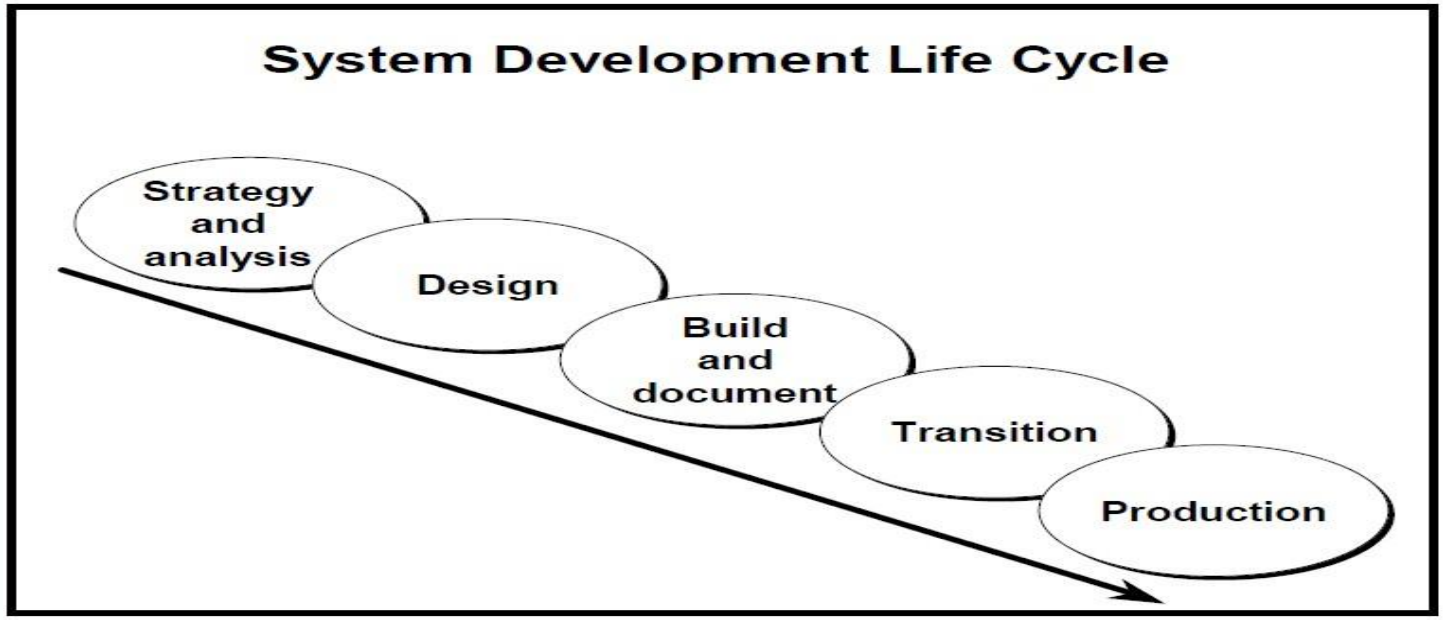
Introduction



- Strategy and analysis: study and analyze the business requirements.
- Design : design the database based on point 1
- Build and document: build the prototype system, write and execute commands to create the tables and objects, build user documentation.
- Transition: move the application to production, take acceptance form users and make modification if required.
- Production: roll out the system to users.

What is Data?

Pieces of information.

What is database?

It is organized collection of information.

What is DBMS?

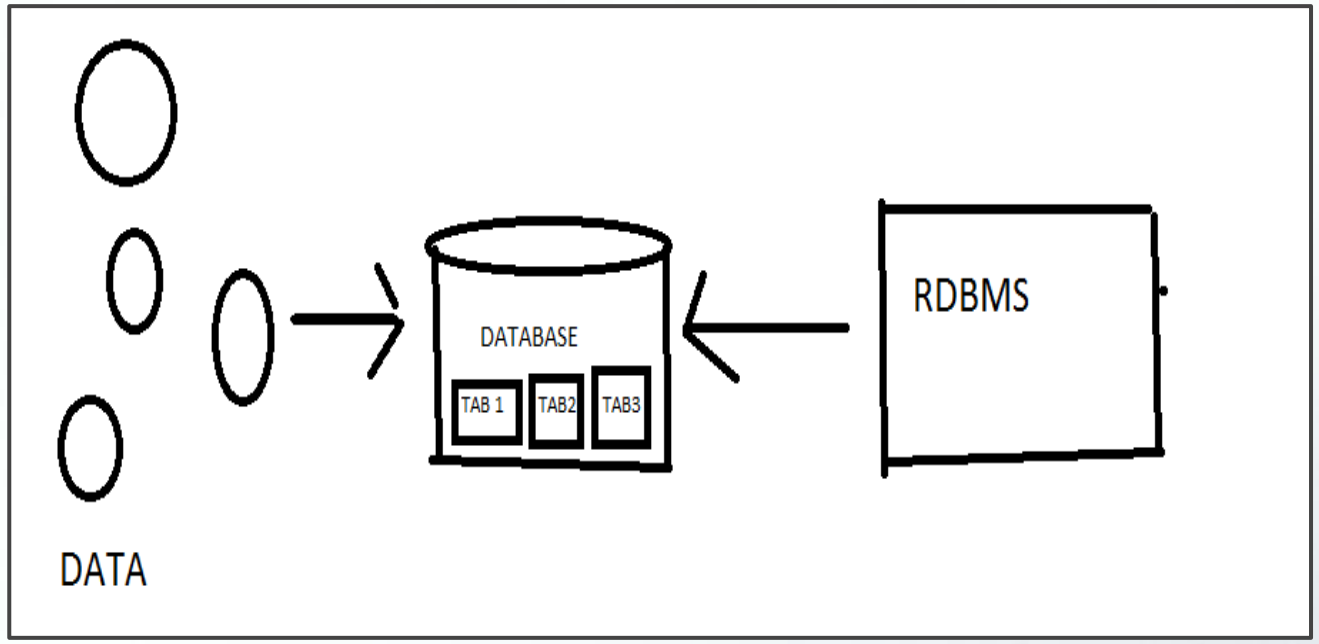
Database management system to store and retrieve and modify data in the database.

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

and also in oracle we have
ORDBMS ("Object-Relational Database Management System")

What is the table?

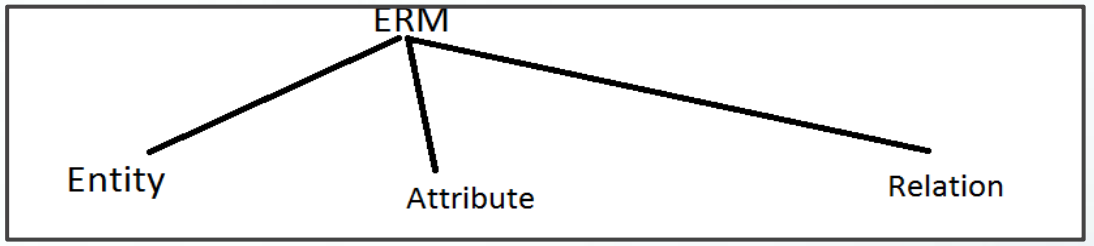
It is the basic storage of an RDBMS



REGION_ID	REGION_NAME
1	Europe
2	Americas
3	Asia
4	Middle East and Africa

What is Data models?

Conceptual tools to describe data.
ERM (entity relation model)



Entity

An entity can be a real-world object, that can be easily identifiable.
For example, in a school database:
students, teachers, and courses offered can be considered as entities.

Attributes

Things that describe the Entity. (student name, age, birthday …)

Relationship

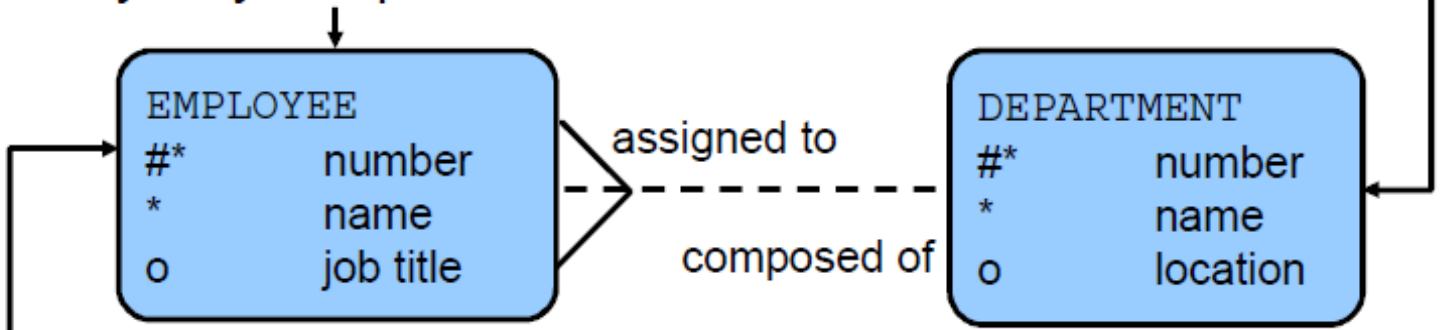
The association among entities is called a relationship.
For example, an employee **works_at** a department,
a student **enrolls** in a course.

Entity:

- Singular, unique name
- Uppercase
- Soft box
- Synonym in parentheses

Attribute:

- Singular name
- Lowercase
- Mandatory marked with “*”
- Optional marked with “o”



Unique Identifier (UID)
Primary marked with “#”
Secondary marked with “(#)”

- Each row of data in a table can be uniquely identified by a primary key.
- You can logically relate data from multiple tables using foreign keys.

Table name: DEPARTMENTS

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
10	Administration	200	1700
20	Marketing	201	1800
50	Shipping	124	1500
60	IT	103	1400
80	Sales	149	2500
90	Executive	100	1700
110	Accounting	205	1700
190	Contracting	(null)	1700

Primary key

Table name: EMPLOYEES

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	DEPARTMENT_ID
100	Steven	King	90
101	Neena	Kochhar	90
102	Lex	De Haan	90
103	Alexander	Hunold	60
104	Bruce	Ernst	60
107	Diana	Lorentz	60
124	Kevin	Mourgos	50
141	Trenna	Rajs	50
142	Curtis	Davies	50

Primary key

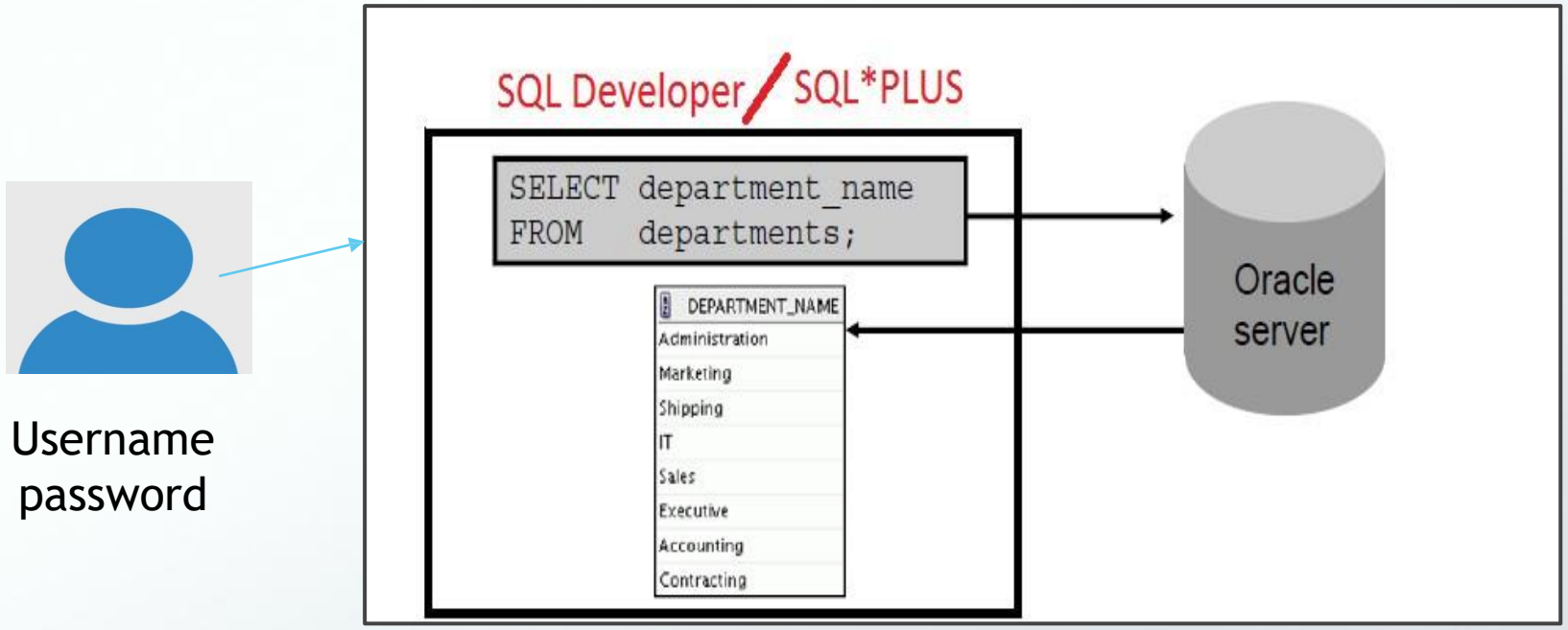
Foreign key

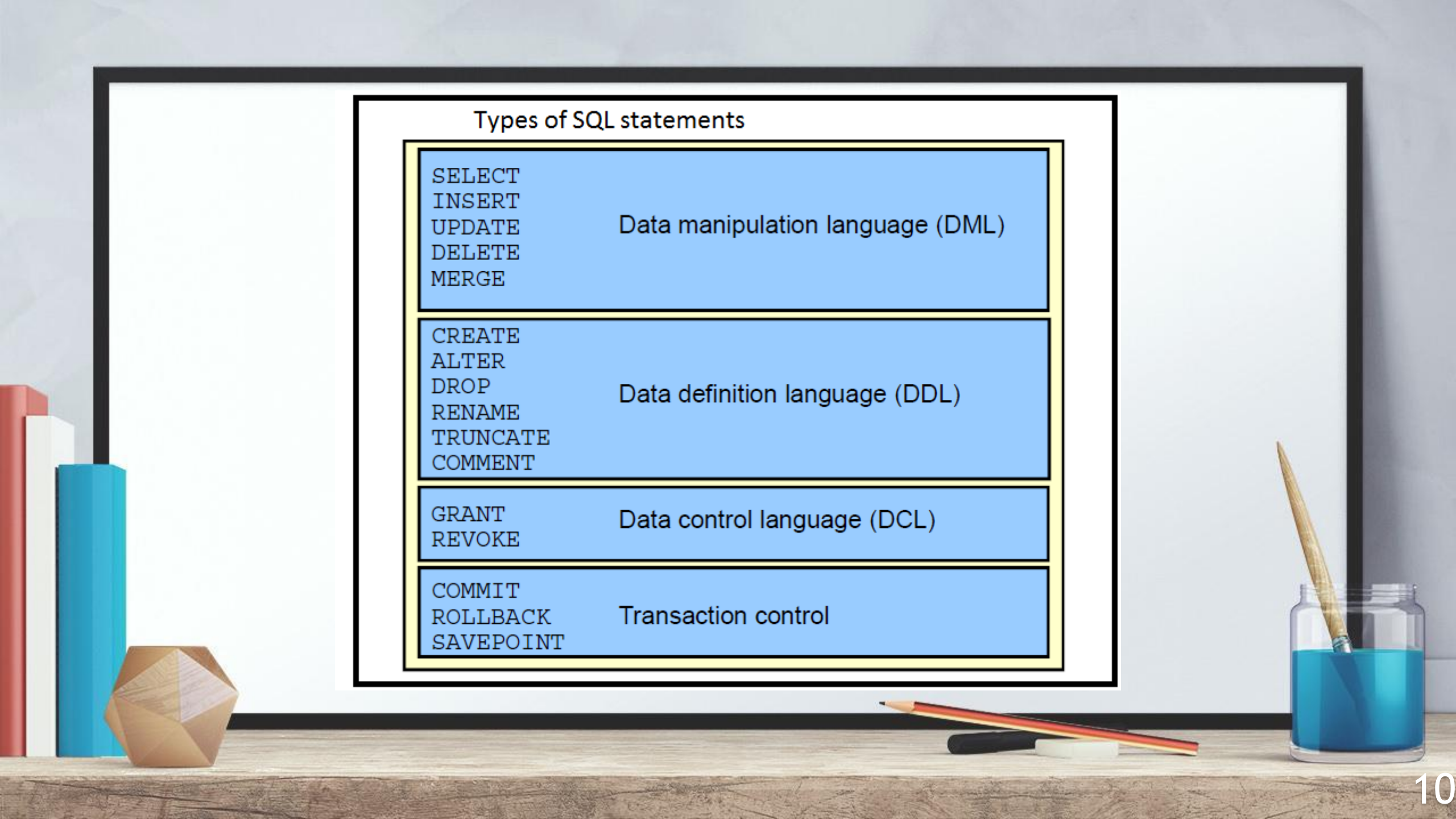
Guidelines for Primary Keys and Foreign Keys

- You cannot use duplicate values in a primary key.
- Primary keys generally cannot be changed.
- Foreign keys are based on data values and are purely logical (not physical) pointers.
- A foreign key value must match an existing primary key value or unique key value; otherwise, it must be null.
- A foreign key must reference either a primary key or a unique key column.

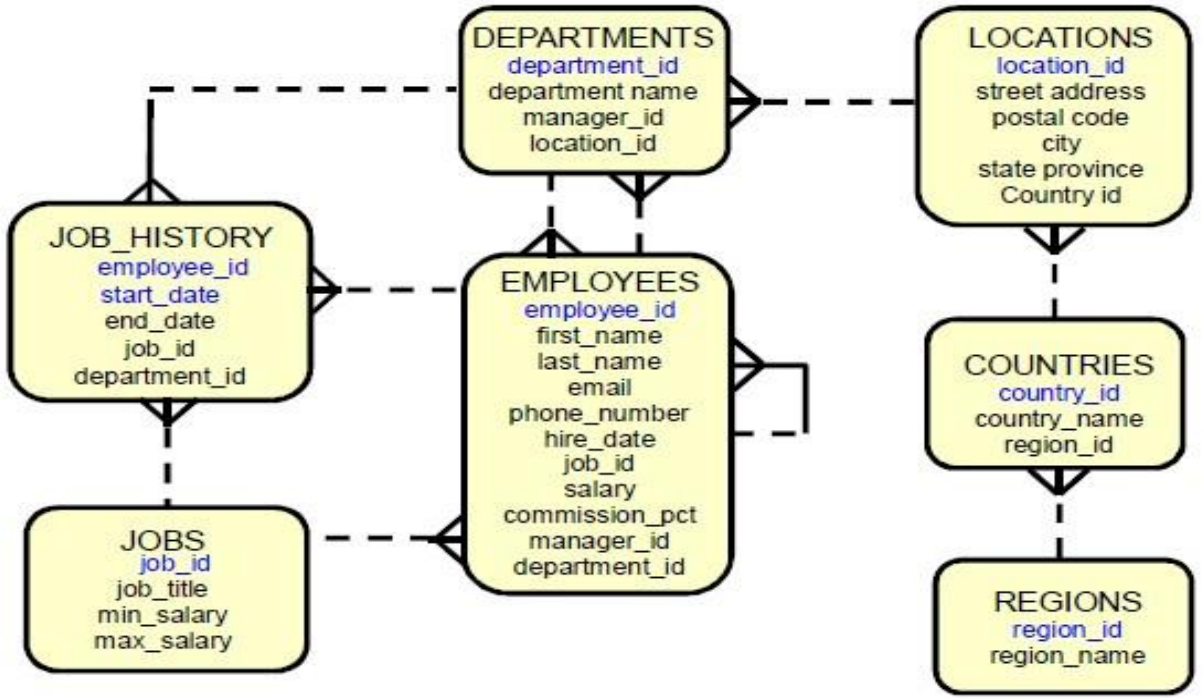
To access Oracle database you need SQL
SQL is structure query language to access database

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

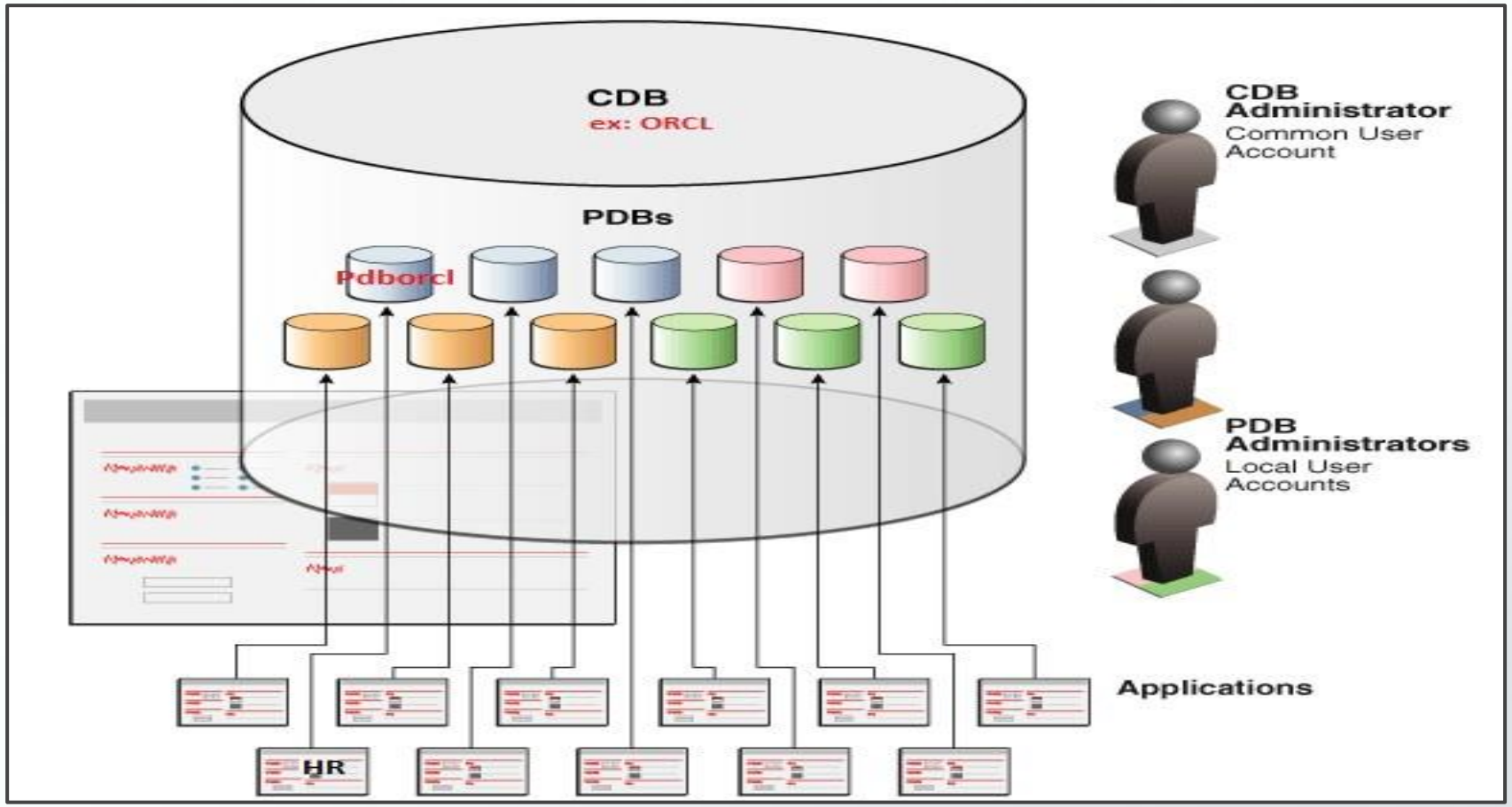



Types of SQL statements
SELECT
INSERT
UPDATE
DELETE
MERGE
Data manipulation language (DML)
CREATE
ALTER
DROP
RENAME
TRUNCATE
COMMENT
Data definition language (DDL)
GRANT
REVOKE
Data control language (DCL)
COMMIT
ROLLBACK
SAVEPOINT
Transaction control

Human Resources (HR) Schema



Architecture for Database 12c



Thank You