DATA DICTIONARY

Introduction

At this point, everyone would have an idea of what is data dictionary. It is a dictionary about the data that we store in the database. It contains all the information about the data objects. It is like storing all up-to-date information about the objects like tables, columns, index, constraints, functions etc. Why do we need all these information? It makes us easily identify access and understand the factors about the object. One can imagine data dictionary as storing information about house like house name, address, how many live in the house, who is the eldest/youngest person, responsibilities of each member in the house etc. or a personal details of an employee in the company.

In the case of a table, data dictionary provides information about

- Its name
- Security information like who is the owner of the table, when was it created, and when it was last accessed.
- Physical information like where is the data stored for this table
- Structural information like its attribute names and its datatypes, constraints and indexes.

Data Dictionary

A data dictionary contains metadata i.e data about the database. The data dictionary is very important as it contains information such as what is in the database, who is allowed to access it, where is the database physically stored etc. The users of the database normally don't interact with the data dictionary, it is only handled by the database administrators.

The data dictionary in general contains information about the following:

- Names of all the database tables and their schemas.
- Details about all the tables in the database, such as their owners, their security constraints, when they were created etc.
- Physical information about the tables such as where they are stored and how.
- Table constraints such as primary key attributes, foreign key information etc.
- Information about the database views that are visible.

This is a data dictionary describing a table that contains employee details.

Field Name	Data Type	Field Size for display	Description	Example
Employee Number	Integer	10	Unique ID of each employee	1645000001
Name	Text	20	Name of the employee	David Heston
Date of Birth	Date/Time	10	DOB of Employee	08/03/1995
Phone Number	Integer	10	Phone number of employee	6583648648

Objectives of Data Dictionary

1. A standard definition of all terms in a system i.e. each data item is uniquely identified and defined.
2. Easy cross referencing between subsystem's program and modules.
3. Simple program maintenance.
4. It contains information about the data of the system and there is an entry in the data dictionary for every element of DFD. Thus DFD and data dictionary are compliment of each other.

Types of Data Dictionary

There are two types of data dictionary: - Active and Passive.

- **Active Data Dictionary**

Any changes to the database object structure via DDLs will have to be reflected in the data dictionary. But updating the data dictionary tables for the changes are responsibility of database in which the data dictionary exists. If the data dictionary is created in the same database, then the DBMS software will automatically update the data dictionary. Hence there will not be any mismatch between the actual structure and the data dictionary details. Such data dictionary is called active data dictionary.

- **Passive Data Dictionary**

In some of the databases, data dictionary is created separately from the current database as entirely new database to store only data dictionary information. Sometimes it is stored as xml, excels or in any other file format. In such case, an effort is required to keep data dictionary in sync with the database objects. This kind of data dictionary is called passive data dictionary. In this case, there is a chance of mismatch with the database objects and the data dictionary. This kind of DD has to be handled with utmost care.

USES OF DATA DICTIONARY