Godavari Foundation's

Godavari College of Engineering, Jalgaon

Department of Computer

Lab Manual

Database System Laboratory

Practical No:- ____

Date:-__________

Name of Student:- ____

Class:-___________ **Roll No:-_____**

Title:

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Aim: -

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Software Requirement: ____

Hardware Requirement:- ____

Theory:-

Create Database

The CREATE DATABASE statement is used to create a new database.

Syntax:-

```
Create database <database_name>
```

Use Database

Syntax:-

```
Use <database_name>
```

Create Table

The CREATE TABLE statement is used to create a new table in a database.

Syntax:-

```
Create <table_name>

( Column_name1 datatype(size),

……

Column_nameN datatype(size));
```

Example:-

```
CREATE TABLE Persons (
PersonID int,
LastName varchar(255),
FirstName varchar(255),
Address varchar(255),

City varchar(255)
);
```

Rename Table

RENAME TABLE syntax is used to change the name of a table.

Syntax:-

```
ALTER TABLE table_name RENAME TO new_table_name;
```

Example:-

```
ALTER TABLE STUDENTS RENAME TO ARTISTS;
```

Data Constraints

Constraints can be divided into the following two types,

1. Column level constraints: Limits only column data.

2. Table level constraints: Limits whole table data.

Constraints applied to a table are:

- NOT NULL
- UNIQUE
- PRIMARY KEY
- FOREIGN KEY
- CHECK
- DEFAULT

A. Primary Key Constraint

Primary key constraint uniquely identifies each record in a database. A Primary Key must contain unique value and it must not contain null value.

Using PRIMARY KEY constraint at Table Level

```
CREATE table Student (s_id int PRIMARY KEY, Name varchar(60) NOT NULL, Age int);
```

The above command will creates a PRIMARY KEY on the s_id.

Using PRIMARY KEY constraint at Column Level

```
ALTER table Student ADD PRIMARY KEY (s_id);
```

The above command will creates a PRIMARY KEY on the s_id.

B. Foreign Key Constraint

FOREIGN KEY is used to relate two tables.

Customer_Detail Table

c_id	Customer_Name	address
101	Adam	Noida
102	Alex	Delhi
103	Stuart	Rohtak

Order_Detail Table

Order_id	Order_Name	c_id
10	Order1	101
11	Order2	103
12	Order3	102

In **Customer_Detail** table, **c_id** is the primary key which is set as foreign key in **Order_Detail** table. The value that is entered in **c_id** which is set as foreign key in **Order_Detail** table must be present in **Customer_Detail** table where it is set as primary key. This prevents invalid data to be inserted into **c_id** column of **Order_Detail** table.

Using FOREIGN KEY constraint at Table Level

```
CREATE table Order_Detail (
order_id int PRIMARY KEY,
order_name varchar(60) NOT NULL,
c_id int FOREIGN KEY REFERENCES Customer_Detail(c_id));
```

Using FOREIGN KEY constraint at Column Level

```
ALTER table Order_Detail ADD FOREIGN KEY (c_id) REFERENCES
Customer_Detail(c_id);
```

C. **NOT NULL Constraint**

NOT NULL constraint restricts a column from having a NULL value. Once NOT NULL constraint is applied to a column, you cannot pass a null value to that column.

Example:-

```
CREATE TABLE Student(s_id int NOT NULL, Name varchar(60), Age int);
```

Create Constraints on the table

A. Column Constraints

Syntax:-

```
Create table <table_name>
( Column_name1 datatype(size) constraint <constraint_name> Primary key,
Column_name2 datatype(size) constraint <constraint_name> references
referenced_table[(primary_column_name of referenced table)],
Column_name3 datatype(size) constraint <constraint_name> Check(<condition>),
Column_name4 datatype(size) NOT NULL);
```

B. Table Constraints

Syntax:-

```
Create table <table_name>
(Column_name1 datatype(size),
  …
  …
 Column_nameN datatype(size),
 Constraint <constraint_name> Primary key (column_name1),
 Constraint <constraint_name> Foreign key(Foreign_column_name) references
referenced_table[(primary_column_name of referenced table)],
 Constraint <constraint_name> Check(<condition>);
);
```

View Table Structure

Syntax:-

```
Desc <table_name>
```

INSERT Statement

The SQL INSERT statement is used to insert a single or multiple data in a table.

Two ways to insert Data:

1. Without specifying column name

2. By specifying column name

1. Without specifying column name

Syntax:-

INSERT INTO TABLE_NAME VALUES (value1, value2, value 3, ... Value N);

Example:-

INSERT INTO EMPLOYEE VALUES (6, 'Marry', 'Canada', 600000, 48);

2. By specifying column name

Syntax:-

INSERT INTO TABLE_NAME[(col1, col2, col3,.... col N)]

VALUES (value1, value2, value 3, ... Value N);

Example:-

INSERT INTO EMPLOYEE (EMP_ID, EMP_NAME, AGE) VALUES (7, 'Jack', 40);

a. To View All Columns

Syntax:-

select * from <table_name>

b. To View Selective Columns

Syntax:-

select column_name1, column_name2 from <table_name>

MYSQL QUERIES:-

Create Table Queries:-

```
create database student;

use student;

create table Branch
(Branch_Code Char(20),
 Add1 VarChar(30),
Add2 VarChar(30),
City VarChar(20));

desc Branch;
```

Insert Data & Display Data Queries:-

```
use student;

select * from Branch;

insert into Branch values('SBI', 'Shiv Colony',  'Dadawadi', 'Jalgaon');

insert into Branch(Branch_Code, Add1, Add2, City)
values
('Axis Bank', 'New Pandit Colony', 'Sharanpur Road', 'Nashik'),
('ICICI', '349 Business Point', 'Andheri East', 'Mumbai'),
('HDFC', 'Ruby House', 'Kharadi Magarpatta Bye Pass', 'Pune'),
('Yes Bank', '206 GPO Square', 'VIP Road Civil Lines', 'Nagpur'),
('Godavari Bank', 'Anandidas Complex', 'Vazirabad', 'Nanded');

select * from Branch;

insert into Branch(Branch_Code, City) values('Godavari Laxmi Bank', 'Jalgaon');

select * from Branch;
```

Rename Table Query:-

```
alter table Branch rename to Branch1;

select * from Branch1;
```

Primary Key Constraint Query:-

```
use student;

create table Fare
(Route_Code Char(7),
 Route_Desc VarChar(25) NOT NULL,
 Origin VarChar(15) NOT NULL,
 Destination VarChar(15) NOT NULL,
 First_Fare int(5),
 Bus_Fare int(5),
 Eco_Fare int(5),
 constraint Route_pk Primary Key(Route_Code),
 constraint First_Fare_Zero check(First_Fare > 0),
 constraint Bus_Fare_Greater_First check(Bus_Fare < First_Fare),
 constraint Eco_Fare_Greater_Business check(Eco_Fare < Bus_Fare));

desc Fare;
```

Foreign Key Constraint Query:-

```
create table Flight_Sch
(Flightno Char(4),
 Airbusno Char(5),
 Route_Code Char(7),
 Deprt_time Char(5),
 Journey_hrs Char(6),
 Flight_Day1 int(1),
 Flight_Day2 int(1),
 constraint Flightno_pk Primary Key(Flightno),
 constraint Airbusno_fk Foreign Key(Airbusno) references Airbus(Airbusno),
 constraint Route_Code_fk Foreign Key(Route_Code) references Fare(Route_Code));

desc Airbus;
desc Fare;
desc Flight_Sch;
```

Conclusion:-

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