ENSIA 2023-2024
Oracle LAB (4)
<u>Data Dictionary in Oracle</u>

ORACLE provides a centralized structure (the data dictionary) containing the description of all the objects (tables, views, users, etc.) managed by this DBMS. This dictionary brings together all the necessary information for the working of the DBMS. It has the particularity of being itself organized as a database (here we are talking about meta-base) and therefore being directly accessible through SQL. For reasons of integrity, most of the tables in the dictionary cannot be modified by users (only the administrator of the SYS database has access to them). On the other hand, access to the content of the tables is generally authorized, which allow to sparsely explore the dictionary and better understand this essential data structure to the DBMS. The tables of the dictionary are usually encrypted; however, their content is accessible through views. There are mainly four types of view:

o Views related to a user's objects: USER_*
o Views related to objects accessible to a user.: ALL_*
o Admin Views: DBA_*
o Dynamic performance Views: V$*

During this lab, we will mainly focus on ALL and USER type views. To guide you in your work, you will find in the following table all the views of the Oracle data dictionary of type USER.

View name	Synonym	content
DICTIONARY	DICT	All dictionary views, for developer or DBA: View name, description
USER_TABLES	TABS	My tables: name, tablespace, storage, statistics, possible cluster
USER_TAB_COLUMNS	COLS	Columns of my tables: Column name, type, length, mandatory
USER_VIEWS	-	My views: Name, text of the associated SQL order, type
USER_INDEXES	IND	My indexes: Name, indexed table, uniqueness, storage, statistics
USER_IND_COLUMNS	-	Index name, table name, column name, position and length
USER_CLUSTERS	CLU	My clusters: Name, storage, statistics
USER_OBJECTS	OBJ	My objects: tables, views, indexes, clusters, synonyms, procedures, function, package, sequence
USER_SEQUENCES	SEQ	My sequences: min value, max, increment, cycle, cache
USER_SYNONYMS	SYN	My synonyms: Synonym name of the table, owner and possible DBlink
USER_USERS	-	General characteristics of the user: NAME, Default tablespace, Temporary tablespace
USER_CONSTRAINTS	-	My constraints: Name, type, reception table, status
USER_DB_LINKS	-	My database links (remote database links): Name, remote user, password, remote server, creation date
USER_TAB_PRIVS	-	Given or received Privileges: Beneficiary, owner, creator
USER_EXTENTS	-	Storage characteristics of my objects: Name of the segment, name of the partition, name of the tablespace, size in bytes and in blocks
USER_TS_QUOTAS	-	Authorized writing quota on tablespace: Tablespace name, max size in bytes and blocks

<u>Questions:</u>

Connect to the database (the tables are already created during the previous labs);

1. Connect as « **System** ». List the "DICT" catalog. How many instances does it contain? Give its structure?
2. Give the role and structure of the following tables (or views): ALL_TAB_COLUMNS, USER_USERS, ALL_CONSTRAINTS and USER_TAB_PRIVS.

3. Find the username you are connected with.

4. Compare the structure and content of ALL_TAB_COLUMNS and USER_TAB_COLUMNS tables.

5. Check that the tables created during the previous lab were actually created? Give all the information on these tables.

6. List the tables of the "**system**" user and those of the **DBAINTERVENTION** user (the Lab 1 user).

7. Give the description of the attributes of the VEHICLE and INTERVENTIONS tables (use the USER_TAB_COLUMNS table).

8. How can we verify that there is a foreign key reference between the tables **VEHICLE** and **INTERVENTIONS**?

9. Give all the constraints created during the previous lab and the information that characterizes them (use the USER_CONSTRAINTS table);

10. Find all the information needed to recreate the **INTERVENTIONS** table.

11. Find all privileges granted to **Admin**.

12. Find the roles given to **Admin**.

13. Find all objects belonging to **Admin**.

14. The administrator is looking for the owner of the **INTERVENTIONS** table, how can he find it?

15. Give the size of the **INTERVENTIONS** table in KB.

16. Check the effect produced by each of the previous lab's data definition commands on the dictionary.