Basic Introduction

What we will learn in this lecture?

- ❑ What is Data?
- ❑ What is Database ?
- ❑ What is DBMS/ RDBMS?
- ❑ What Is the Table?
- ❑ What is SQL and PL/SQL?
- ❑ Types of SQL statements
- ❑ What is the relational Database?
- ❑ What is Normalization ?
- ❑ Problems without normalization.
- ❑ Types of hosting oracle database 12c/ 18c

What is Data?
facts or figures ,Pieces of information. (Unprocessed , Unorganized)

What is Database?
It is organized collection of information.

What is DBMS?
Database management system to store and retrieve and modify data in the database.

And because Oracle is relational database, then we have RDBMS which is: Relational database management system.

The purpose of Oracle Database is to store , organize, and retrieve data for your applications (*application* :interface between users and DB)

What is the Table?
It is the basic storage unit of an RDBMS (it is logical unit , not physical)

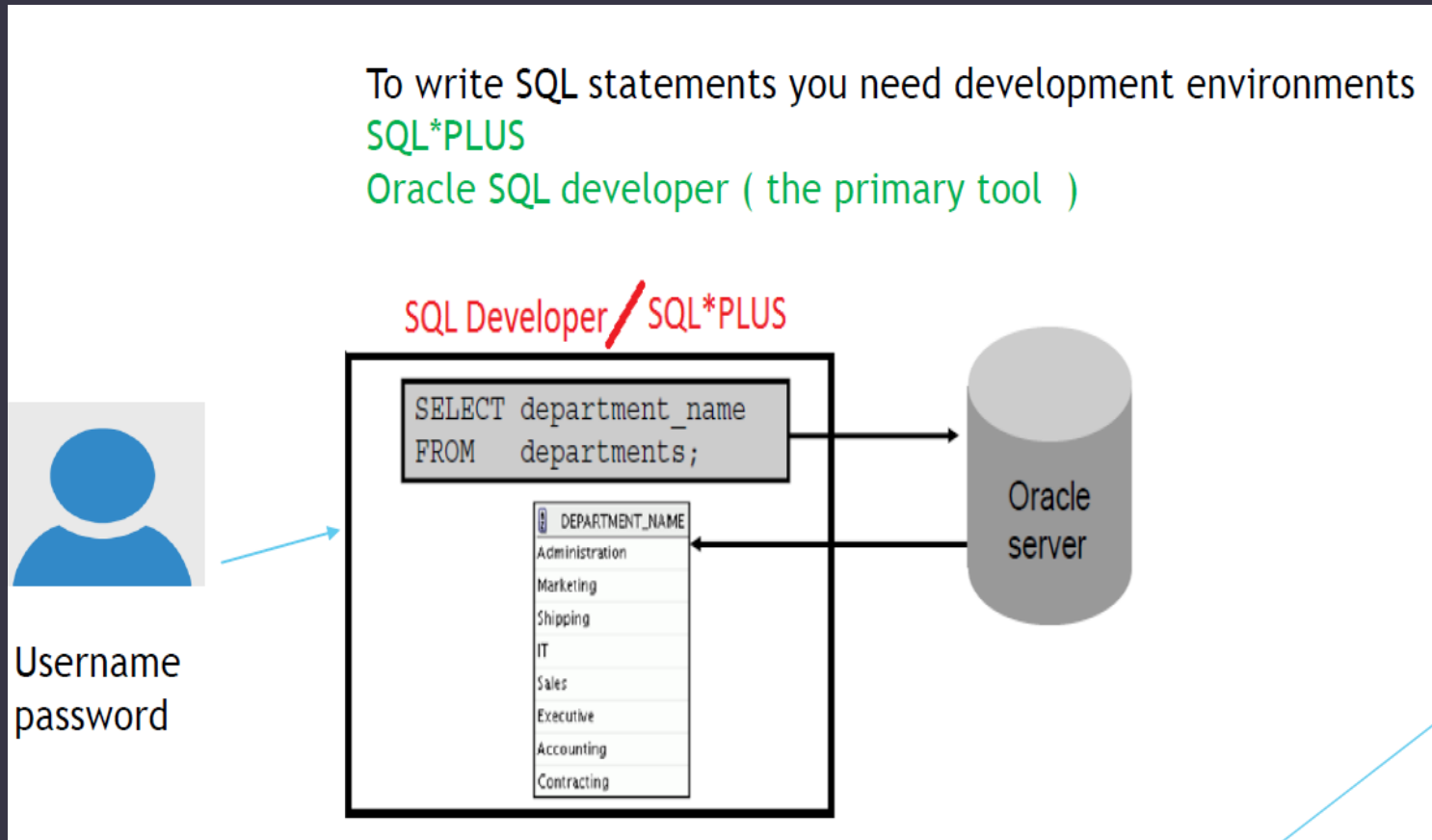The table consists of rows and columns

Example : **DEPARTMENTS** table

COL1   COL2

DEPARTMENT_ID	DEPARTMENT_NAME
10	Administration
20	Marketing
30	Purchasing
40	Human Resources
50	Shipping
60	IT

ROW

To access Oracle database you need **SQL**

What is SQL?
SQL is structure query language to access database

To write SQL statements you need development environments
SQL*PLUS
Oracle SQL developer (the primary tool)

SQL Developer / SQL*PLUS

```
SELECT  department_name
FROM    departments;
```

DEPARTMENT_NAME
Administration
Marketing
Shipping
IT
Sales
Executive
Accounting
Contracting

Oracle server

Username
password

Types of SQL statements

SELECT
INSERT
UPDATE   Data manipulation language (DML)
DELETE
MERGE

CREATE
ALTER
DROP   Data definition language (DDL)
RENAME
TRUNCATE
COMMENT

GRANT   Data control language (DCL)
REVOKE
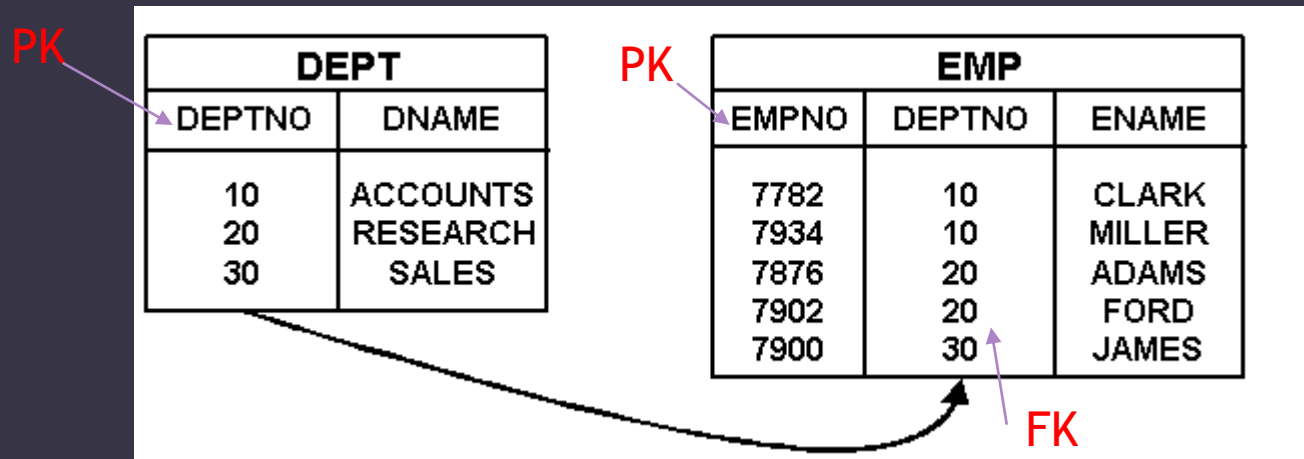
COMMIT
ROLLBACK   Transaction control
SAVEPOINT

About PL/SQL

Belong to oracle

- **PL/SQL** is the procedural extension to SQL with design features of programming languages.

- Data manipulation and query statements of SQL are included within procedural units of code.

Oracle is a Relational Database

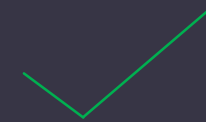A relational database stores data in a set of simple relations

What is Normalization?
- Normalization is a database design technique which organizes tables in a manner that reduces redundancy and dependency of data.
- It divides larger tables to smaller tables and links them using relationships.

Problems Without Normalization

- Extra memory space
- Difficult to handle and update the database
- Data Inconsistency

EMP			
EMPNO	DEPTNO	ENAME	DNAME
7782	10	CLARK	
7934	10	MILLER	
7876	20	ADAMS	
7902	20	FORD	
7900	30	JAMES	

accounts
ACCOUNTS

DEPT	
DEPTNO	DNAME
10	ACCOUNTS
20	RESEARCH
30	SALES

EMP		
EMPNO	DEPTNO	ENAME
7782	10	CLARK
7934	10	MILLER
7876	20	ADAMS
7902	20	FORD
7900	30	JAMES

Note:
In some cases we need DE-normalization for reporting purpose and for better performance

Oracle DBA Course

Hosting Oracle 12c / 18c

On-Premises

The Software installed in your own Environments (your own server)

Cloud

Oracle host the Database and all its components

Thank You