTURE_ISO3166	U_DW_EXT_REFERENCES
17	CLS_CNTR2STRUCTURE_ISO3166	U_DW_EXT_REFERENCES
18	CLS_CNTR_GROUPING_ISO3166	U_DW_EXT_REFERENCES
19	CLS_CNTR2GROUPING_ISO3166	U_DW_EXT_REFERENCES
20	LC_COUNTRIES	U_DW_REFERENCES
21	SYS_IOT_OVER_67766	U_DW_REFERENCES
22	T_EXT_LANGUAGES_ISO693	U_DW_EXT_REFERENCES
23	T_EXT_LNG_MACRO2IND_ISO693	U_DW_EXT_REFERENCES
24	T_EXT_GEO_STRUCTURE_ISO3166	U_DW_EXT_REFERENCES
25	T_EXT_CNTR_GROUPING_ISO3166	U_DW_EXT_REFERENCES
26	T_EXT_GEO_COUNTRIES_ISO3166	U_DW_EXT_REFERENCES
27	T_EXT_CNTR2STRUCTURE_ISO3166	U_DW_EXT_REFERENCES
28	T_EXT_CNTR2GROUPING_ISO3166	U_DW_EXT_REFERENCES
29	T_EXT_GEO_COUNTRIES2_ISO3166	U_DW_EXT_REFERENCES
30	T_LNG_SCOPES	U_DW_REFERENCES
31	T_LNG_TYPES	U_DW_REFERENCES
32	T_LANGUAGES	U_DW_REFERENCES
33	T_LNG_LINKS	U_DW_REFERENCES
34	T_CNTR_GROUPS	U_DW_REFERENCES
35	T_CNTR_SUB_GROUPS	U_DW_REFERENCES
36	T_GEO_SYSTEMS	U_DW_REFERENCES
37	T_GEO_PARTS	U_DW_REFERENCES
38	T_GEO_REGIONS	U_DW_REFERENCES
39	T_COUNTRIES	U_DW_REFERENCES
40	T_GEO_OBJECT_LINKS	U_DW_REFERENCES
41	T_GEO_TYPES	U_DW_REFERENCES
42	T_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
43	CLS_LNG_MACRO2IND_ISO693	U_DW_EXT_REFERENCES
44	T_ADDRESS_TYPES	U_DW_REFERENCES
45	T_ADDRESSES	U_DW_REFERENCES



```
select view_Name, owner
from sys.all_views
where owner in('U_DW_REFERENCES', 'U_DW_EXT_REFERENCES','U_DW_COMMON')
```

Script Output | Query Result | SQL | All Rows Fetched: 34 in 0,098 seconds

	VIEW_NAME	OWNER
1	W_LOCALIZATIONS	U_DW_REFERENCES
2	VL_LNG_SCOPES	U_DW_REFERENCES
3	W_LNG_SCOPES	U_DW_REFERENCES
4	CU_LNG_SCOPES	U_DW_REFERENCES
5	W_LNG_TYPES	U_DW_REFERENCES
6	VL_LNG_TYPES	U_DW_REFERENCES
7	CU_LNG_TYPES	U_DW_REFERENCES
8	W_LANGUAGES	U_DW_REFERENCES
9	CU_LANGUAGES	U_DW_REFERENCES
10	W_LNG_LINKS	U_DW_REFERENCES
11	W_GEO_TYPES	U_DW_REFERENCES
12	W_GEO_OBJECTS	U_DW_REFERENCES
13	W_GEO_OBJECT_LINKS	U_DW_REFERENCES
14	W_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
15	VL_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
16	CU_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
17	W_CNTR_GROUPS	U_DW_REFERENCES
18	VL_CNTR_GROUPS	U_DW_REFERENCES
19	CU_CNTR_GROUPS	U_DW_REFERENCES
20	W_CNTR_SUB_GROUPS	U_DW_REFERENCES
21	VL_CNTR_SUB_GROUPS	U_DW_REFERENCES
22	CU_CNTR_SUB_GROUPS	U_DW_REFERENCES
23	W_GEO_SYSTEMS	U_DW_REFERENCES
24	VL_GEO_SYSTEMS	U_DW_REFERENCES
25	CU_GEO_SYSTEMS	U_DW_REFERENCES
26	W_GEO_PARTS	U_DW_REFERENCES
27	VL_GEO_PARTS	U_DW_REFERENCES
28	CU_GEO_PARTS	U_DW_REFERENCES
29	W_GEO_REGIONS	U_DW_REFERENCES
30	VL_GEO_REGIONS	U_DW_REFERENCES
31	CU_GEO_REGIONS	U_DW_REFERENCES
32	W_COUNTRIES	U_DW_REFERENCES
33	VL_COUNTRIES	U_DW_REFERENCES
34	CU_COUNTRIES	U_DW_REFERENCES

- **Create DataFlow: Sketch Diagram of loading external References (MS Visio, MS Paint, MS Word, etc.)**

- **Create sql: Showing result of data on next objects:**
  - **t_localizations**

```
select * from u_dw_references.t_localizations;
```

Query Result — All Rows Fetched: 5 in 0,063 seconds

	LOCALIZATION_ID	LOCALIZATION_CODE	LOCALIZATION_DESC	LOCALIZATION_DESC_ENS	LNG_ID	CONTRY_ID	IS_DEFAULT
1	-1	n.a.	Not Available	Not Available	(null)	(null)	(null)
2	-2	n.d.	Not Defined	Not Defined	(null)	(null)	(null)
3	1	en-US	English	English	(null)	(null)	1
4	2	ru-RU	Russian	Русский	(null)	(null)	(null)
5	3	be-BY	Belarussian	Беларускі	(null)	(null)	(null)

  - **cu_languages**

```
select * from u_dw_references.cu_languages;
```

Query Result — Fetched 50 rows in 0,052 seconds

	LNG_ID	LNG_3C_CODE	LNG_2B_CODE	LNG_2T_CODE	LNG_1C_CODE	LNG_SCOPE_ID	LNG_TYPE_ID	LNG_DESC
1	3691	lox	(null)	(null)	(null)	1	5	Loun
2	3692	loy	(null)	(null)	(null)	1	5	Loke
3	3693	loz	loz	loz	(null)	1	5	Lozi
4	3694	lpa	(null)	(null)	(null)	1	5	Lelepa
5	3695	lpe	(null)	(null)	(null)	1	5	Lepki
6	3696	lpn	(null)	(null)	(null)	1	5	Long Phuri Naga
7	3697	lpo	(null)	(null)	(null)	1	5	Lipo
8	3698	lpx	(null)	(null)	(null)	1	5	Lopit
9	3699	lra	(null)	(null)	(null)	1	5	Rara Bakati'
10	3700	lrc	(null)	(null)	(null)	1	5	Northern Luri
11	3703	lri	(null)	(null)	(null)	1	5	Marachi
12	3704	lrk	(null)	(null)	(null)	1	5	Loarki
13	3705	lrl	(null)	(null)	(null)	1	5	Lari
14	3706	lrm	(null)	(null)	(null)	1	5	Marama
15	3707	lrn	(null)	(null)	(null)	1	5	Lorang
16	3708	lro	(null)	(null)	(null)	1	5	Laro
17	3709	lrr	(null)	(null)	(null)	1	5	Southern Yamphu
18	3710	lrt	(null)	(null)	(null)	1	5	Larantuka Malay
19	3711	lrv	(null)	(null)	(null)	1	5	Larevat

  - **w_lng_links**

Worksheet | Query Builder

```
select * from u_dw_references.w_lng_links;
```

Query Result

SQL | All Rows Fetched: 0 in 0,065 seconds

PARENT_LNG_ID	CHILD_LNG_ID	LINK_TYPE_ID

- **cu_lng_scopes**

Worksheet | Query Builder

```
select * from u_dw_references.cu_lng_scopes;
```

Query Result

SQL | All Rows Fetched: 3 in 0,039 seconds

	LNG_SCOPE_ID	SRC_SCOPE_CODE	LNG_SCOPE_CODE	LNG_SCOPE_DESC	LOCALIZATION_ID
1	1	I	I	Individual	1
2	2	M	M	Macrolanguage	1
3	3	S	S	Special	1

- **cu_lng_types**

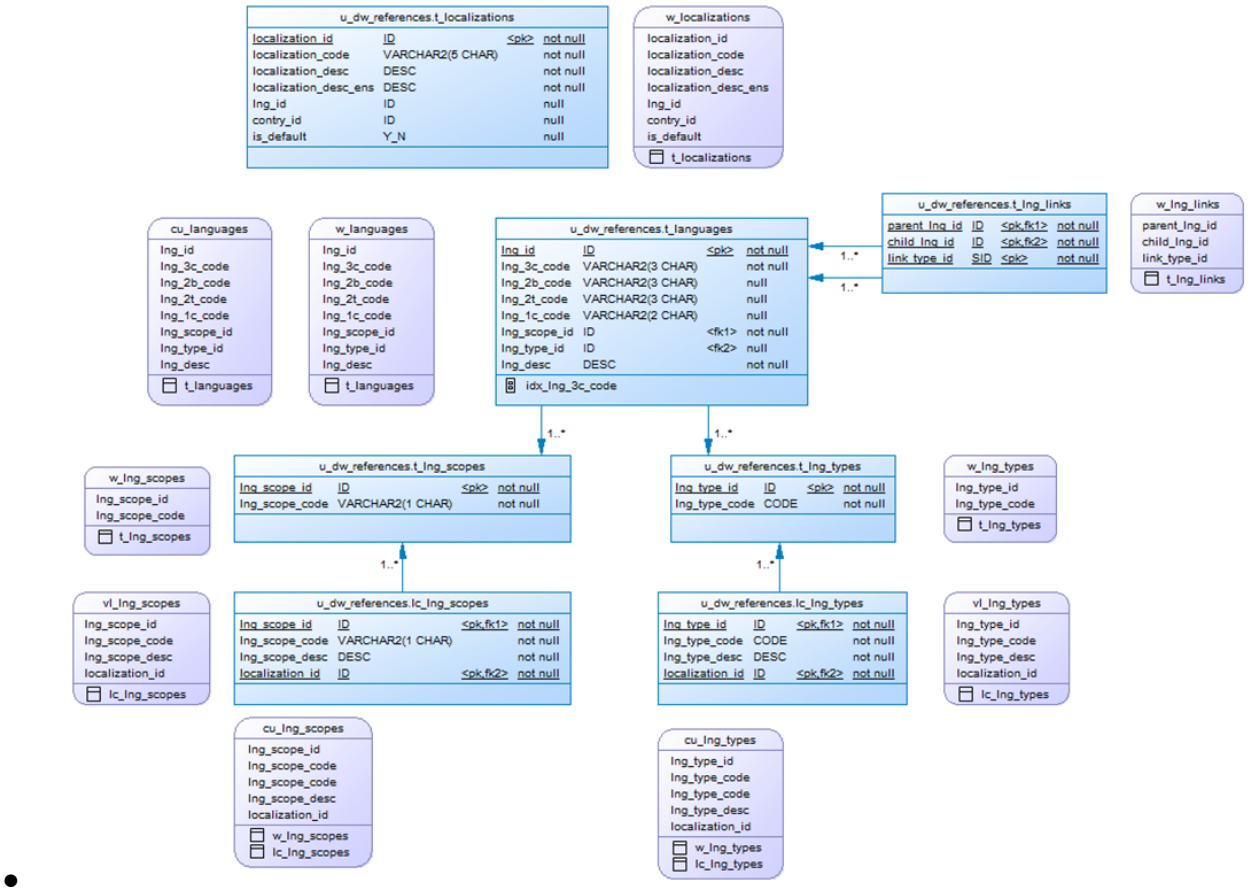
Worksheet | Query Builder

```
select * from u_dw_references.cu_lng_types;
```

Query Result

SQL | All Rows Fetched: 6 in 0,537 seconds

	LNG_TYPE_ID	SRC_TYPE_CODE	LNG_TYPE_CODE	LNG_TYPE_DESC	LOCALIZATION_ID
1	5	L	L	Living	1
2	6	S	S	Special	1
3	4	H	H	Historical	1
4	3	E	E	Extinct	1
5	2	C	C	Constructed	1
6	1	A	A	Ancient	1


u_dw_references.t_localizations
localization_id ID <pk> not null
localization_code VARCHAR2(5 CHAR) not null
localization_desc DESC not null
localization_desc_ens DESC not null
lng_id ID null
contry_id ID null
is_default Y_N null
w_localizations
localization_id
localization_code
localization_desc
localization_desc_ens
lng_id
contry_id
is_default
t_localizations
cu_languages
lng_id
lng_3c_code
lng_2b_code
lng_2t_code
lng_1c_code
lng_scope_id
lng_type_id
lng_desc
t_languages
w_languages
lng_id
lng_3c_code
lng_2b_code
lng_2t_code
lng_1c_code
lng_scope_id
lng_type_id
lng_desc
t_languages
u_dw_references.t_languages
lng_id ID <pk> not null
lng_3c_code VARCHAR2(3 CHAR) not null
lng_2b_code VARCHAR2(3 CHAR) null
lng_2t_code VARCHAR2(3 CHAR) null
lng_1c_code VARCHAR2(2 CHAR) null
lng_scope_id ID <fk1> not null
lng_type_id ID <fk2> null
lng_desc DESC not null
idx_lng_3c_code
u_dw_references.t_lng_links
parent_lng_id ID <pk,fk1> not null
child_lng_id ID <pk,fk2> not null
link_type_id SID <pk> not null
w_lng_links
parent_lng_id
child_lng_id
link_type_id
t_lng_links
1..*
1..*
1..*
1..*
w_lng_scopes
lng_scope_id
lng_scope_code
t_lng_scopes
u_dw_references.t_lng_scopes
lng_scope_id ID <pk> not null
lng_scope_code VARCHAR2(1 CHAR) not null
u_dw_references.t_lng_types
lng_type_id ID <pk> not null
lng_type_code CODE not null
w_lng_types
lng_type_id
lng_type_code
t_lng_types
1..*
1..*
vl_lng_scopes
lng_scope_id
lng_scope_code
lng_scope_desc
localization_id
lc_lng_scopes
u_dw_references.lc_lng_scopes
lng_scope_id ID <pk,fk1> not null
lng_scope_code VARCHAR2(1 CHAR) not null
lng_scope_desc DESC not null
localization_id ID <pk,fk2> not null
u_dw_references.lc_lng_types
lng_type_id ID <pk,fk1> not null
lng_type_code CODE not null
lng_type_desc DESC not null
localization_id ID <pk,fk2> not null
vl_lng_types
lng_type_id
lng_type_code
lng_type_desc
localization_id
lc_lng_types
cu_lng_scopes
lng_scope_id
lng_scope_code
lng_scope_code
lng_scope_desc
localization_id
w_lng_scopes
lc_lng_scopes
cu_lng_types
lng_type_id
lng_type_code
lng_type_code
lng_type_desc
localization_id
w_lng_types
lc_lng_types

-

2.2. Task 02 – Create load process for External references T_Countries

The Main Task is to running preparing SQL scripts and install needed objects for load external reference T_Counties.

Task Results:

- **Create sql scripts to show All created Tables and Views – Screenshot**

```
select Table_Name, owner
from sys.all_tables
where owner in('U_DW_REFERENCES', 'U_DW_EXT_REFERENCES','U_DW_COMMON')
```

Script Output | Query Result

SQL | All Rows Fetched: 45 in 0,047 seconds

	TABLE_NAME	OWNER
1	SYS_IOT_OVER_67789	U_DW_REFERENCES
2	T_GEO_OBJECTS	U_DW_REFERENCES
3	LC_GEO_SYSTEMS	U_DW_REFERENCES
4	LC_GEO_PARTS	U_DW_REFERENCES
5	LC_GEO_REGIONS	U_DW_REFERENCES
6	LC_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
7	LC_CNTR_GROUPS	U_DW_REFERENCES
8	LC_CNTR_SUB_GROUPS	U_DW_REFERENCES
9	T_LOCALIZATIONS	U_DW_REFERENCES
10	LC_LNG_SCOPES	U_DW_REFERENCES
11	CLS_LANGUAGES_ISO693	U_DW_EXT_REFERENCES
12	LC_LNG_TYPES	U_DW_REFERENCES
13	SYS_IOT_OVER_67602	U_DW_REFERENCES
14	CLS_GEO_COUNTRIES_ISO3166	U_DW_EXT_REFERENCES
15	CLS_GEO_COUNTRIES2_ISO3166	U_DW_EXT_REFERENCES
16	CLS_GEO_STRUCTURE_ISO3166	U_DW_EXT_REFERENCES
17	CLS_CNTR2STRUCTURE_ISO3166	U_DW_EXT_REFERENCES
18	CLS_CNTR_GROUPING_ISO3166	U_DW_EXT_REFERENCES
19	CLS_CNTR2GROUPING_ISO3166	U_DW_EXT_REFERENCES
20	LC_COUNTRIES	U_DW_REFERENCES
21	SYS_IOT_OVER_67766	U_DW_REFERENCES
22	T_EXT_LANGUAGES_ISO693	U_DW_EXT_REFERENCES
23	T_EXT_LNG_MACRO2IND_ISO693	U_DW_EXT_REFERENCES
24	T_EXT_GEO_STRUCTURE_ISO3166	U_DW_EXT_REFERENCES
25	T_EXT_CNTR_GROUPING_ISO3166	U_DW_EXT_REFERENCES
26	T_EXT_GEO_COUNTRIES_ISO3166	U_DW_EXT_REFERENCES
27	T_EXT_CNTR2STRUCTURE_ISO3166	U_DW_EXT_REFERENCES
28	T_EXT_CNTR2GROUPING_ISO3166	U_DW_EXT_REFERENCES
29	T_EXT_GEO_COUNTRIES2_ISO3166	U_DW_EXT_REFERENCES
30	T_LNG_SCOPES	U_DW_REFERENCES
31	T_LNG_TYPES	U_DW_REFERENCES
32	T_LANGUAGES	U_DW_REFERENCES
33	T_LNG_LINKS	U_DW_REFERENCES
34	T_CNTR_GROUPS	U_DW_REFERENCES
35	T_CNTR_SUB_GROUPS	U_DW_REFERENCES
36	T_GEO_SYSTEMS	U_DW_REFERENCES
37	T_GEO_PARTS	U_DW_REFERENCES
38	T_GEO_REGIONS	U_DW_REFERENCES
39	T_COUNTRIES	U_DW_REFERENCES
40	T_GEO_OBJECT_LINKS	U_DW_REFERENCES
41	T_GEO_TYPES	U_DW_REFERENCES
42	T_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
43	CLS_LNG_MACRO2IND_ISO693	U_DW_EXT_REFERENCES
44	T_ADDRESS_TYPES	U_DW_REFERENCES
45	T_ADDRESSES	U_DW_REFERENCES

```
select view_Name, owner
from sys.all_views
where owner in('U_DW_REFERENCES', 'U_DW_EXT_REFERENCES','U_DW_COMMON')
```

Script Output | Query Result

SQL | All Rows Fetched: 34 in 0,098 seconds

	VIEW_NAME	OWNER
1	W_LOCALIZATIONS	U_DW_REFERENCES
2	VL_LNG_SCOPES	U_DW_REFERENCES
3	W_LNG_SCOPES	U_DW_REFERENCES
4	CU_LNG_SCOPES	U_DW_REFERENCES
5	W_LNG_TYPES	U_DW_REFERENCES
6	VL_LNG_TYPES	U_DW_REFERENCES
7	CU_LNG_TYPES	U_DW_REFERENCES
8	W_LANGUAGES	U_DW_REFERENCES
9	CU_LANGUAGES	U_DW_REFERENCES
10	W_LNG_LINKS	U_DW_REFERENCES
11	W_GEO_TYPES	U_DW_REFERENCES
12	W_GEO_OBJECTS	U_DW_REFERENCES
13	W_GEO_OBJECT_LINKS	U_DW_REFERENCES
14	W_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
15	VL_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
16	CU_CNTR_GROUP_SYSTEMS	U_DW_REFERENCES
17	W_CNTR_GROUPS	U_DW_REFERENCES
18	VL_CNTR_GROUPS	U_DW_REFERENCES
19	CU_CNTR_GROUPS	U_DW_REFERENCES
20	W_CNTR_SUB_GROUPS	U_DW_REFERENCES
21	VL_CNTR_SUB_GROUPS	U_DW_REFERENCES
22	CU_CNTR_SUB_GROUPS	U_DW_REFERENCES
23	W_GEO_SYSTEMS	U_DW_REFERENCES
24	VL_GEO_SYSTEMS	U_DW_REFERENCES
25	CU_GEO_SYSTEMS	U_DW_REFERENCES
26	W_GEO_PARTS	U_DW_REFERENCES
27	VL_GEO_PARTS	U_DW_REFERENCES
28	CU_GEO_PARTS	U_DW_REFERENCES
29	W_GEO_REGIONS	U_DW_REFERENCES
30	VL_GEO_REGIONS	U_DW_REFERENCES
31	CU_GEO_REGIONS	U_DW_REFERENCES
32	W_COUNTRIES	U_DW_REFERENCES
33	VL_COUNTRIES	U_DW_REFERENCES
34	CU_COUNTRIES	U_DW_REFERENCES

- **create SQL: Showing result of data on main objects:**
  - **t_countries**

```
SELECT * FROM u_dw_references.t_countries;
```

Query Result | Query Result 1 | Query Result 2

SQL | Fetched 50 rows in 0,064 seconds

	GEO_ID	COUNTRY_ID
1	242	328
2	243	512
3	244	535
4	245	578

- **t_cntr_groups**

```
SELECT * FROM u_dw_references.t_cntr_groups;
```

Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 2 in 0,029 seconds

	GEO_ID	GROUP_ID
1	513	2
2	514	3

- **cu_cntr_sub_groups**

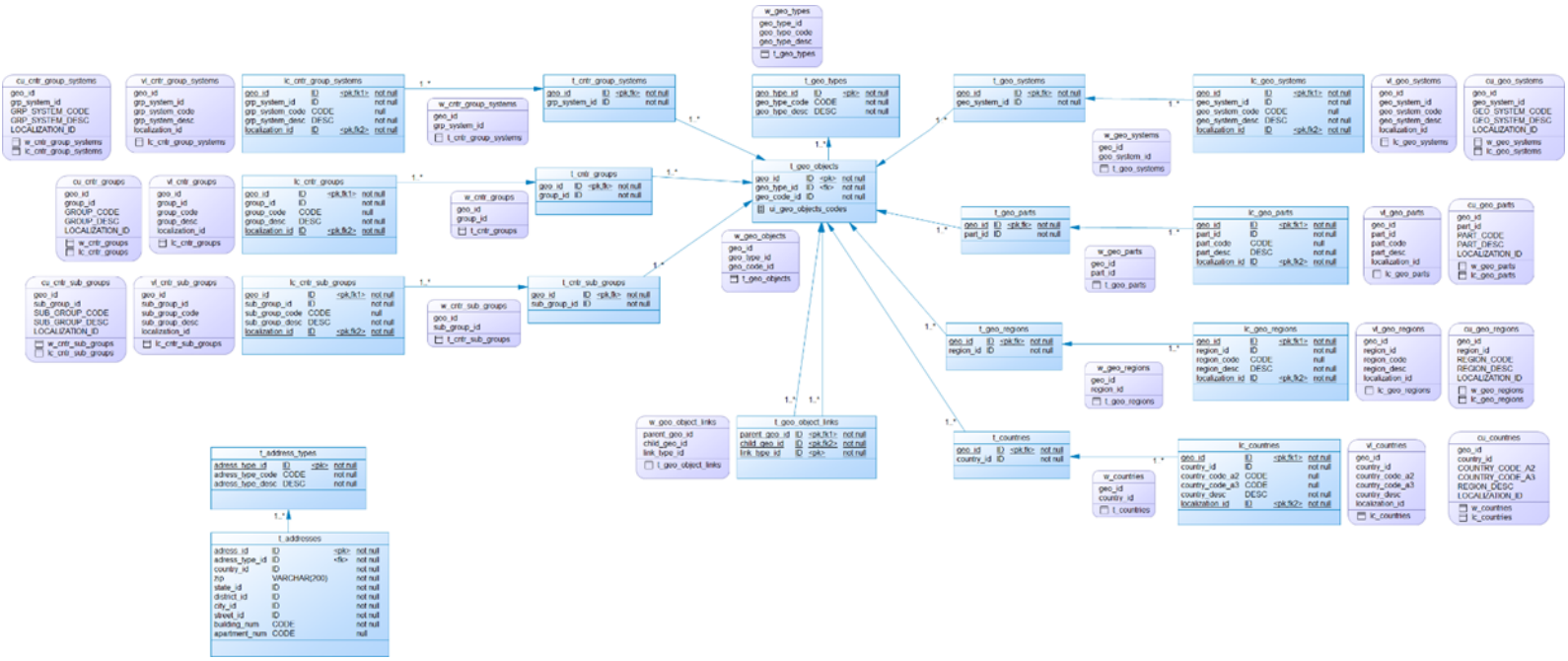
```
SELECT * FROM u_dw_references.cu_cntr_sub_groups;
```

Query Result | Query Result 1 | Query Result 2 | Query Result 3 | Query Result 4 | Query Result 5

SQL | All Rows Fetched: 8 in 0,035 seconds

	GEO_ID	SUB_GROUP_ID	SUB_GROUP_CODE	SUB_GROUP_DESC	LOCALIZATION_ID
1	516	203	-	Small island developing states	1
2	515	204	-	Transition countries	1
3	519	202	-	Landlocked developing countries	1
4	522	205	-	Developed countries	1
5	521	201	-	Least developed countries	1
6	520	301	-	Commonwealth of Independent States	1
7	517	302	-	Transition countries of South-Eastern Europe	1
8	518	303	-	European Union	1

- **prepare The Physical Diagram of T_Countries**



- **data flow**