LAB MANUAL

FOR

Data Base Management System

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Lab 5
Theory and Concept

Objective: - To Implement the restrictions on the table.

Data constraints: Besides the cell name, cell length and cell data type there are other parameters i.e. other data constrains that can be passed to the DBA at check creation time. The constraints can either be placed at column level or at the table level.

i. **Column Level Constraints:** If the constraints are defined along with the column definition, it is called a column level constraint i.e. NOT NULL, UNIQUE, CHECK (Condition).

ii. **Table Level Constraints:** If the data constraint attached to a specify cell in a table reference the contents of another cell in the table, then the user will have to use table level constraints i.e. PRIMARY KEY, FOREIGN KEY, CHECK (Condition).

Null Value Concepts: - while creating tables if a row locks a data value for particular column that value is said to be null. Column of any data types may contain null values unless the column was defined as not null when the table was created

Syntax:

Create table tablename
(columnname data type (size) not null ……)

Primary Key: primary key is one or more columns is a table used to uniquely identity each row in the table. Primary key values must not be null and must be unique across the column. A multicolumn primary key is called composite primary key.

Syntax: primary key as a column constraint
Create table tablename
(columnname datatype (size) primary key,….)
Example:

```
CREATE TABLE Employees (
   EmployeeID INT NOT NULL PRIMARY KEY,
   FirstName VARCHAR(50),
   LastName VARCHAR(50),
   Email VARCHAR(100),
   HireDate DATE
);
```

Primary key as a table constraint Create table tablename
(columnname datatype (size), columnname datatype(size)…
Primary key (columnname,columnname));

Example:

```
CREATE TABLE CourseEnrollments (
   StudentID INT NOT NULL,
   CourseID INT NOT NULL,
```

```
    EnrollmentDate DATE,
    PRIMARY KEY (StudentID, CourseID)
);
```

Default value concept: At the line of cell creation a default value can be assigned to it. When the user is loading a record with values and leaves this cell empty, the DBA will automatically load this cell with the default value specified. The data type of the default value should match the data type of the column.

Syntax:

Create table tablename
(columnname datatype (size) default value,….);

Example:

```
CREATE TABLE Products (
    ProductID INT NOT NULL PRIMARY KEY,
    ProductName VARCHAR(100),
    Price DECIMAL(10, 2) DEFAULT 0.00,
    InStock INT DEFAULT 100
);
```

Foreign Key Concept : Foreign key represents relationship between tables. A foreign key is column whose values are derived from the primary key of the sameof some other table . the existence of foreign key implies that the table with foreign key is related to the primary key table from which the foreign key is derived .A foreign key must have corresponding primary key value in the primarykey table to have meaning.

Foreign key as a column constraint

Syntax :

Create table table name
(columnname datatype (size) references another table name);

Example:

```
CREATE TABLE Orders (
    OrderID INT NOT NULL PRIMARY KEY,
    OrderDate DATE NOT NULL,
    CustomerID INT,
    FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID)
);
```

Foreign key as a table constraint:

Syntax :

Create table name
(columnname datatype (size)….
primary key (columnname);
foreign key (columnname)references table name);

Example:

```
CREATE TABLE OrderItems (
    OrderItemID INT NOT NULL,
    OrderID INT NOT NULL,
```

```
    ProductID INT NOT NULL,
    Quantity INT NOT NULL,
    PRIMARY KEY (OrderItemID),
    FOREIGN KEY (OrderID) REFERENCES Orders (OrderID),
    FOREIGN KEY (ProductID) REFERENCES Products (ProductID)
);
```

Check Integrity Constraints: Use the check constraints when you need to enforce integrity rules that can be evaluated based on a logical expression following are a few examples of appropriate check constraints.

- A check constraints name column of the client_master so that the name is entered in upper case i.e. CHECK (name= UPPER (name)).
- A check constraint on the client_no column of the client _master so that no client_no value starts with 'c' i.e. Check (client-no NOT LIKE 'c %')

Syntax:

```
Create table tablename
(columnname datatype (size)
CONSTRAINT constraintname)Check
(expression));
```

Example:

```
CREATE TABLE client_master (
    client_no VARCHAR(10) NOT NULL,
    name VARCHAR(50) NOT NULL,
    CONSTRAINT chk_name_upper CHECK (name
= UPPER(name)),
    CONSTRAINT chk_client_no CHECK
(client_no NOT LIKE 'c%')
);
```

Question.2 Create the following tables:

i. Sales_master

Columnname	Datatype	Size	Attributes
Salesman_no	varchar	6	Primary key/first letter must start with 's'
Sal_name	varchar	20	Not null
Address	varchar		Not null
City	varchar	20	
State	varchar	20	
Pincode	Int	6	
Sal_amt	Float		Not null, cannot be 0
Tgt_to_get	Float		Not null, cannot be 0
Ytd_sales	Float		Not null, cannot be 0
Remarks	varchar	30	

ii. Sales_order

Columnname	Datatype	Size	Attributes
S_order_no	varchar	6	Primary/first letter must be 0
S_order_date	Date	6	
Client_no	Varchar	25	Primary key reference clientno of client_master table
Dely_add	Varchar	6	
Salesman_no	Varchar	6	Foreign key references salesman_no of salesman_master table
Dely_type	Char	1	Delivery part(p)/full(f),default f
Billed_yn	Char	1	
Dely_date	Date		Can not be lessthan s_order_date
Order_status	Varchar	10	Values (‘in process’;’fulfilled’;back order’;’canceled

I. Sales_order_details

Column	Datatype	Size	Attributes
S_order_no	Varchar	6	Primary key/foreign key references s_order_no of sales_order
Product_no	Varchar	6	Primary key/foreign key references product_no of product_master
Qty_order	float	8	
Qty_disp	float	8	
Product_rate	Numeric	10,2	

Insert the following data into their respective tables using insert statement:

Data for sales_man master table

Salesman_ no	**Salesman name**	**Address**	**City**	**Pin code**	**State**	**Salamt**	**Tgt_to_get**	**Ytd Sales**	**Rem**
500001	Kiran	A/14 worli	Bombay	400002	Mah	3000	100	50	Go
500002	Manish	65,nariman	Bombay	400001	Mah	3000	200	100	Go
500003	Ravi	P-7 Bandra	Bombay	400032	Mah	3000	200	100	Go
500004	Ashish	A/5 Juhu	Bombay	400044	Mah	3500	200	150	Go

(ii)

Data for salesorder table:

S_orderno	S_orderdate	Client no	Dely type	Bill yn	Salesman no	Delay date	Orderstatus
019001	2000-10-12	0001	F	N	50001	2000-11-12	Ip
019002	2001-01-10	0002	P	N	50002	2001-01-20	C
016865	2001-03-01	0003	F	Y	500003	2001-03-12	F
019003	2001-03-15	0001	F	Y	500001	2001-03-30	F
046866	2001-07-12	0004	P	N	500002	2001-07-25	C
010008	2001-10-12	0005	F	N	500004	2001-10-30	Ip

(i)

Data for sales_order_details table:

S_order no	Product no	Qty ordered	Qty disp	Product_rate
019001	P00001	4	4	525
019001	P07965	2	1	8400
019001	P07885	2	1	5250
019002	P00001	10	0	525
046865	P07868	3	3	3150
046865	P07885	10	10	5250
019003	P00001	4	4	1050
019003	P03453	2	2	1050
046866	P06734	1	1	12000
046866	P07965	1	0	8400
010008	P07975	1	0	1050
010008	P00001	10	5	525