

University of Engineering and Technology ,Taxila

Department of Computer Engineering



Lab Report 03

For the Course of DBMS lab

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Section: Omega

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Date: 02-02-24.

Course Title: DBMS Lab

SQL Constraints

Constraints are used to limit the type of data that can go into a table.

Constraints can be specified when a table is created (with the CREATE TABLE statement) or after the table is created (with the ALTER TABLE statement).

We will focus on the following constraints:

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

Examples

Not Null/Unique:

Code:

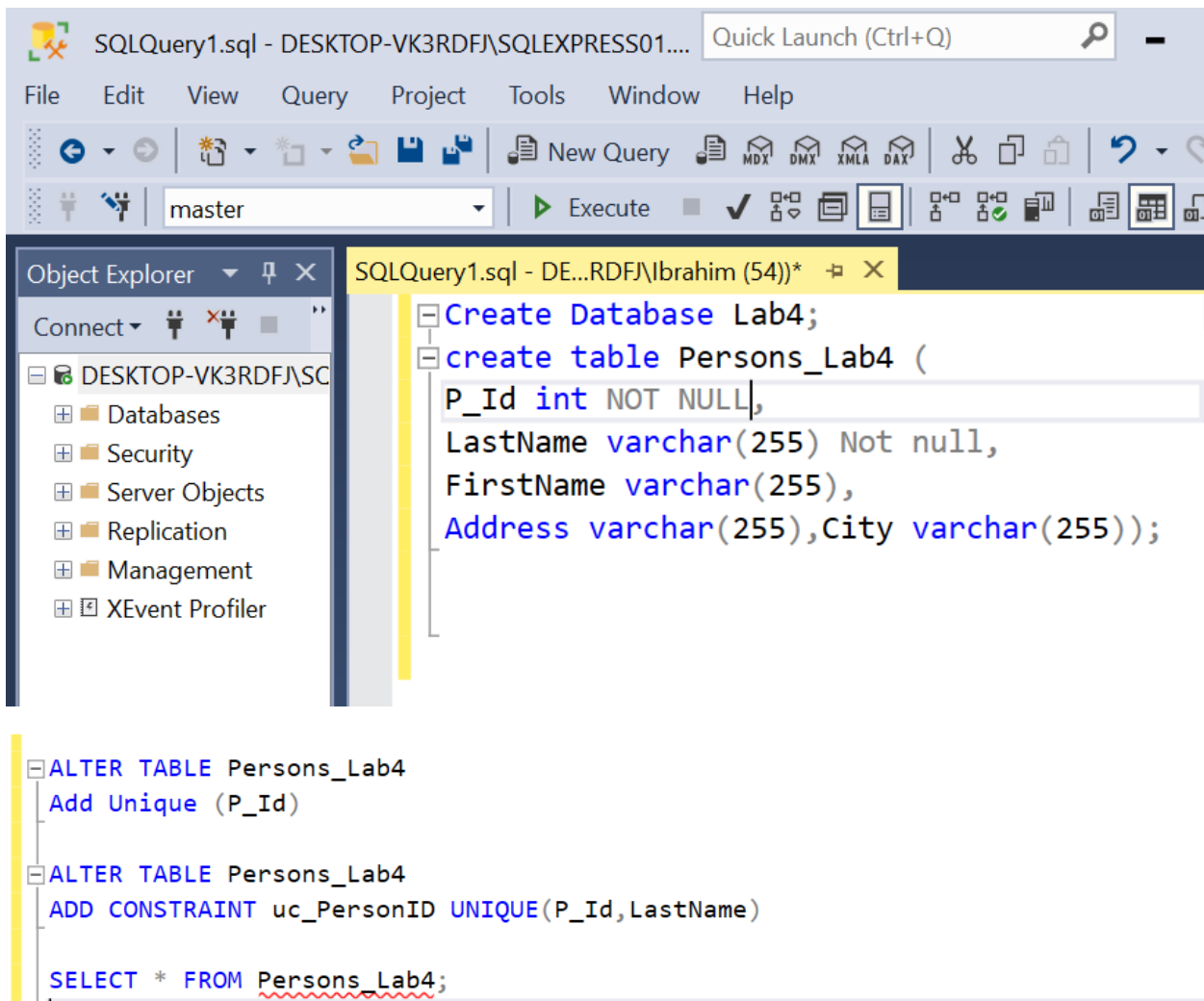
```
--create table Persons_Lab4 (  
--P_Id int NOT NULL,  
--LastName varchar(255) Not null,  
--FirstName varchar(255),  
--Address varchar(255),City varchar(255)  
--CONSTRAINT uc_PersonID UNIQUE(P_Id,LastName));
```

```
--insert into Persons_Lab4  
--VALUES(1,'Ibrahim','Nasir88','sgd','sgd');  
--insert into Persons_Lab4  
--VALUES(2,'Ibrahim12','Nasir77','sgd','sgd');  
--insert into Persons_Lab4  
--VALUES(3,'Ibrahim34','Nasir66','sgd','sgd');  
--insert into Persons_Lab4  
--VALUES(4,'Ibrahim55','Nasir5','sgd','sgd');
```

```
ALTER TABLE Persons_Lab4  
Add Unique (P_Id)
```

```
ALTER TABLE Persons_Lab4  
ADD CONSTRAINT uc_PersonID UNIQUE(P_Id,LastName)
```

```
SELECT * FROM Persons_Lab4;
```



Constraint on multiple column object :

Code:

```

create table Persons3_Lab4 (
P_Id int NOT NULL PRIMARY KEY,
LastName varchar(255) Not null,
FirstName varchar(255),
Address varchar(255),City varchar(255)
CONSTRAINT uc_Per UNIQUE(P_Id,LastName));

```

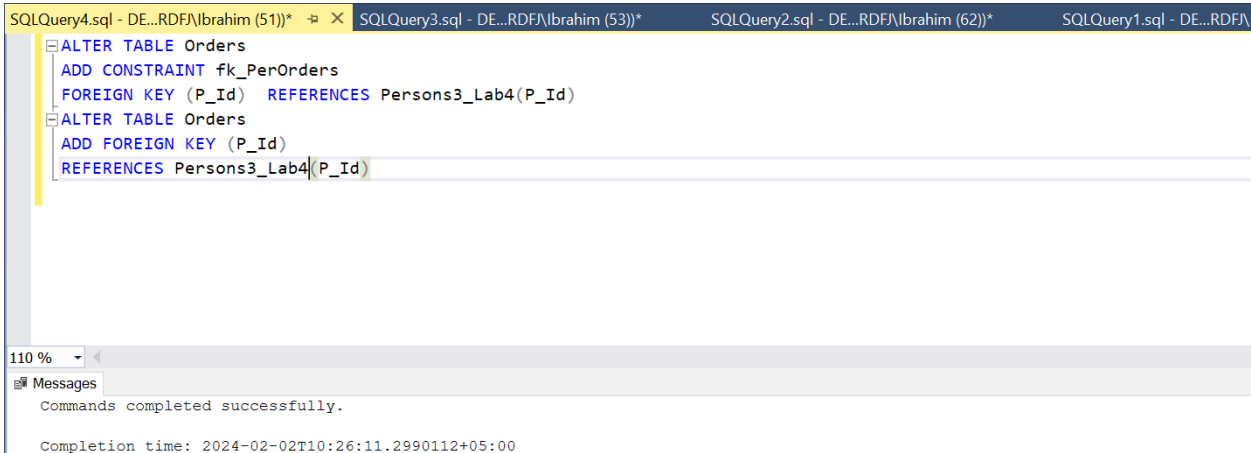
```
create table Persons3_Lab4 (  
  P_Id int NOT NULL PRIMARY KEY,  
  LastName varchar(255) Not null,  
  FirstName varchar(255),  
  Address varchar(255), City varchar(255)  
  CONSTRAINT uc_Per UNIQUE(P_Id, LastName));
```

Alter commands:

Code:

```
ALTER TABLE Orders  
ADD CONSTRAINT fk_PerOrders  
FOREIGN KEY (P_Id) REFERENCES Persons3_Lab4(P_Id)  
ALTER TABLE Orders  
ADD FOREIGN KEY (P_Id)  
REFERENCES Persons3_Lab4(P_Id)
```

```
ALTER TABLE Orders  
ADD CONSTRAINT fk_PerOrders  
FOREIGN KEY (P_Id) REFERENCES Persons3_Lab4(P_Id)  
ALTER TABLE Orders  
ADD FOREIGN KEY (P_Id)  
REFERENCES Persons3_Lab4(P_Id)
```



The screenshot shows a SQL IDE with four tabs: SQLQuery4.sql, SQLQuery3.sql, SQLQuery2.sql, and SQLQuery1.sql. The active tab, SQLQuery4.sql, contains the following SQL code:

```
ALTER TABLE Orders  
ADD CONSTRAINT fk_PerOrders  
FOREIGN KEY (P_Id) REFERENCES Persons3_Lab4(P_Id)  
ALTER TABLE Orders  
ADD FOREIGN KEY (P_Id)  
REFERENCES Persons3_Lab4(P_Id)
```

Below the code editor, a 'Messages' pane shows the following output:

```
Commands completed successfully.  
Completion time: 2024-02-02T10:26:11.2990112+05:00
```

Foreign/Primary commands:

Code:

```

create table Persons3_Lab4 (
P_Id int NOT NULL PRIMARY KEY,
LastName varchar(255) Not null,
FirstName varchar(255),
Address varchar(255),City varchar(255)
CONSTRAINT uc_Per UNIQUE(P_Id,LastName));

insert into Persons3_Lab4
VALUES(1,'Hansen','Ola','timovetin10','sandness');
insert into Persons3_Lab4
VALUES(2,'syendson','Tove','borgen','sandnes');
insert into Persons3_Lab4
VALUES(3,'Petersen ','Kari','Storgt 20','Stavanger');

create table Orders (
O_Id int NOT NULL PRIMARY KEY,
OrderNo int NOT NULL,
P_Id int FOREIGN KEY REFERENCES Persons3_Lab4(P_Id));

insert into Orders
VALUES (1,77895,3);
insert into Orders
VALUES (2,44678,3);
insert into Orders
VALUES (3,22456,2);
insert into Orders
VALUES (4,24562,1);

select * from Orders
select * from Persons3_Lab4

```

```

P_Id int NOT NULL PRIMARY KEY,
LastName varchar(255) Not null,
FirstName varchar(255),
Address varchar(255),City varchar(255)
CONSTRAINT uc_Per UNIQUE(P_Id,LastName));

insert into Persons3_Lab4
VALUES(1,'Hansen','Ola','timovetin10','sandness');
insert into Persons3_Lab4
VALUES(2,'syendson','Tove','borgen','sandnes');
insert into Persons3_Lab4
VALUES(3,'Petersen ','Kari','Storgt 20','Stavanger');

create table Orders (
O_Id int NOT NULL PRIMARY KEY,
OrderNo int NOT NULL,
P_Id int FOREIGN KEY REFERENCES Persons3_Lab4(P_Id));

insert into Orders
VALUES (1,77895,3);
insert into Orders
VALUES (2,44678,3);
insert into Orders
VALUES (3,22456,2);
insert into Orders
VALUES (4,24562,1);

select * from Orders
select * from Persons3_Lab4

```

SQLQuery7.sql - DE...RDF\Ibrahim (71))* X SQLQuery6.sql - DE...RDF\Ibrahim (66))* SQLQuery5.sql - DE...RDF\Ibrahim (56))* SQLQuery4.sql - DE...RDF\Ibrahim (51))*

```

--Create Table Persons7(
--P_Id int NOT NULL,
--LastName varchar(255) NOT NULL,
--FirstName varchar(255),
--Address varchar(255),
--City varchar(255) DEFAULT 'sandness')

--CREATE TABLE Orders1
--(
--O_Id int NOT NULL,
--OrderNo int NOT NULL,
--P_Id int,
--OrderDate date DEFAULT GETDATE()
--);

INSERT INTO Orders1
VALUES(12,3324,1,'');
SELECT * FROM Orders1

```

110 %

Results Messages

	O_Id	OrderNo	P_Id	OrderDate
1	12	3324	1	1900-01-01
2	12	3324	1	1900-01-01
3	12	3324	1	1900-01-01

	O_Id	OrderNo	P_Id
1	1	77895	3
2	2	44678	3
3	3	22456	2
4	4	24562	1

	P_Id	LastName	FirstName	Address	City
1	1	Hansen	Ola	timovetin10	sanddness
2	2	syendson	Tove	borgen	sandnes
3	3	Petersen	Kari	Storgt 20	Stavanger

Check commands:

Code:

```

Create table Persons5(
P_Id int NOT NULL CHECK (P_Id>0),
LastName varchar(255) NOT NULL,
FirstName varchar(255),
Addresss varchar(255),
City varchar(255)
)
Select * from Persons5
CREATE TABLE Persons6
(
P_Id int NOT NULL,
LastName varchar(255) NOT NULL,
FirstName varchar(255),
Address varchar(255),
City varchar(255),
CONSTRAINT chk_Person CHECK (P_Id>0 AND City='Sandnes')
)
Select * from Persons6

```

```
CREATE TABLE Persons5(
  P_Id int NOT NULL CHECK (P_Id>0),
  LastName varchar(255) NOT NULL,
  FirstName varchar(255),
  Addresss varchar(255),
  City varchar(255)
)
Select * from Persons5
CREATE TABLE Persons6
(
  P_Id int NOT NULL,
  LastName varchar(255) NOT NULL,
  FirstName varchar(255),
  Address varchar(255),
  City varchar(255),
  CONSTRAINT chk_Person CHECK (P_Id>0 AND City='Sandnes')
)
Select * from Persons6
```

110 %

Results Messages

P_Id	LastName	FirstName	Addresss	City
------	----------	-----------	----------	------

Default commands:

Code:

```
--Create Table Persons7(
--P_Id int NOT NULL,
--LastName varchar(255) NOT NULL,
--FirstName varchar(255),
--Address varchar(255),
--City varchar(255) DEFAULT 'sandness')

--CREATE TABLE Orders1
--(
--O_Id int NOT NULL,
--OrderNo int NOT NULL,
--P_Id int,
--OrderDate date DEFAULT GETDATE()
--) ;
--INSERT INTO Orders1
--VALUES(12,3324,1,'');
SELECT * FROM Orders1
select * from Persons7
select * from Orders1
```



```
--Create Table Persons7(
--P_Id int NOT NULL,
--LastName varchar(255) NOT NULL,
--FirstName varchar(255),
--Address varchar(255),
--City varchar(255) DEFAULT 'sandness')

--CREATE TABLE Orders1
--(
--O_Id int NOT NULL,
--OrderNo int NOT NULL,
--P_Id int,
--OrderDate date DEFAULT GETDATE()
--) ;
--INSERT INTO Orders1
VALUES(12, 3324, 1, '1900-01-01')
```

90 %

Results Messages

	O_Id	OrderNo	P_Id	OrderDate
1	12	3324	1	1900-01-01
2	12	3324	1	1900-01-01
3	12	3324	1	1900-01-01

P_Id	LastName	FirstName	Address	City
------	----------	-----------	---------	------

	O_Id	OrderNo	P_Id	OrderDate
1	12	3324	1	1900-01-01
2	12	3324	1	1900-01-01
3	12	3324	1	1900-01-01

Task:

TASK LAB 3

In online shopping scenario, Customers places orders for certain product. Create following tables with attributes.

- **Customers** (C_ID , C_Name , C_Address , C_City , C_State , C_PostalCode)
- **Orders** (OrderID, OrderDate where OrderID is UNIQUE
- **Product** P_ID, P_Description , P_Finish , P_StandardPrice.
Also add constraint CHECK (P_ID >0).

Define primary key and foreign key constraints on customers and Orders Tables by yourself. Add requisite attributes for this purpose.

Code:

```
CREATE TABLE Customers9 (  
    C_ID INT PRIMARY KEY,  
    C_Name VARCHAR(255),  
    C_Address VARCHAR(255),  
    C_City VARCHAR(255),  
    C_State VARCHAR(255),  
    C_PostalCode VARCHAR(255)  
);
```

```
CREATE TABLE Orders9(  
    OrderID INT PRIMARY KEY,  
    OrderDate DATE DEFAULT GETDATE(),  
    C_ID INT,  
    FOREIGN KEY (C_ID) REFERENCES Customers9(C_ID)  
);
```

```
CREATE TABLE Products (  
    P_ID INT PRIMARY KEY CHECK (P_ID > 0),  
    P_Description VARCHAR(255),  
    P_Finish VARCHAR(255),  
    P_StandardPrice VARCHAR(255)  
);
```

```
select * from Customers9  
select * from Orders9  
select * from Products
```

```
CREATE TABLE Customers9 (  
    C_ID INT PRIMARY KEY,  
    C_Name VARCHAR(255),  
    C_Address VARCHAR(255),  
    C_City VARCHAR(255),  
    C_State VARCHAR(255),  
    C_PostalCode VARCHAR(255)  
);  
  
CREATE TABLE Orders9(  
    OrderID INT PRIMARY KEY,  
    OrderDate DATE DEFAULT GETDATE(),  
    C_ID INT,  
    FOREIGN KEY (C_ID) REFERENCES Customers9(C_ID)  
);  
  
CREATE TABLE Products (  
    P_ID INT PRIMARY KEY CHECK (P_ID > 0),  
    P_Description VARCHAR(255),  
    P_Finish VARCHAR(255),  
    P_StandardPrice VARCHAR(255)  
);
```

```
select * from Customers9  
select * from Orders9  
select * from Products
```

90 %

Results Messages

C_ID	C_Name	C_Address	C_City	C_State	C_PostalCode
------	--------	-----------	--------	---------	--------------

OrderID	OrderDate	C_ID
---------	-----------	------

P_ID	P_Description	P_Finish	P_StandardPrice
------	---------------	----------	-----------------

✓ Query executed | DESKTOP-VK3RDEF\SQL EXPRESS0 | DESKTOP-VK3RDEF\Ibrahi | master | 00:00:00 | 0 rows