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Batch: A3   Roll No.: 1911034
Experiment / assignment / tutorial No. 5
Grade: AA / AB / BB / BC / CC / CD /DD

Title: Implementation of Database in SQL -DDL

Objective: Define/modify database definitions with proper constraints

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Expected Outcome of Experiment:

CO 2: Convert entity-relationship diagrams into relational tables, populate a relational database and formulate SQL queries on the data Use SQL for creation and query the database.

CO 3: Define and apply integrity constraints and improve database design using normalization techniques.

Books/ Journals/ Websites referred:

1. Sharaman Shah,"*Oracle for Professional*", SPD.
2. Dr. P.S. Deshpande, SQL and PL/SQL for Oracle 10g.Black book, Dreamtech Press
3. Korth, Slberchatz, Sudarshan: "Database Systems Concept", 5th Edition , McGraw Hill
4. Peter Rob and Carlos Coronel,"Database Systems Design, Implementation and Management", Thompson Learning, 5th Edition

Pre Lab/ Prior Concepts:
Resources used: Postgresql

Theory: The set of relations in a database must be specifies to the system by means of a data definition language (DDL). The SQL DDL allows specification of not only a set of relations but also specific information about the relation including,

1. The schema for each relation
2. The domain of values associated with each attribute
3. The integrity constraints
4. The set of indices to be maintained for each relation
5. The security and authorization information for each relation
6. The physical storage structure of each relation on disk

Syntax Create Table:

create table employee(ssn,fname varchar(10), mname varchar(10), lname varchar(10),

desg varchar(20), gender varchar(5), addr varchar(20), bdate datetime, sal float,primary

key(ssn));

create table manages(ssn int, dept_code int, start_dt datetime, foreign key(ssn)

create table manages(ssn int, dept_code int, start_dt datetime, foreign key(ssn)

references employee, foreign key(dept_code) refrences department, key(ssn,dept_code)) on delete set null;primary

Data Constraints

Busines managers of the organization determine the a set of rules that must be applied before the data is stored in the database. The application of such rules on raw data ensures **data integrity**.

Eg:- An employee belonging to Sales department cannot have salary higher than Rs. 1000.

An employee has an unique identification number.

Applying Data Constraints

Oracle permits data constraints to be attached to table columns using SQL syntax.

Constraints can be attached to table columns using

Alter table

Unique Constraint

Unique Constraint- At column level Syntax

<ColumnName><Datatype>(<size>)

UNIQUE Unique Constraint- At table level

CREATE TABLE<TableName>(

<ColumnName><Datatype>(<size>)

<ColumnName><Datatype>(<size>)

<Columnname><Datatype>(<size>)
UNIQUE(<ColumnName1>,<ColumnName2>);

Implementation Details (Problem Statement, Query and Screenshots of Results):

For entity property:-

CREATE database propsys;

USE propsys;

create table property(area int,

location varchar(10),

cost float,

no_of_rooms int,

type_p varchar(10));

desc property;

For entity customer:-

CREATE database propsys;

USE propsys;

create table customer(

name_c varchar(10),

age int,

id_no int,

budget float,

type_p varchar(10),

no_of_emi int,

asc_bank varchar(10)

);

desc customer;

For entity builder:-

CREATE database propsys;

USE propsys;

create table builder(

name_b varchar(10),

age int,

id_no_b int,

exp float

);

desc builder;

For entity contractor:-

CREATE database propsys;

USE propsys;

create table contractor(

name_c varchar(10),

age int,

company varchar(10),

id_con int

);

desc contractor;

For entity employee:-

CREATE database propsys;

USE propsys;

create table employee(

name_e varchar(10),

age int,

company varchar(10),

id_em int,

sal float,

work_hours int

);

desc employee;

Conclusion: In this Experiment , we have learnt the use of Create Table command to create tables applying all the constraints like creating the primary key for the tables and applying unique values.

Post Lab Questions:

1. **Which command is used for removing a table and all its data from the database:**

   A. DROP Command
   B. TRUNCATE Command
   C. Both Commands

Ans : DROP Command

2. **For the given ER model, using DDL command: Write syntax to create CREATE Tables with all possible integrity constraints**

Problem Statement:

A small accounting firm wants a simple HR application that will help it to keep track of its employees, their positions, allowances, salary scales, and which company vehicles their employees drive. The application must keep track of all the positions at the firm, the employees filling these positions, the allowances for these positions, the salary scales for these positions, and the company vehicles assigned to these positions.
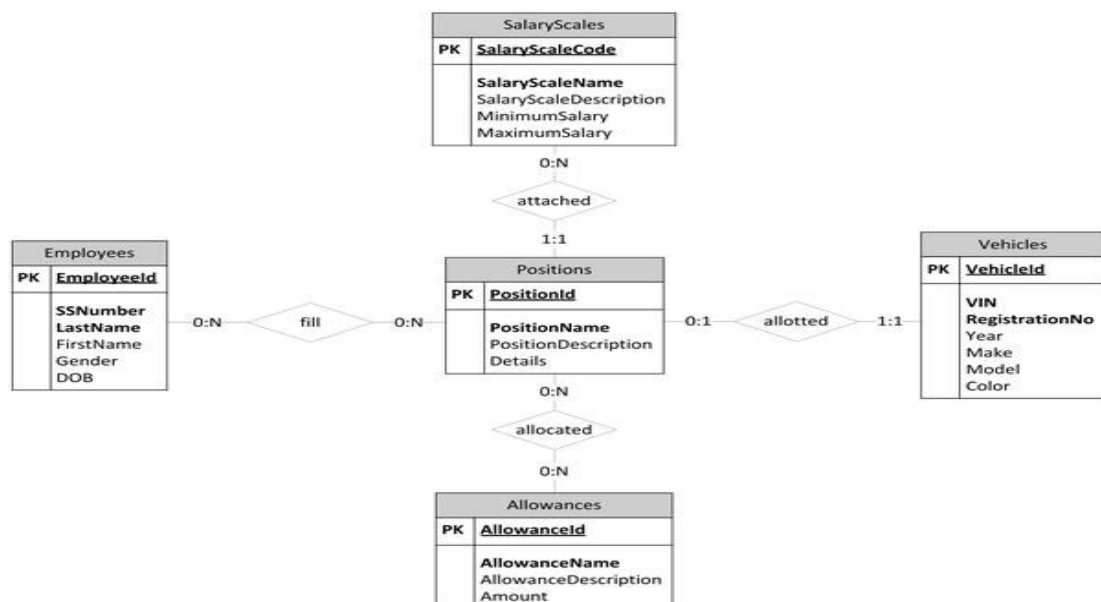
CREATE Database Company;

USE Company;

```
CREATE Table POSITIONS

(

PositionID int NOT NULL,

PositionName varchar(10) NOTNULL,

PositionDescription varchar(50),

Details varchar(50),

PrimaryKey (PositionID)


);



CREATE Table SalaryScales

(

SalaryScaleCode int NOT NULL,

SalaryScaleName varchar(10) NOTNULL,

SalaryScaleDescription varchar(50),

MinimumSalary float,

MaximumSalary float,

PrimaryKey (SalaryScaleCode)


);
```

```
CREATE Table Employees

(

EmployeeID int NOT NULL,

SSNumber int NOTNULL,

LastName varchar(10) NOTNULL,

FirstName varchar(10)

Gender varchar(10)

DOB varchar(10)

PrimaryKey (EmployeeID)


);


CREATE Table Allowances

(

AllowanceID int NOTNULL,

AllowanceName varchar(10) NOTNULL,

AllowanceDesc varchar(10)

Amount float;

PrimaryKey(AllowanceID)

);
```

```
CREATE Table Vehicles

(

VehicleID int NOTNULL,

VIN varchar(10) NOTNULL,

RegNO int NOTNULL,

Year int ,

Make varchar(10) ,

Model varchar(10),

Color varchar(10),

PrimaryKey(VehicleID)




);
```