

CSCI235/MCS9235 Databases, SCSSE, Spring 2009

© Janusz R. Getta

24. Data dictionary

## Data dictionary ? What is it ? Data dictionary, (system catalog, system repository) contains information about the database objects like tables, views, sequences, etc created by the database users Data dictionary is implemented as a relational database Data dictionary is a collection of relational tables, also called as system tables, and owned by user SYSTEM

CSCI235/MCS9235 Databases, SCSSE, Spring 2009

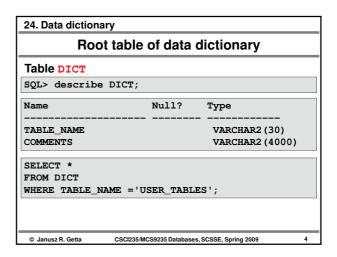
© Janusz R. Getta

Users have the privileges on some of the system tables

Direct read only access to the system tables is provided by the data dictionary views

© Janusz R. Getta CSCI235/MCS9235 Databases, SCSSE, Spring 2009 3

Root table of data dictionary



Root table of data dictionary

Find information about view USER\_TABLES

SELECT \*
FROM DICT
WHERE TABLE\_NAME = 'USER\_TABLES';

TABLE\_NAME COMMENTS

USER\_TABLES Description of the user's own tables

© Janusz R. Getta CSC1235/MCS9235 Databases, SCSSE, Spring 2009 5

Categories of data dictionary views

User views: database objects owned by a user
USER\_ ... (e.g. USER\_TABLES, USER\_VIEWS, ...)

All views: database objects accessible by a user
ALL\_ ... (e.g. ALL\_TABLES, ALL\_VIEWS, ...)

Database administrator views (SYSTEM, SYS)
DBA\_ ... (e.g. DBA\_TABLES, DBA\_VIEWS, ...)

Dynamic performance views (SYSTEM, SYS)
V\$\_ ... (e.g. V\$SESSION, V\$LOCK, ...)
other views
CHAINED\_ROWS, COL, SESSION\_ROLES, etc

## USER\_ ... data dictionary views Views on system tables whose names begin with a prefix USER\_ contain information about all objects currently owned by a user USER\_TABLES, USER\_VIEWS, USER\_CONSTRAINTS, USER\_TAB\_COLUMNS, ...

CSCI235/MCS9235 Databases, SCSSE, Spring 2009

© Janusz R. Getta

```
Views on system tables whose names begin with a prefix ALL_ contain information about all objects currently owned by all users

ALL_TABLES,
ALL_VIEWS,
ALL_CONSTRAINTS,
ALL_TAB_COLUMNS,
....
```

24. Data dictionary

```
24. Data dictionary

DBA_ ... data dictionary views

Views on system tables whose names begin with a prefix DBA_contain information about all objects in a database

Only database administrator has the rights to access DBA_ views

DBA_TABLES,
DBA_DATA_FILES,
DBA_USERS,
...

© Janusz R. Getta CSCI235/MCS9235 Databases, SCSSE, Spring 2009 9
```

```
24. Data dictionary

V$ ... data dictionary views

V$ category consists of in-memory tables that show useful information how the system has been set up and what is its current performance

Only database administrator has the rights to access V$ views

V$SESSION,
V$TRANSACTION,
V$TRANSACTION,
V$PROCESS,
...
```

```
Other data dictionary views

Other views are created to provide compatibility with ANSI data dictionary standard

DICT_COLUMNS,
EXCEPTIONS,
INDEX_STATS,
...

© Janusz R. Getta CSC1235/MCS9235 Databases, SCSSE, Spring 2009 11
```

```
24. Data dictionary
             Accessing data dictionary
Find the names tables owned by a user
SELECT TABLE_NAME
FROM USER_TABLES;
Find the constraints owned by a user
SELECT TABLE_NAME, CONSTRAINT_NAME
FROM USER_CONSTRAINTS;
List the attribute names and attribute types defined for a given
table
SELECT TABLE NAME, COLUMN NAME, DATA TYPE
FROM USER_TAB_COLUMNS;
WHERE table_name = '...' );
List the names of all users
SELECT USERNAME
FROM ALL USERS:
 © Janusz R. Getta
                   CSCI235/MCS9235 Databases, SCSSE, Spring 2009
```

## 24. Data dictionary

## References

Ramakrishnan R., Gehrke J., *Database Management Systems*, chapter 12.1,

https://admin.uow.edu.au/oradocs/ Reference Manual

© Janusz R. Getta

CSCl235/MCS9235 Databases, SCSSE, Spring 2009