Date: 19/11/2024

Name: S a r a n S

PL/SQL

- PL/SQL Stands for "Procedural Language Extension for Structured Query Language" SQL is popular for "Querying" and "Updating data" in relational database management systems (RDBMS).
- It adds many procedural constructs to SQL language to overcome some limitations of SQL. It is a highly structured and readable language.
- PL/SQL is a powerful tool for developing complex applications that require a combination of SQL and Procedural logic.
- It provides a wide range of features such as exception handling, cursors, loops and modular programming, making it essential for working with Oracle database.

Anonymous Block

- A block without a name is Anonymous block. It is not saved in the oracle database server, so it is just for one-time use.
- PL/SQL anonymous block can be useful for testing purposes.

A block consists of three sections:

- Declaration Section
- Execution Section
- Exception-Handling Sec

Declaration Section:

- Declaration section starts with Declare keyword in which variable, constants, records as a cursors can be declared which stores data temporarily.

Execution Section:

- The Execution section starts with Begin and ends with End keyword. This is the important section and here program logic is written to perform any task (like loop and condition).

- This section contains the SQL statement and procedural code.

Exception-Handling Section:

- The Exception-handling section starts with the keyword Exception. This section is executed when a run-time error occurs.

SQL Commands:

- It is used to interact with the database with some operation. It is also used to perform specific tasks, functions, and queries of data.

DDL – Data Definition Language

DQL – Data Query Language

DML – Data Manipulation Language

DCL – Data Control Language

TCL – Transaction Control Language

Data Definition Language:

- DDL is a set of SQL commands used to create, modify, and delete database structure but not data.
- It simply deals with descriptions of the database.

- It consists of the SQL commands that can be used to define the database.
- These commands are normally not used by a general user, they should be accessing the database through the application.

List of DDL commands:

Create – Create database or its objects (table, index, function, views)

Drop – Delete object from the database

Alter – Alter the structure of the database

Comment – Add comments to the data dictionary

Rename – Rename an object existing in the database.

Data Manipulation Language:

- It is the component of the SQL statement that controls access to data and the database. Basically, DCL statements are grouped with DML statements.
- DML statements access and manipulate data in existing tables.
- DML (Data Manipulation Languages) Statements add, change, and delete oracle database table date.

Insert – Insert data into the table.

Update – Update existing data within a table.

Delete – Delete record from a database table.

Lock – Table control concurrency

Call – Call PL/SQL or JAVA Program

Explain Plan – Describe the access path to data.

Primary Key and Foreign Key:

- A Primary Key uniquely identifies each record in a table. It must contain unique values, and it cannot contain Null Values.
- A table can have only one primary key, but it can consist of one or more columns (Composite primary key).

Properties of Primary Key:

- Uniqueness: The Primary cannot be duplicated among two different rows.
- Non-Nullable: A Primary key column cannot contain null values.
- Indexing: To enhance the speed of the query, the primary key index is set to be created as an identity.

Foreign Key:

- A Foreign Key is column (or set of columns) in a table that creates a link between two tables. It points to a Primary Key or Unique Key in another table.
- A table with foreign key is called as child key and the table with primary key is reference or parent table.
- Foreign keys ensure that values in at least one of the columns of a given table mirrors the values in at least one of the primary key fields of another table

Properties of Foreign Key:

Referential integrity
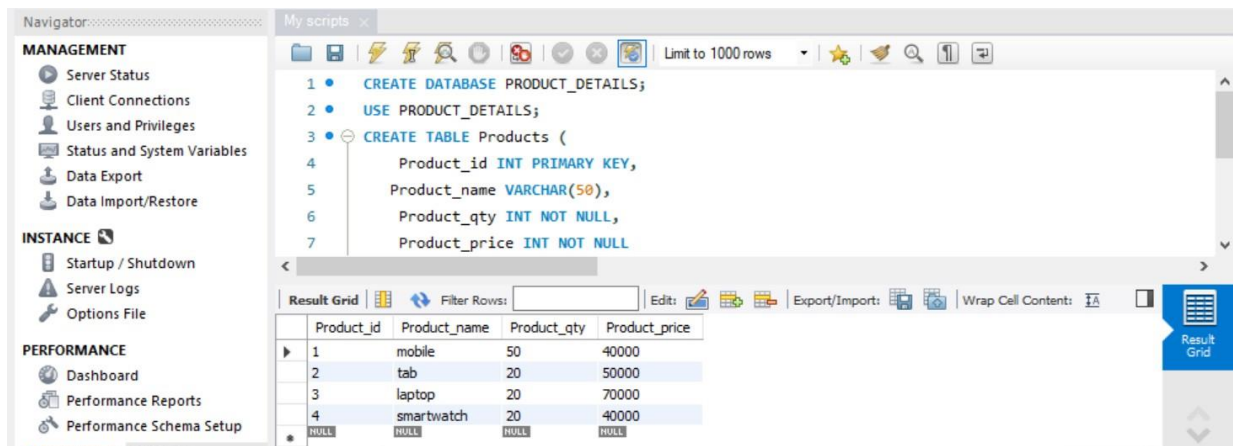
Cascading actions

Preventing invalid data

Create a Table and Insert a data:

CREATE DATABASE PRODUCT_DETAILS;

USE PRODUCT_DETAILS;

```sql
CREATE TABLE Products ( Product_id INT PRIMARY KEY,

 Product_name VARCHAR(50),

 Product_qty INT NOT NULL,

 Product_price INT NOT NULL );

insert into Products(product_id,product_name,product_qty,product_price)

 values(1,"mobile",50, 40000),

(2,"tab",20, 50000),

(3,"laptop",20,70000),

(4,"smartwatch",20,40000);

select* from products;
```