SYIT Sem III
Database Management System
Practical #3

Revision of Practical 1

- DDL Commands
  - Create
  - Desc
  - Alter
  - Delete
  - Truncate
  - Drop

Revision of Practical 2

- DML Commands
  - Insert
  - Update
  - Delete
  - Select

Practical 3

Different types of Constraints

🔑 Not Null

🌍 Unique Key constraints

✔️ Primary Key constraints

⚠️ Foreign Key constraints

✔️ Check constraints

🔒 Default constraints

1. Not Null: A field in a table to be NOT NULL. Then the field will never accept null value.

create table emp(eid number(10), esal number(5) **Not Null**, eadd char(10));

insert into emp values(2,15000,null);

insert into emp values(null,15000,'wadala');

insert into emp values(2,null,'vashi');// can't execute

Select * from emp;

2. Unique Constraints: Constraint helps to uniquely identify each row in the table.

ID	NAME	SEMENSTER	AGE
1000	Tom	1st	17
1001	Johnson	2nd	24
1002	Leonardo	5th	21
1003	Kate	3rd	19
1002	Morgan	8th	22

Not allowed. Because all row must be unique

Syntax and Example of Unique Constraints

- Syntax

    CREATE TABLE table_name (column1 datatype, column2 datatype, ... UNIQUE (uc_colname,));

- Example

    CREATE TABLE Persons (ID int **UNIQUE**, LastName varchar(255) , FirstName varchar(255), Age int);

    OR

    CREATE TABLE Persons (ID int, LastName varchar(255) , FirstName varchar(255), Age int, **UNIQUE(ID)**);

- Insert into Persons values(201, 'Desai', 'Rohini', 25)

- Insert into Persons values(202, 'Chavan', 'Aasha', 26)

- Insert into Persons values(203, 'Koyande', 'Ashwini', 27)

3. Primary Key Constraints:
Is a field which uniquely identifies each row in the table

Example of Primary key Constraints
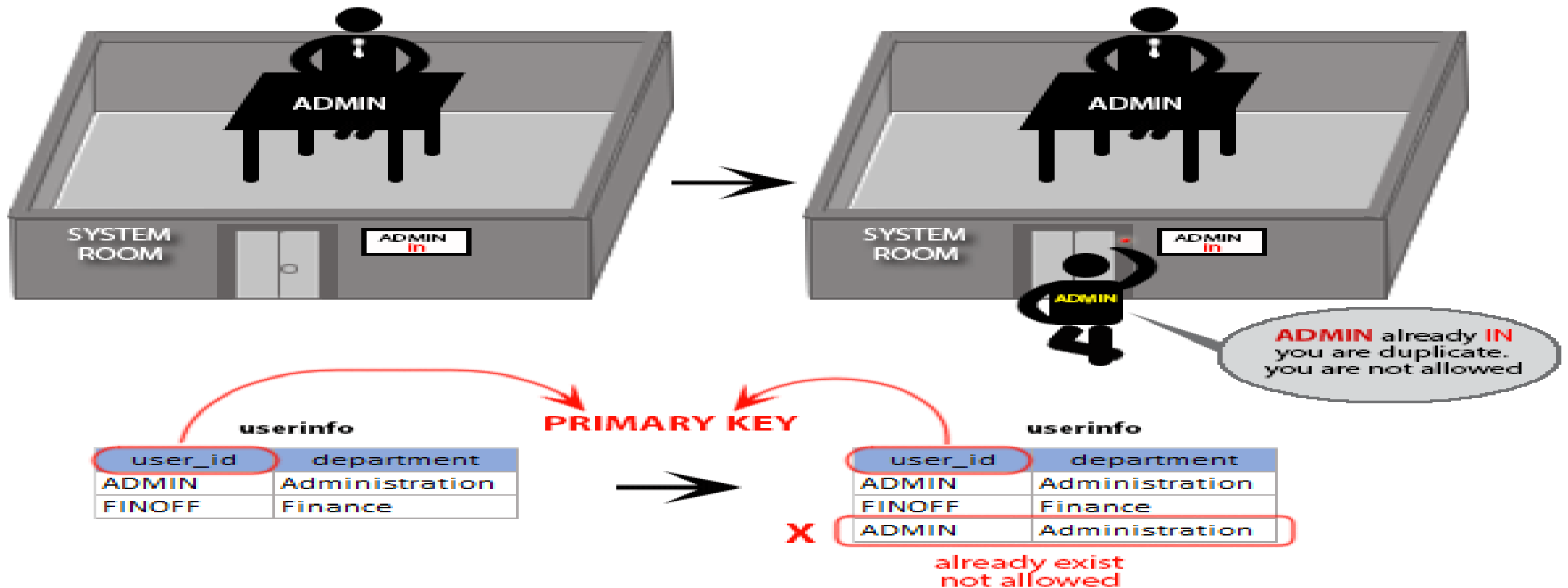
Syntax and Example of Primary Key Constraints

- Syntax

  CREATE TABLE <table_name>column1 data_type(size) PRIMARY   KEY, column2 data_type(size),...);

- Example

  CREATE TABLE Persons (
  ID int **PRIMARY KEY,**
  LastName varchar(255) ,
  FirstName varchar(255),
  Age int);

Insertion of Data

- CREATE TABLE Persons (ID int **PRIMARY KEY,** LastName varchar(255) , FirstName varchar(255),Age int);

- Insert into Persons values(101, 'Desai', 'Rohini',15)

- Insert into Persons values(102, 'Chavan', 'Aasha',16)

- Insert into Persons values(103, 'Koyande', 'Ashwini',17)

- Insert into Persons values(103, 'koyande', 'Ashwini',17) – Repetition of ID is not allowed

- Insert into Persons values(null, 'Patil', 'Madhura',18)– null not allowed

- Insert into Persons values(105, 'Tendulkar', 'Sachin',19)

- Select * from Persons

4. Foreign Key Constraints- is a field in a table which uniquely identifies each row of another table

Example of Foreign Key
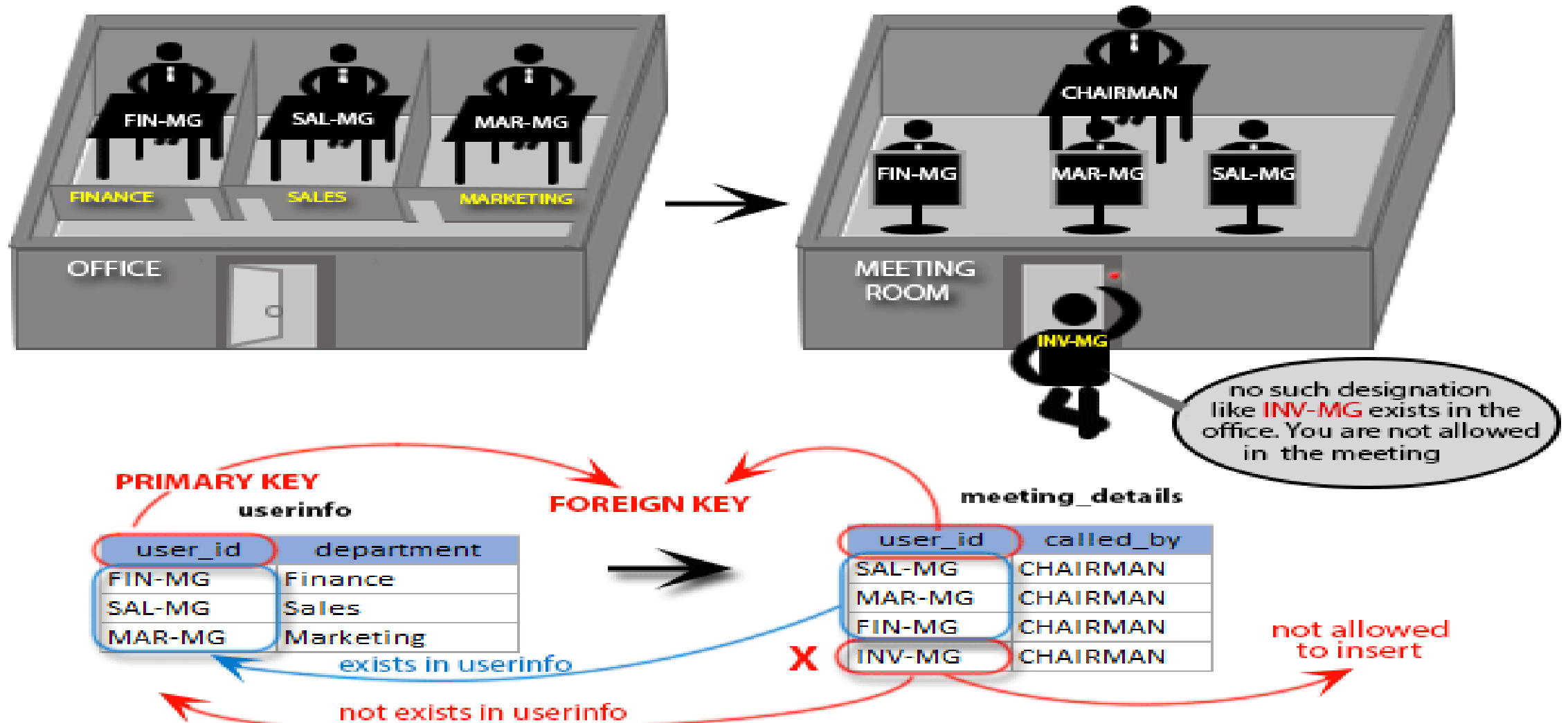
Syntax and Example of Foreign key

Syntax-In oracle follow 1st syntax

CREATE TABLE <table_name>(column1   data_type(size),column2 data_type(size), REFERENCES[primary_key_tablename] (column_list_of_primary_key_table));

OR

Other than oracle -CREATE TABLE <table_name>(column1   data_type(size),column2 data_type(size) , FOREIGN KEY [column_name] REFERENCES [primary_key_tablename] (column_list_of_primary_key_table));

Example-1.   CREATE TABLE Persons (ID int **PRIMARY KEY,** LastName varchar(255) , FirstName varchar(255),Age int);

2.   CREATE TABLE Orders (OrderID int , OrderNumber int, **PersonID int REFERENCES Persons(ID));**   **OR**

    CREATE TABLE Orders (OrderID int , OrderNumber int, **PersonID int Foreign Key REFERENCES Persons(ID));**

5. Check Constraints
We can specify a condition for a field, which should be satisfied at the time of entering values for this field.

ID	NAME	SEMENSTER	AGE
1000	Tom	1st	17
1001	Johnson	2nd	24
1002	Leonardo	5th	21
1003	Kate	3rd	19
1004	Morgan	8th	A

Not allowed. Because AGE is an integer attribute

Syntax and Example of Check Constraints

- Syntax

    CREATE TABLE table_name (column1 datatype,column2 datatype **CHECK(column_name condition)**);

- Example

    CREATE TABLE Persons (ID int NOT NULL, LastName varchar(255), FirstName varchar(255), Age int **CHECK (Age>=18)**);

6. Default: constraint is used to provide a default value for the fields

- Syntax:

CREATE TABLE Table_Name(col_name1,col_name2,col_name3
DEFAULT '<value>');

- Example:

CREATE TABLE Student(ID int NOT NULL,

NAME varchar(10) NOT NULL,AGE int DEFAULT 18);

Multiple Constraints on Single table

- CREATE TABLE Orders (OrderID int PRIMARY KEY, OrderNumber int NOT NULL,**PersonID int REFERENCES Persons(PersonID),**Age int **CHECK (Age>=18));**

Perform different DDL, DML operations and Constraints on schema

1. Client_Mater (Client_no,Client_name, Client_city, Client_state,

   Balance)

2. Create a table EMPLOYEE with following schema:

   (Emp_no, E_name, E_address, E_ph_no, Dept_no, Dept_name,Job_id, Designation , Salary)

3. Consider the following schema:

   Sailors (sid, sname, rating, age

   Boats (bid, bname, color)

   Reserves (sid, bid, day(date))

Perform different DDL, DML operations and Constraints on -Employee Database System

Consider the following database

Employees (E_id, name, address, hire_date, birth_date)

Department (dept_id, name, year_of_establishment)

Emp_dept (E_id,dept_id, from_date, to_date)

Salaries (E_id, salary, month, year)

Perform different DDL, DML operations and Constarints on - Hospital Management Database system

Consider the following database

i)Physician(Phregno, Phname, Phadd, Phtelno)

ii)Patient(ptid, Ptname, Ptadd)

iii)Visits(Phregno, Ptname, Date_of_visit, Feescharged)

Queries

Create a table called EMP with the following structure.

Emp(EMPNO NUMBER (6), ENAME VARCHAR2 (20), JOB VARCHAR2 (10) DEPTNO NUMBER (3), SAL NUMBER (7,2)).

1. Allow NULL for all columns except ename and job.

2. Add constraints to check, while entering the empno value (i.e) empno > 100.

3. Define the field DEPTNO as unique.

4. Create a primary key constraint for the table(EMPNO).

5. Write queries to implement and practice constraints.

Thank You!!!