Introduction to Database

Group Name: Up to Data

Project Name: Diagnostic Center Management System

Course Instructor: Kawser Irom Rushee

Section: C

Group Members Details:

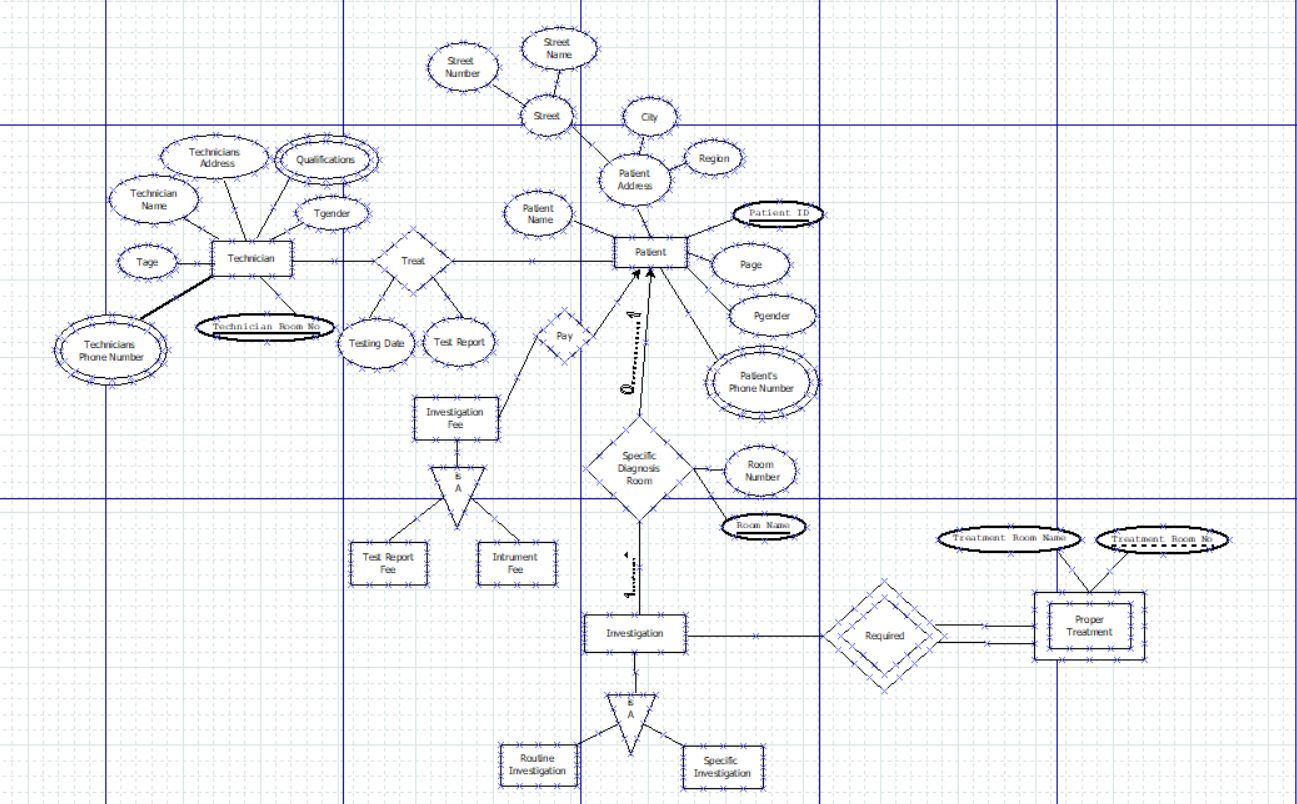
|  |  |
| --- | --- |
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| 20-42037-1 | Marmita Paul |
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**Case Study**

In a diagnostic center management system, a patient is treated by many technician. One technician can treat many patient. Here,a patient is identified by a patient id. Patient name, Patient’s address, Pgender, patient’s phone number , Page are also stored in computer. There may be multiple phone number of a patient. A patient address is composed of street,city and region. Street is composed of street- number and street- name. A technician is also identified by technician's room no. The computer also stores technician name, technician’s address, Tgender, technician’s phone- number, Tage and qualification. There may be multiple qualification and phone number of a technician. While technician treat patients, the Ptest report and testing date is given to patient. A patient may also pay many investigation fee. A investigation fee may be payed by exactly one patient. Test report fee and instrument fee can be generalized as investigation fee. A patient goes to specific diagnosis room for at least one investigation. One investigation is performed into the specific diagnosis room for at most one patient. Specific Diagnosis room is identified by room name. At the time of going to specific diagnosis room, patient check room number. Investigation can be specialized into routine investigation and specific investigation. Investigation is required for proper treatment. The existence of proper treatment is totally dependent on investigation. Here, proper treatment is identified by a treatment room no. Hospital’s Treatment room name is also stored in diagnosis room’s computer. Now draw an ER diagram according to the mentioned scenario.

**ER Diagram**

**Screenshot Jpg Format:**

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**Screenshot From Dia Software :**

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**Normalization**

**Treat:**

**UNF:1st:** technician name, technician address, qualification, Tgender, technician’s phone number,Tage, technician’s room no, patient name, street- number, street- name, city, region, Page, Pgender, patient’s phone number, patient id, Ptesting date, test report

**1NF:1st:.** technician’s room no, technician’s phone number, qualification , patient id, patient’s phone number , technician name, technician address, Tgender, Tage, patient name, street- number, street- name, city, region, Page, Pgender, Ptesting date, test report

**2NF:1st:** technician’s room no, technician’s phone number, qualification , technician name, Tgender, Tage

**2nd:** technician’s room no, technician’s phone number , technician address

**3rd:** patient id**,**  patient’s phone number , patient name, street- number, street- name, city, region, Page, Pgender

**4th:** patient id, test report, Ptesting date

**3NF: 1st:** technician’s room no, technician’s phone number, qualification , technician name, Tgender, Tage

**2nd:** technician’s room no,technician’s phone number **,** technician address

**3rd:** patient id, patient’s phone number , patient name, city, Page, Pgender

**4th:** City , street- number, street- name, region

**5th:** patient id,test report, Ptesting date

**Pay:**

**UNF: 1st:** patient id, patient’s phone number , patient name, street- number, street- name, city, region, Page, Pgender, test report fee, instrument fee

**1NF:1st:** patient id, patient’s phone number , patient name, street- number, street- name, city, region, Page, Pgender, test report fee, instrument fee

**2NF:1st:** patient id, patient’s phone number , patient name, street- number, street- name, city, region, Page, Pgender, test report fee, instrument fee

**3NF:1st:** patient id, patient’s phone number , patient name, city, Page, Pgender, test report fee

**2nd:** City , street- number, street- name, region

**3rd:** test report fee, instrument fee

**Specific diagnosis room:**

**UNF:1st:** patient id, patient’s phone number , patient name, street- number, street- name, city, region, Page, Pgender, routine investigation, specific investigation, room name, room number

**1NF:1st:** patient id, patient’s phone number , room name, patient name, street- number, street- name, city, region, Page, Pgender, routine investigation, specific investigation, room number

**2NF:1st:** patient id, patient’s phone number , patient name, street- number, street- name, city, region, Page, Pgender

**2nd:** room name, routine investigation, specific investigation, room number

**3NF:1st:** patient id, patient’s phone number , patient name, city, Page, Pgender,

**2nd:** City , street- number, street- name, region

**3rd:** room name, routine investigation, specific investigation, room number

**Required:**

**UNF:1st:** routine investigation, specific investigation, treatment room name, treatment room no

**1NF:1st:** treatment room no**,** routine investigation, specific investigation, treatment room name

**2NF:2nd:**treatment room no**,** routine investigation, specific investigation, treatment room name

**3NF:1st:** treatment room no, treatment room name, routine investigation, specific investigation

**Final Table:**

**1st**: technician’s room no, technician’s phone number, qualification , technician name, Tgender, Tage

**2nd:** technician’s room no, technician’s phone number , technician address

**3rd:** patient id, patient phone number , patient name, city, Page, Pgender

**4th:** City , street- number, street- name, region

**5th:** patient id, test report, Ptesting date

**6th:** patient id, patient’s phone number , patient name, city, Page, Pgender, test report fee

**7th:** test report fee, instrument fee

**8th:** room name, routine investigation, specific investigation, room number

**9th:** treatment room no, treatment room name, routine investigation, specific investigation

**Table Creation**

**1. Technician**

CREATE TABLE Technician\_Info1 (

Technician\_Room\_No number(20),

Technician\_Name varchar2(50),

Technician\_Phone\_No number(14),

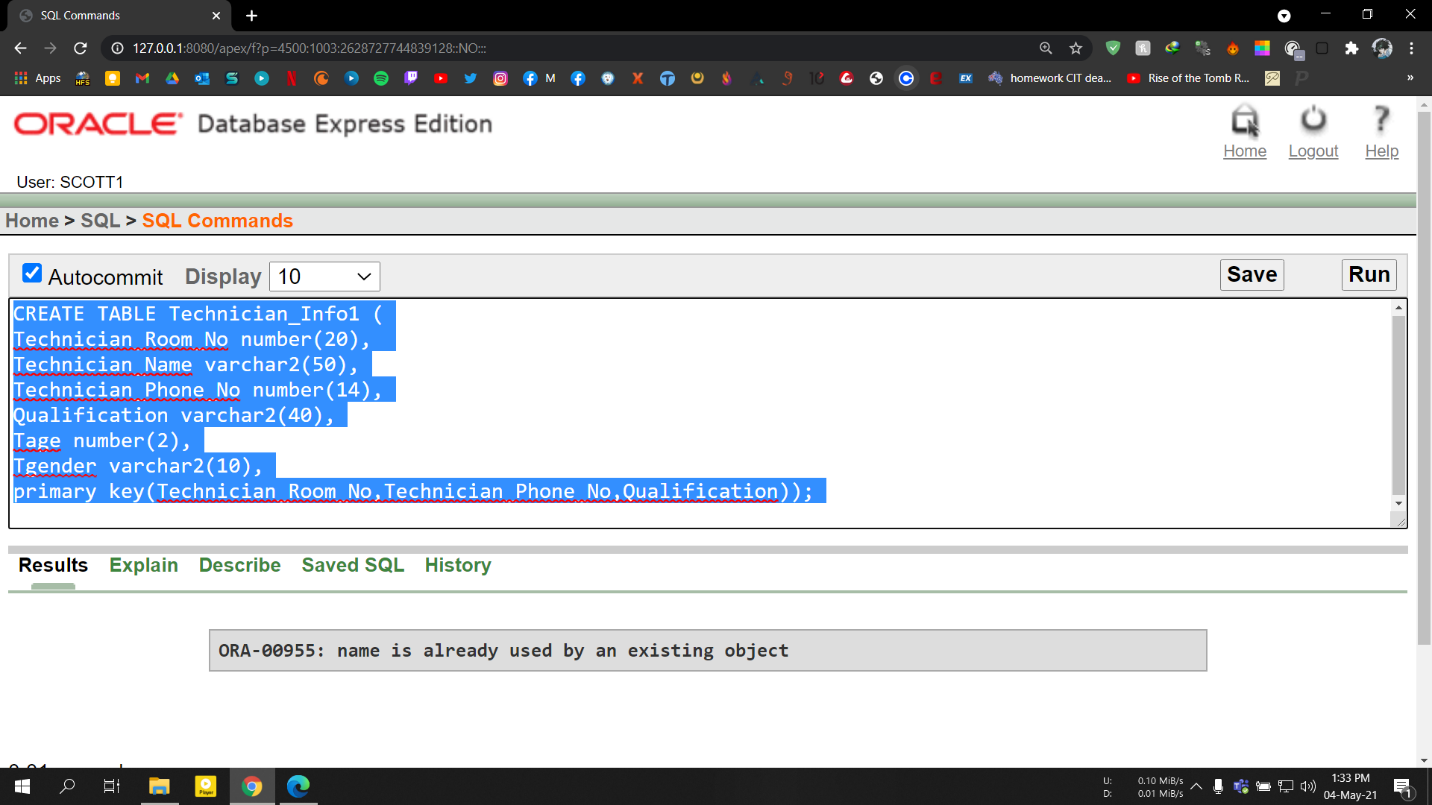
Qualification varchar2(40),

Tage number(2),

Tgender varchar2(10),

primary key(Technician\_Room\_No,Technician\_Phone\_No,Qualification));

Table Screenshot:



**2.Technician Info**

CREATE TABLE Technician\_Info2(

Technician\_Room\_No number(20),

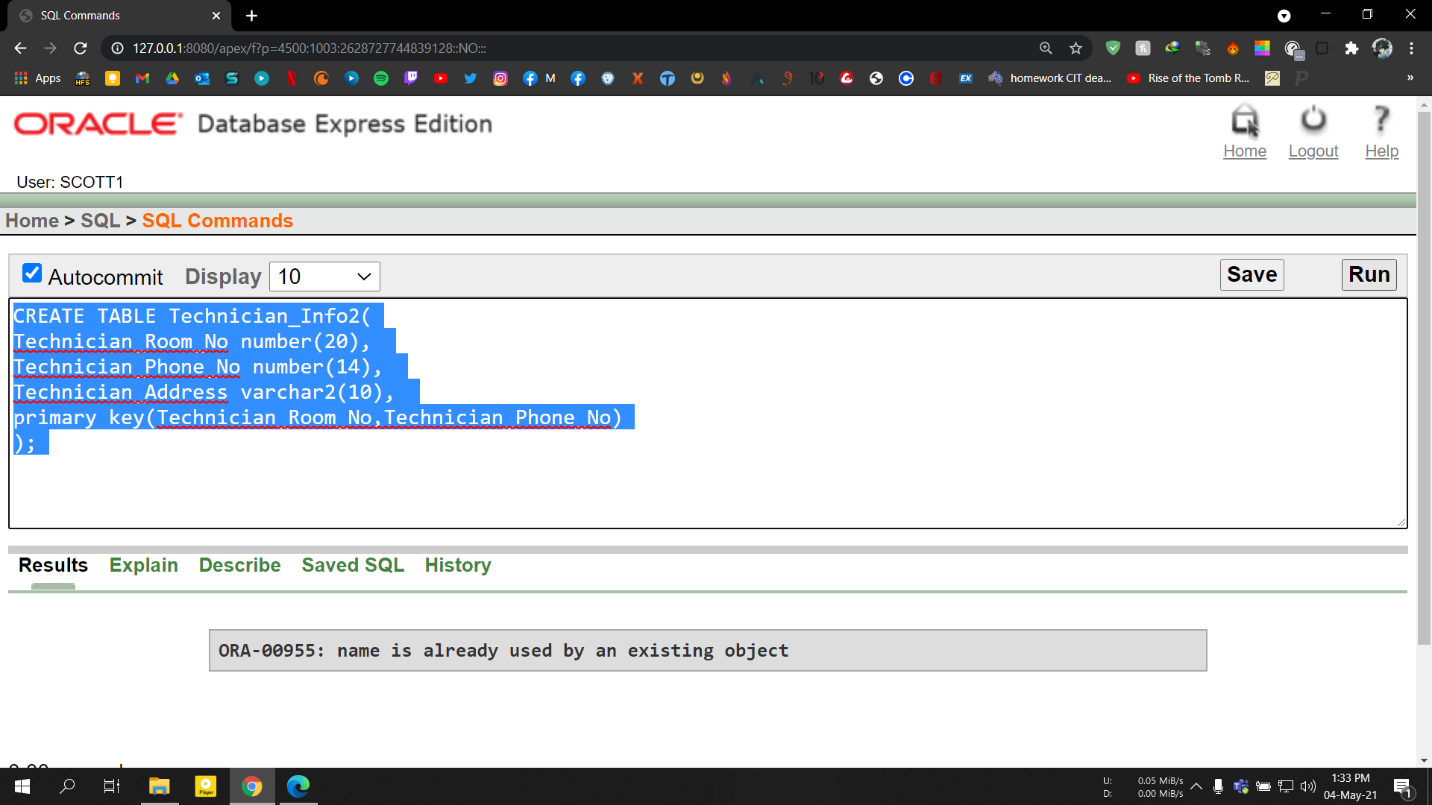
Technician\_Phone\_No number(14),

Technician\_Address varchar2(10),

primary key(Technician\_Room\_No,Technician\_Phone\_No)

);

Table Screenshot:

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**3.Patient**

CREATE TABLE Patient (

Patient\_id number(20),

Patient\_Name varchar2(50),

Patient\_Phone\_No number(14),

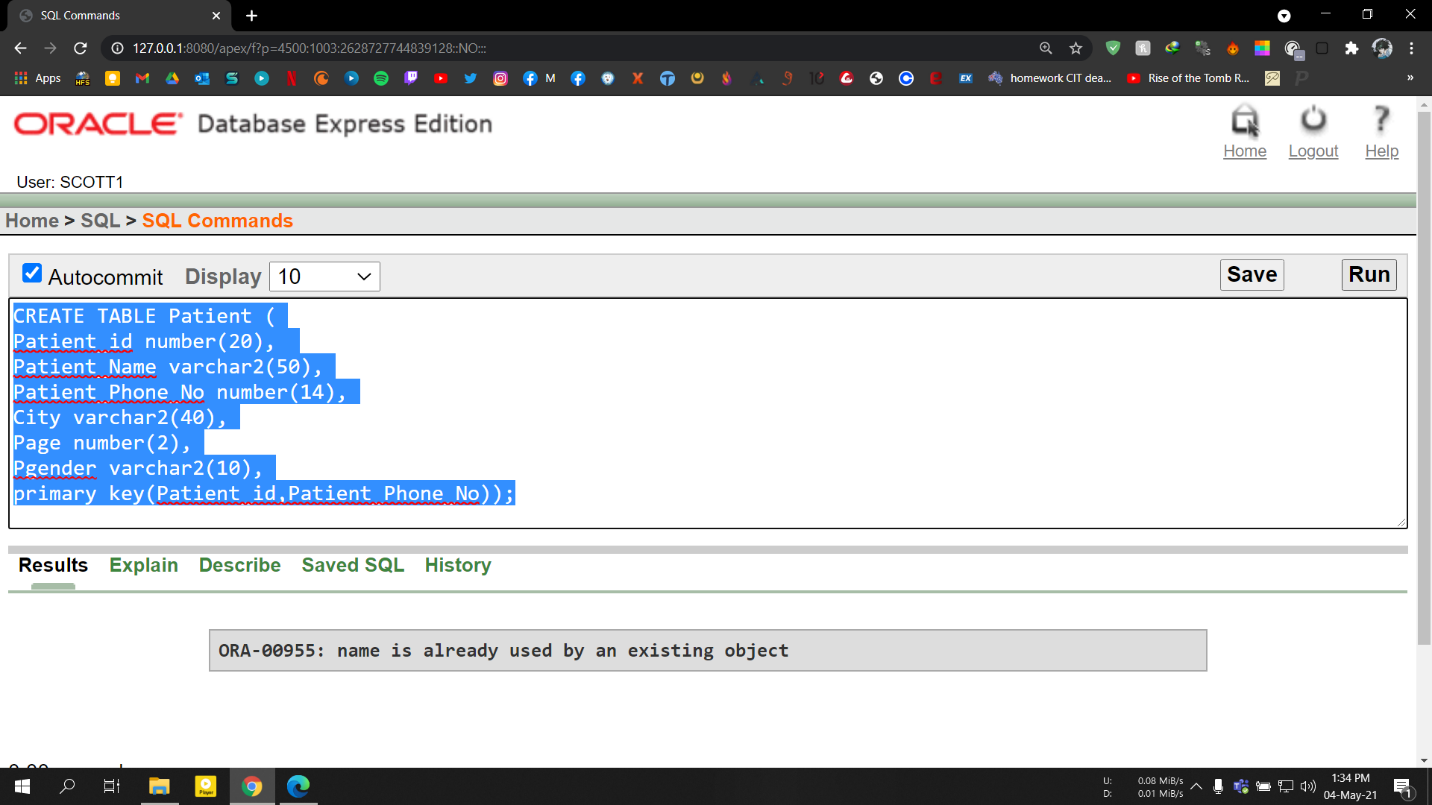
City varchar2(40),

Page number(2),

Pgender varchar2(10),

primary key(Patient\_id,Patient\_Phone\_No));

Table Screenshot:



**4. City**

CREATE TABLE City (

City varchar2(50) primary key,

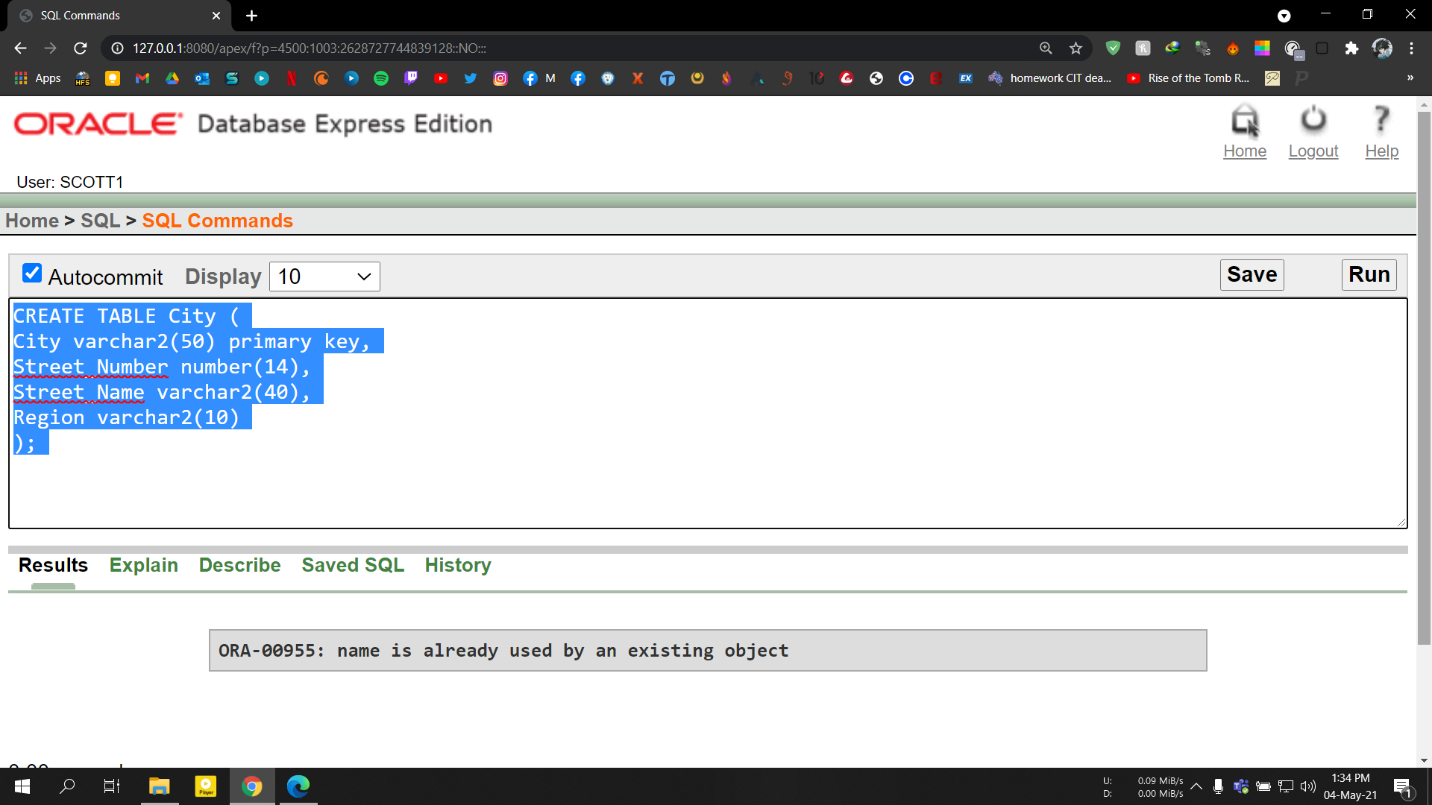
Street\_Number number(14),

Street\_Name varchar2(40),

Region varchar2(10)

);

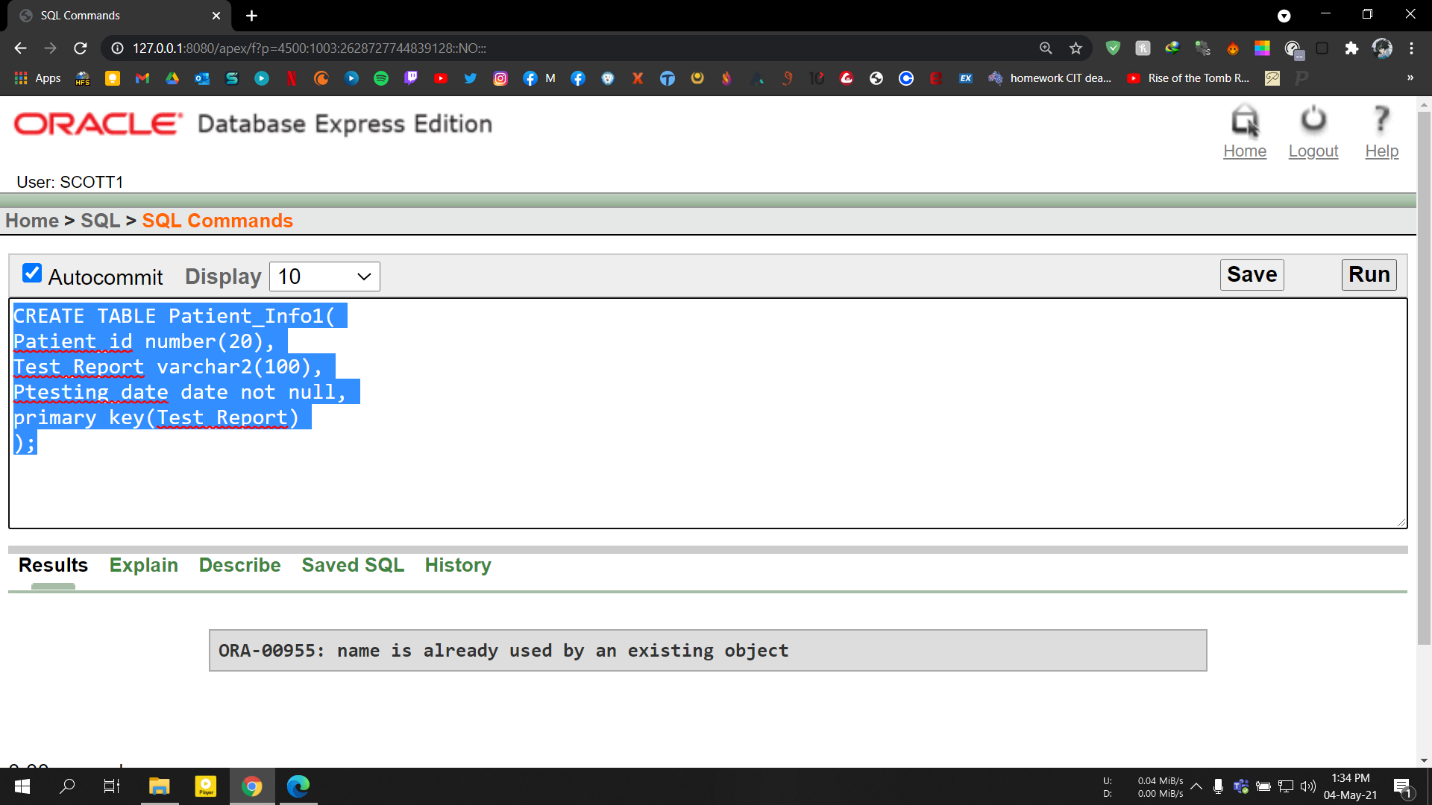
Table Screenshot:



**5.Patient Info1**

CREATE TABLE Patient\_Info1(  
Patient\_id number(20),  
Test\_Report varchar2(100),  
Ptesting\_date date not null,  
primary key(Test\_Report)

);

Table Screenshot:

**6.Patient Info2**

CREATE TABLE Patient\_Info2(

Patient\_id number(20),

Patient\_Name varchar2(50),

Patient\_Phone\_No number(14),

City varchar2(40),

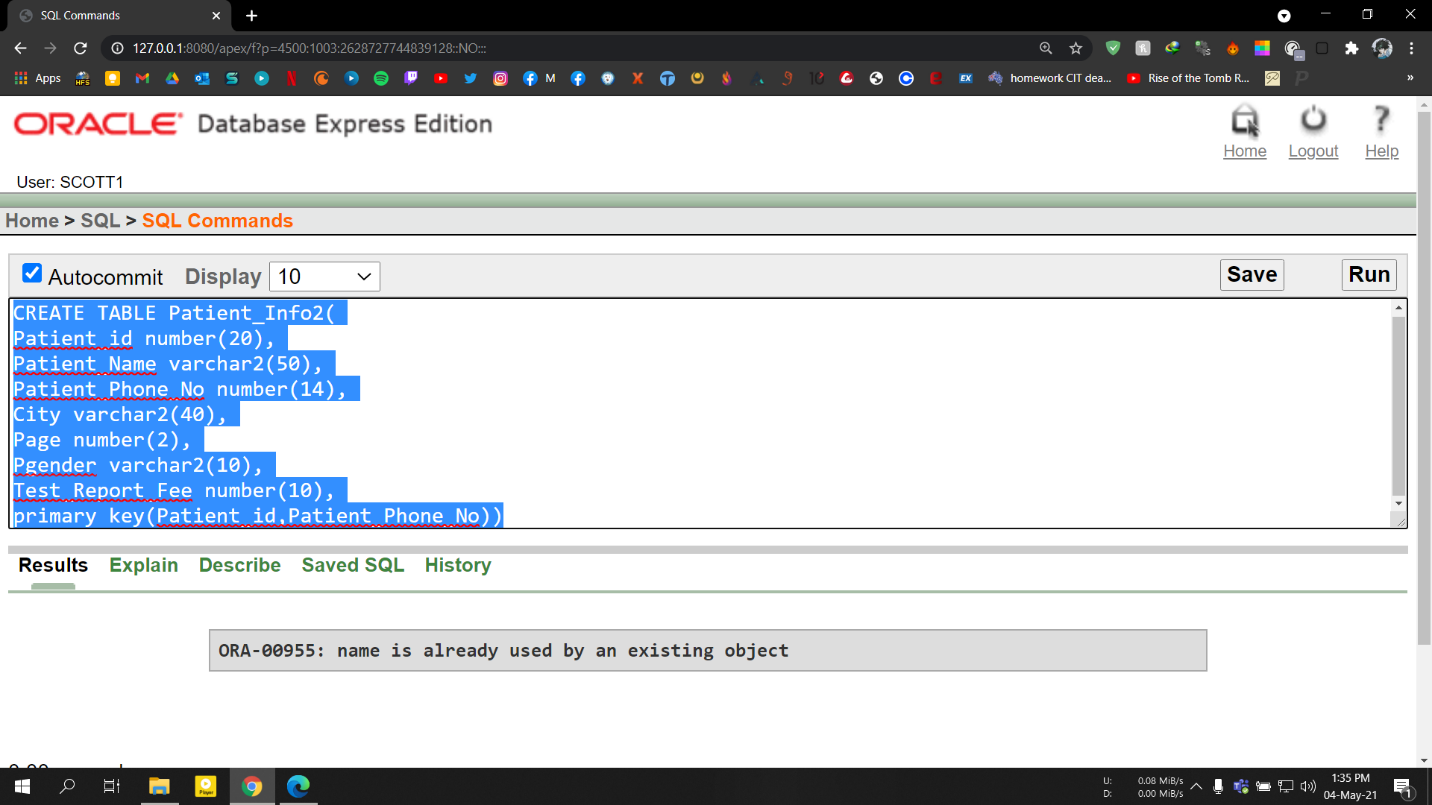
Page number(2),

Pgender varchar2(10),

Test\_Report\_Fee number(10),

primary key(Patient\_id,Patient\_Phone\_No))

Table Screenshot:



**7.Test Report**

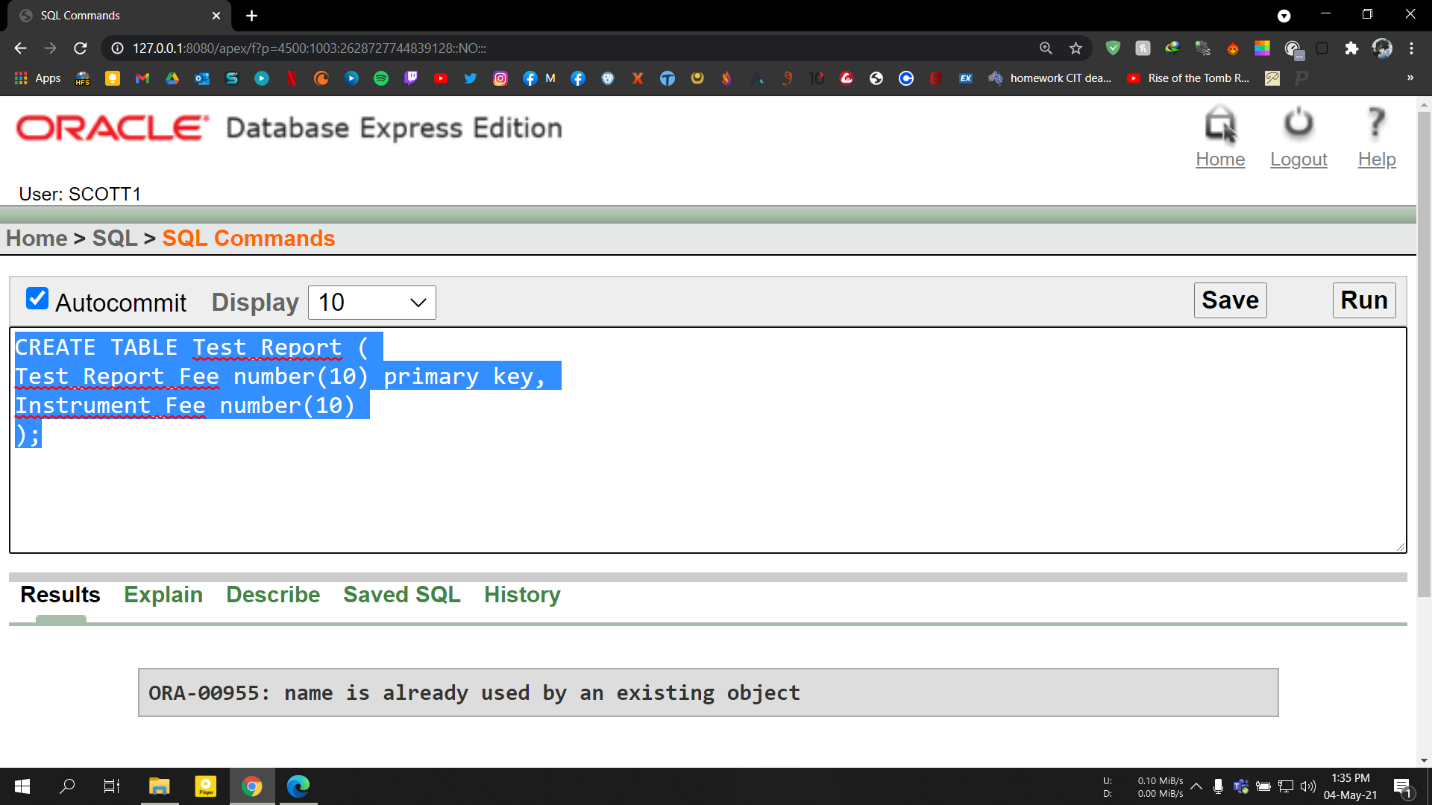
CREATE TABLE Test\_Report (

Test\_Report\_Fee number(10) primary key,

Instrument\_Fee number(10)

);

Table Screenshot:



**8. Room Name**

CREATE TABLE Room\_Name (

Room\_Name varchar2(10) primary key,

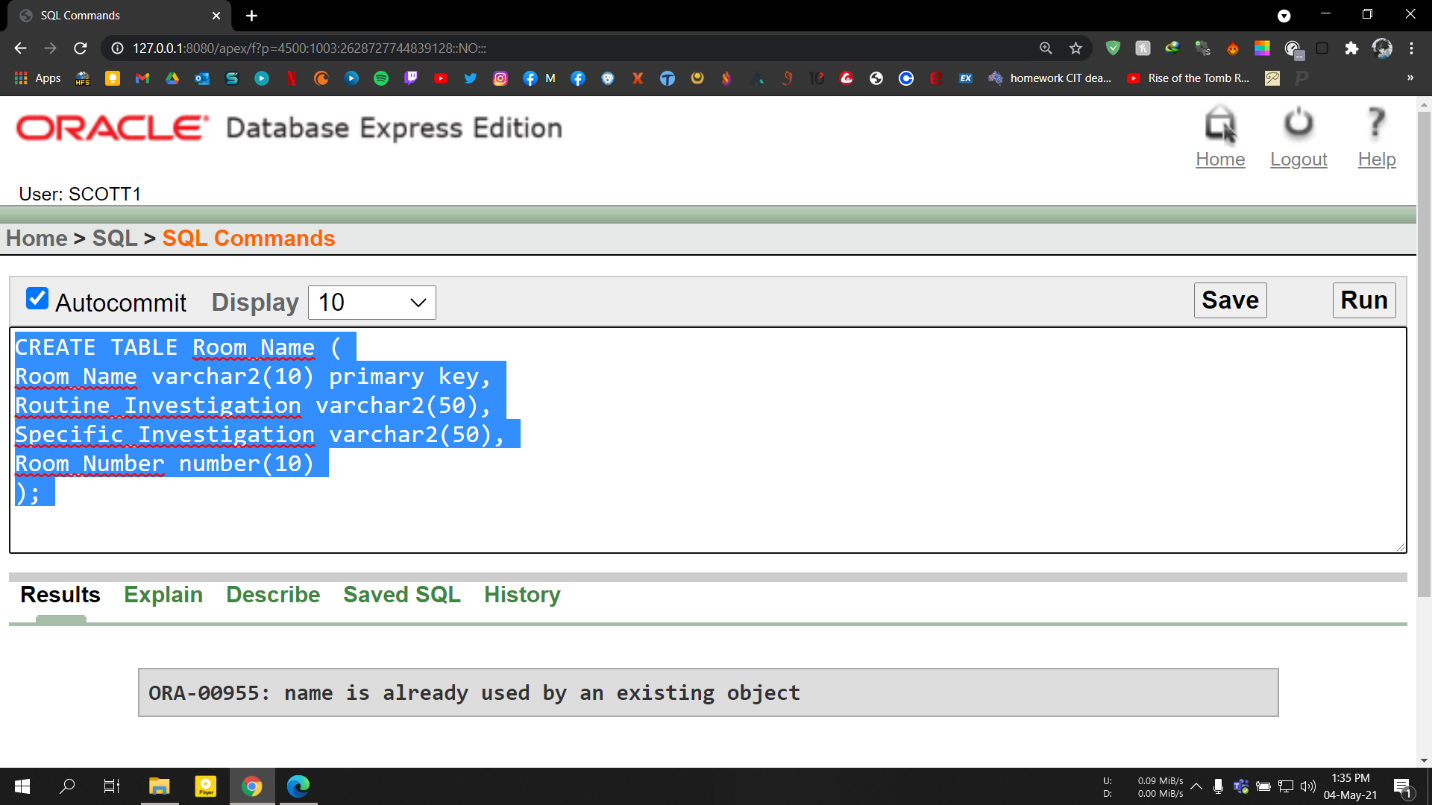
Routine\_Investigation varchar2(50),

Specific\_Investigation varchar2(50),

Room\_Number number(10)

);

Table Screenshot:



**9. Treatment Room**

CREATE TABLE Treatment\_Room (

Treatment\_room\_no number(10) primary key,

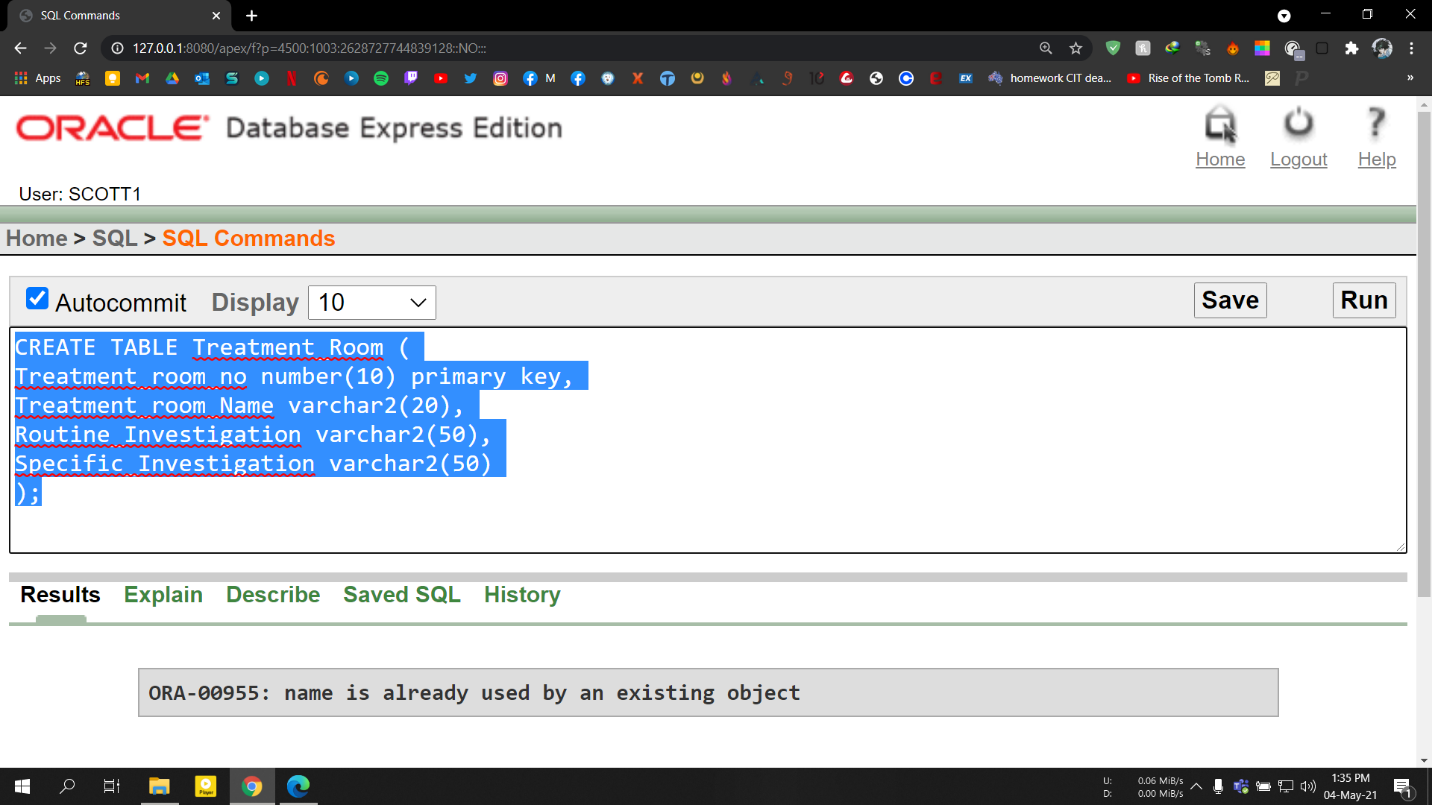
Treatment\_room\_Name varchar2(20),

Routine\_Investigation varchar2(50),

Specific\_Investigation varchar2(50)

);

Table Screenshot

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**Data Insertion**

**1. Technician**

INSERT INTO Technician\_Info1

VALUES (304,'Mr. koushik',+8801819471121,'B.Sc in medical laboratory technology',28,'Male');

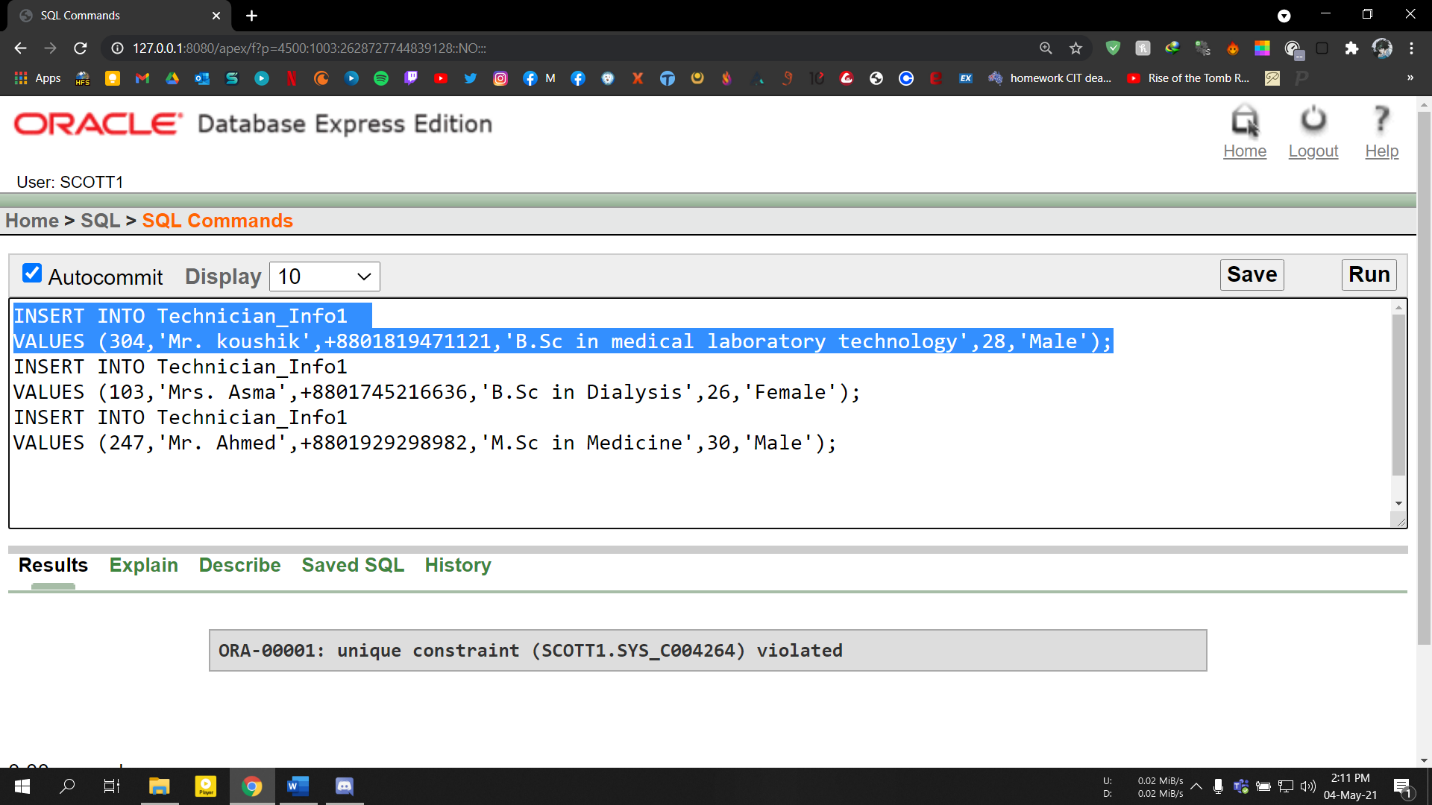
INSERT INTO Technician\_Info1

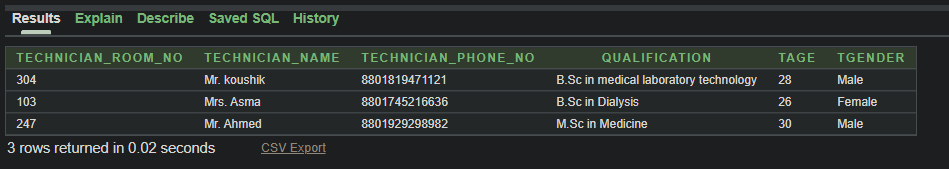
VALUES (103,'Mrs. Asma',+8801745216636,'B.Sc in Dialysis',26,'Female');

INSERT INTO Technician\_Info1

VALUES (247,'Mr. Ahmed',+8801929298982,'M.Sc in Medicine',30,'Male');

**Screenshot:**

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**2.Technician Info**

INSERT INTO Technician\_Info2

VALUES (304,+8801819471121,'Comilla');

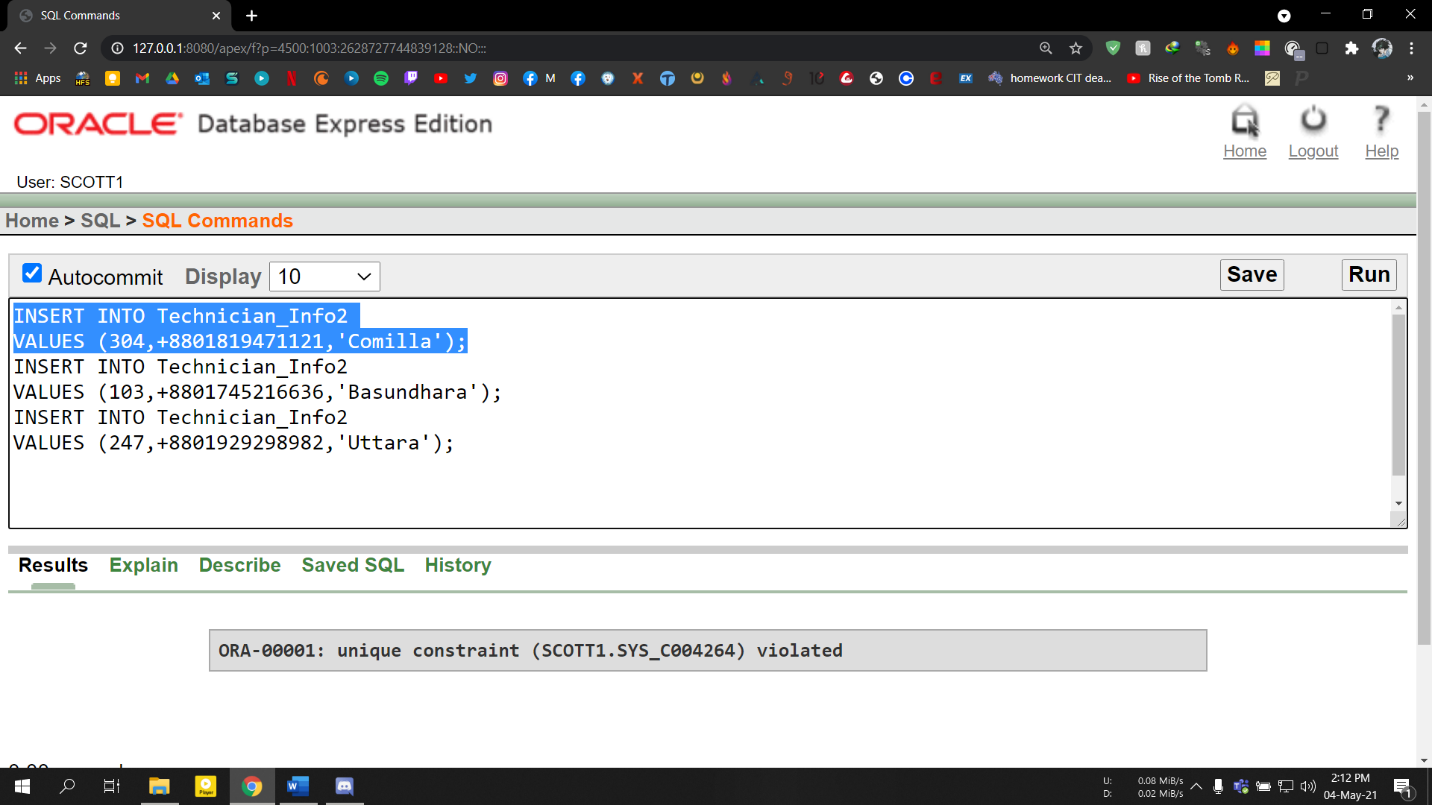
INSERT INTO Technician\_Info2

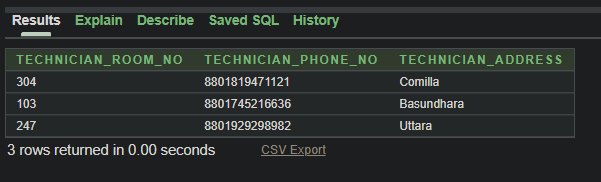
VALUES (103,+8801745216636,'Basundhara');

INSERT INTO Technician\_Info2

VALUES (247,+8801929298982,'Uttara');

**Screenshot:**

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**3.Patient**

INSERT INTO Patient

VALUES (202110,'Soumik Roy',+8801780363359,'Bandar',35,'Male');

INSERT INTO Patient

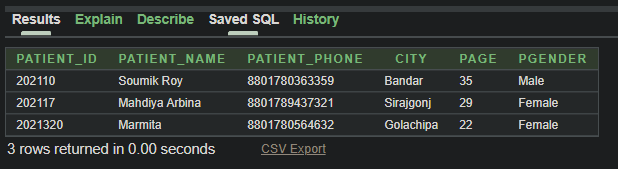
VALUES (202117,'Mahdiya Arbina',+8801789437321,'Sirajgonj',29,'Female');

INSERT INTO Patient

VALUES (2021320,'Marmita',+8801780564632,'Golachipa',22,'Female');

**Screenshot:**

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**4. City**

INSERT INTO City

VALUES ('Bandar',175,'College Road','Bangladesh');

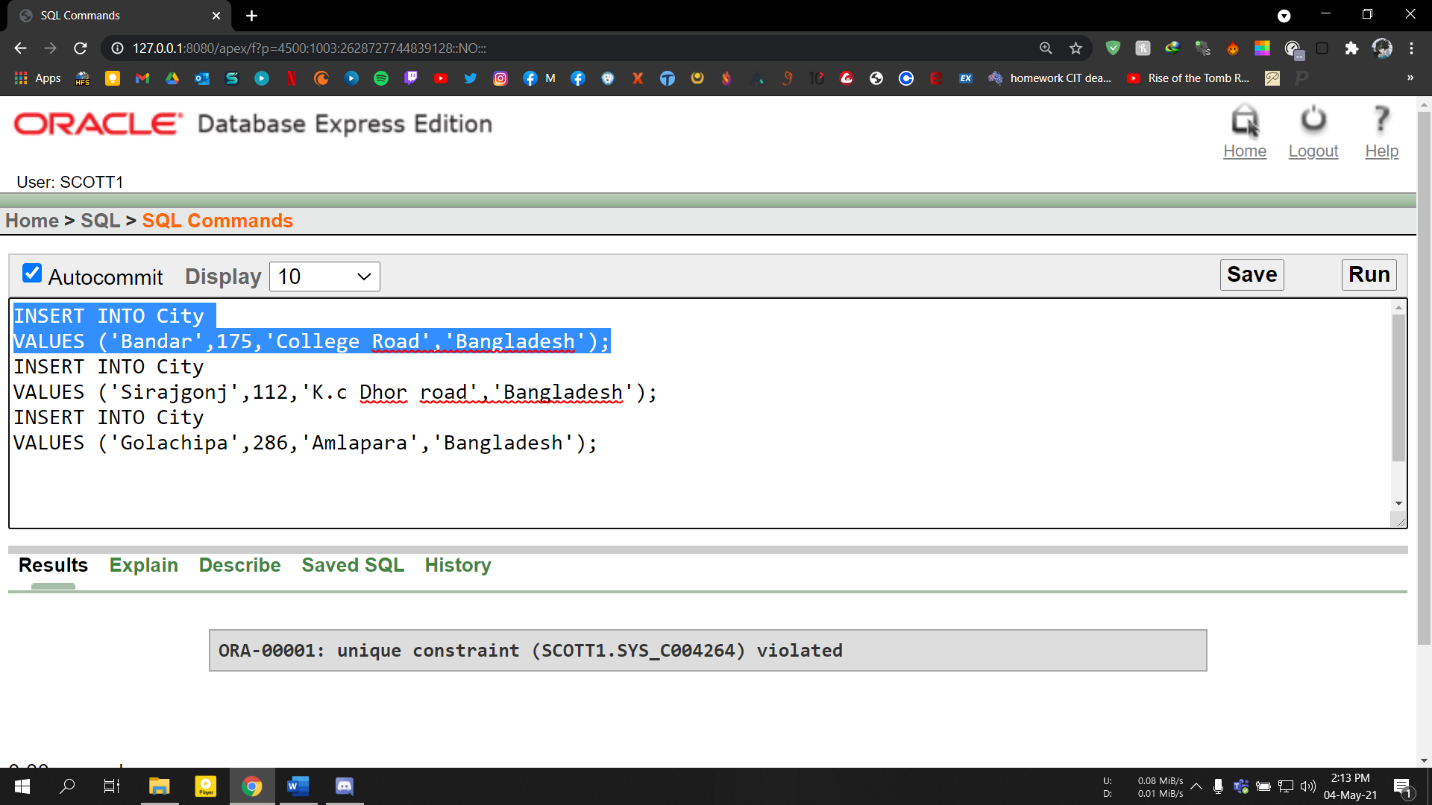
INSERT INTO City

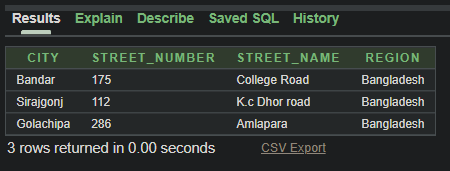
VALUES ('Sirajgonj',112,'K.c Dhor road','Bangladesh');

INSERT INTO City

VALUES ('Golachipa',286,'Amlapara','Bangladesh');

**Screenshot:**

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**5.Patient Info1**

INSERT INTO Patient\_Info1

VALUES (202110,'Surgical Pathology Report','20-JUN-21');

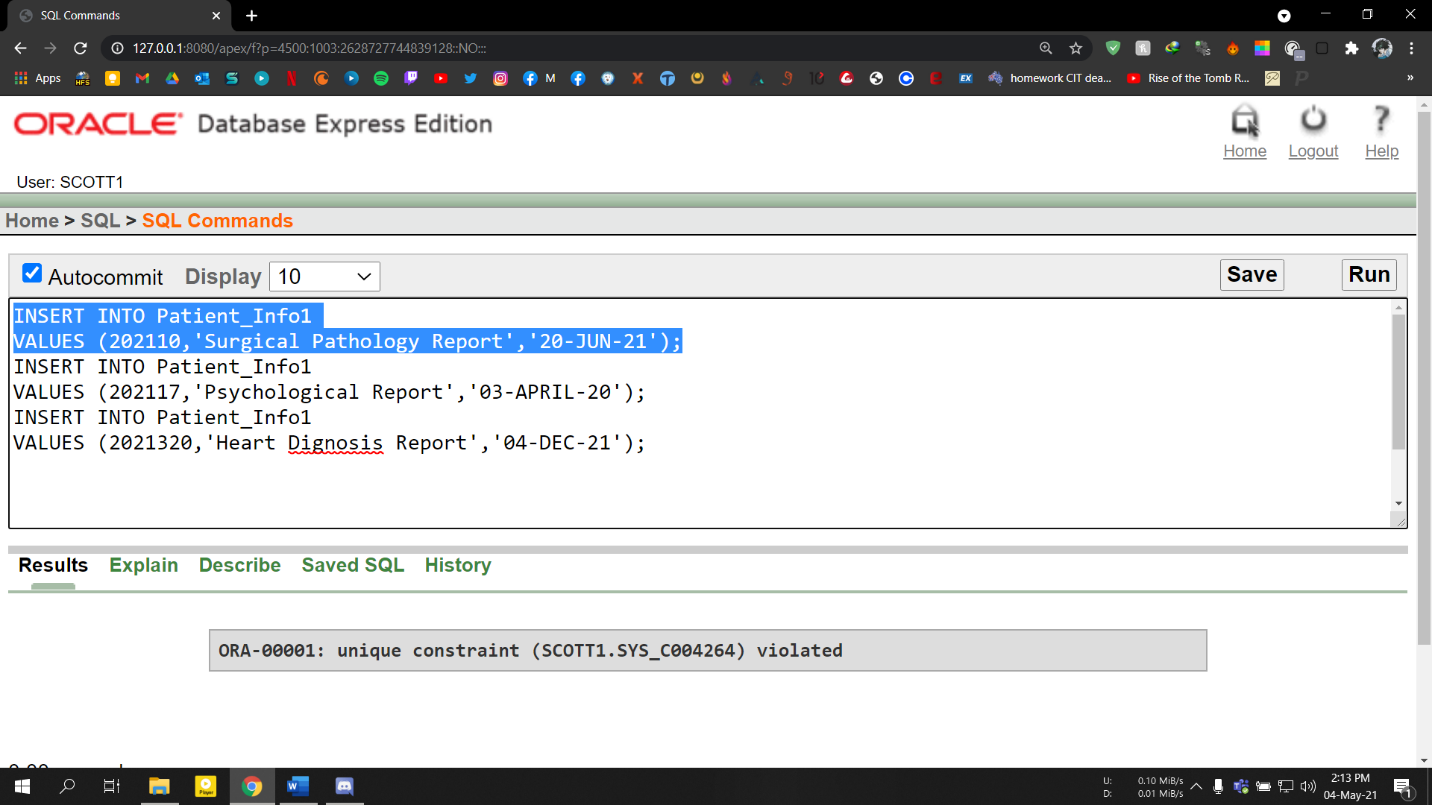
INSERT INTO Patient\_Info1

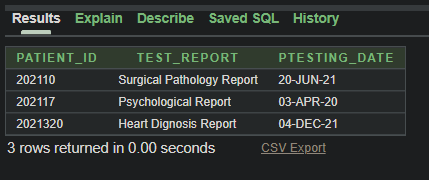
VALUES (202117,'Psychological Report','03-APRIL-20');

INSERT INTO Patient\_Info1

VALUES (2021320,'Heart Dignosis Report','04-DEC-21');

**Screenshot:**

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**6.Patient Info2**

INSERT INTO Patient\_Info2

VALUES (202110,'Soumik Roy',+8801780363359,'Bandar',35,'Male',950);

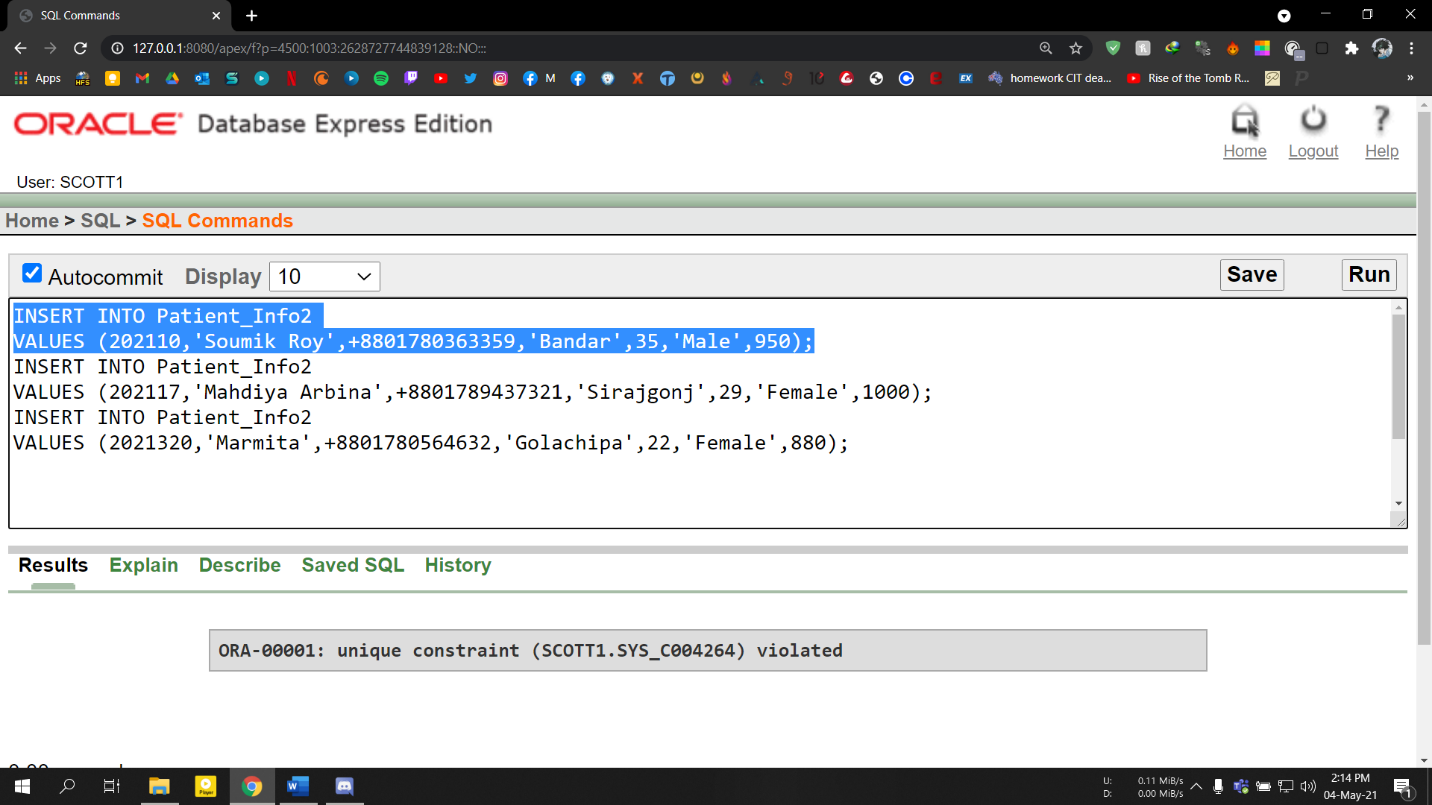
INSERT INTO Patient\_Info2

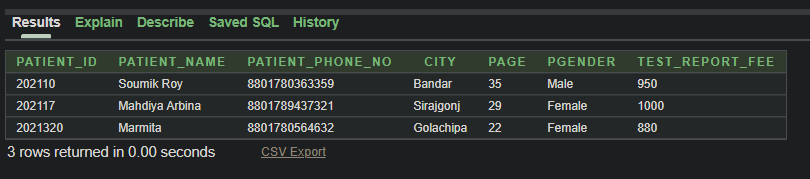
VALUES (202117,'Mahdiya Arbina',+8801789437321,'Sirajgonj',29,'Female',1000);

INSERT INTO Patient\_Info2

VALUES (2021320,'Marmita',+8801780564632,'Golachipa',22,'Female',880);

**Screenshot:**

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**7.Test Report**

INSERT INTO Test\_Report

VALUES (950,1000);

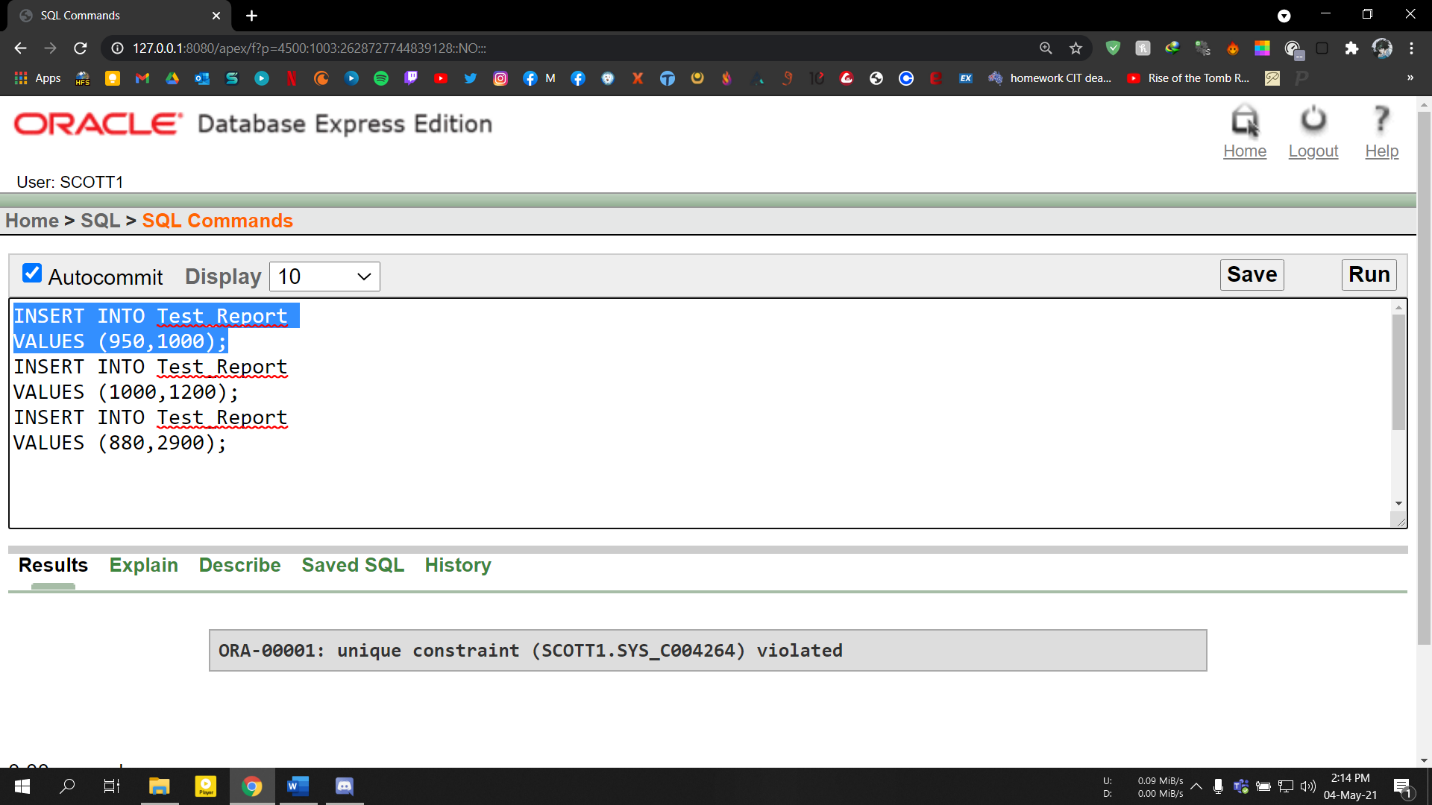
INSERT INTO Test\_Report

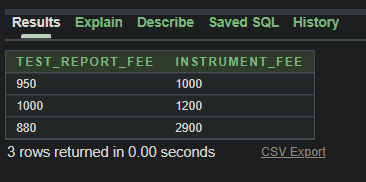
VALUES (1000,1200);

INSERT INTO Test\_Report

VALUES (880,2900);

**Screenshot:**

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**8. Room Name**

INSERT INTO Room\_Name

VALUES ('Medi Lab','Saturday,Tuesday,Thursday','Sunday',101);

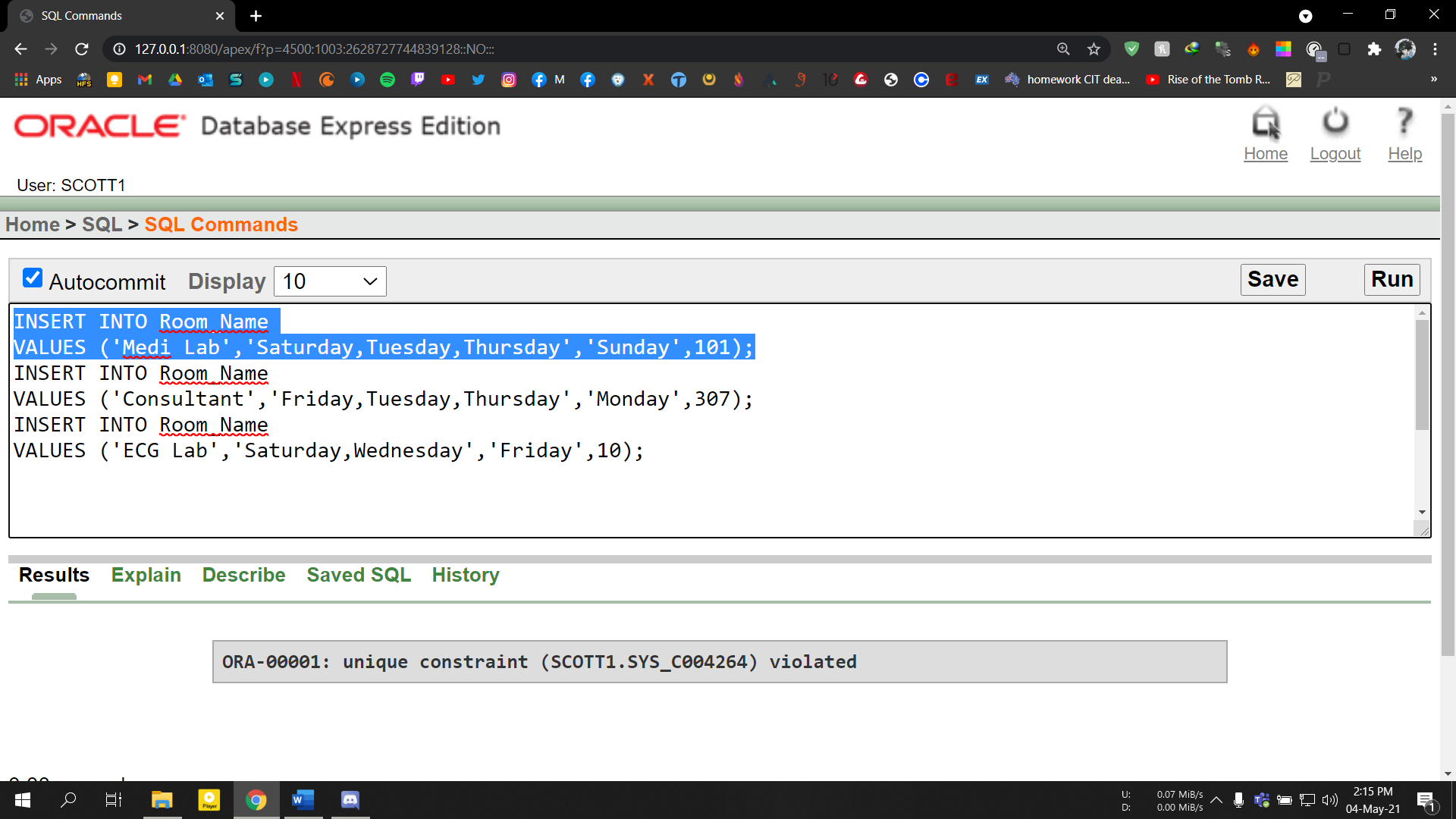
INSERT INTO Room\_Name

VALUES ('Consultant','Friday,Tuesday,Thursday','Monday',307);

INSERT INTO Room\_Name

VALUES ('ECG Lab','Saturday,Wednesday','Friday',10);

**Screenshot:**



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**9. Treatment Room**

INSERT INTO Treatment\_Room

VALUES (09,'Surgery Lab','Saturday','Wednesday');

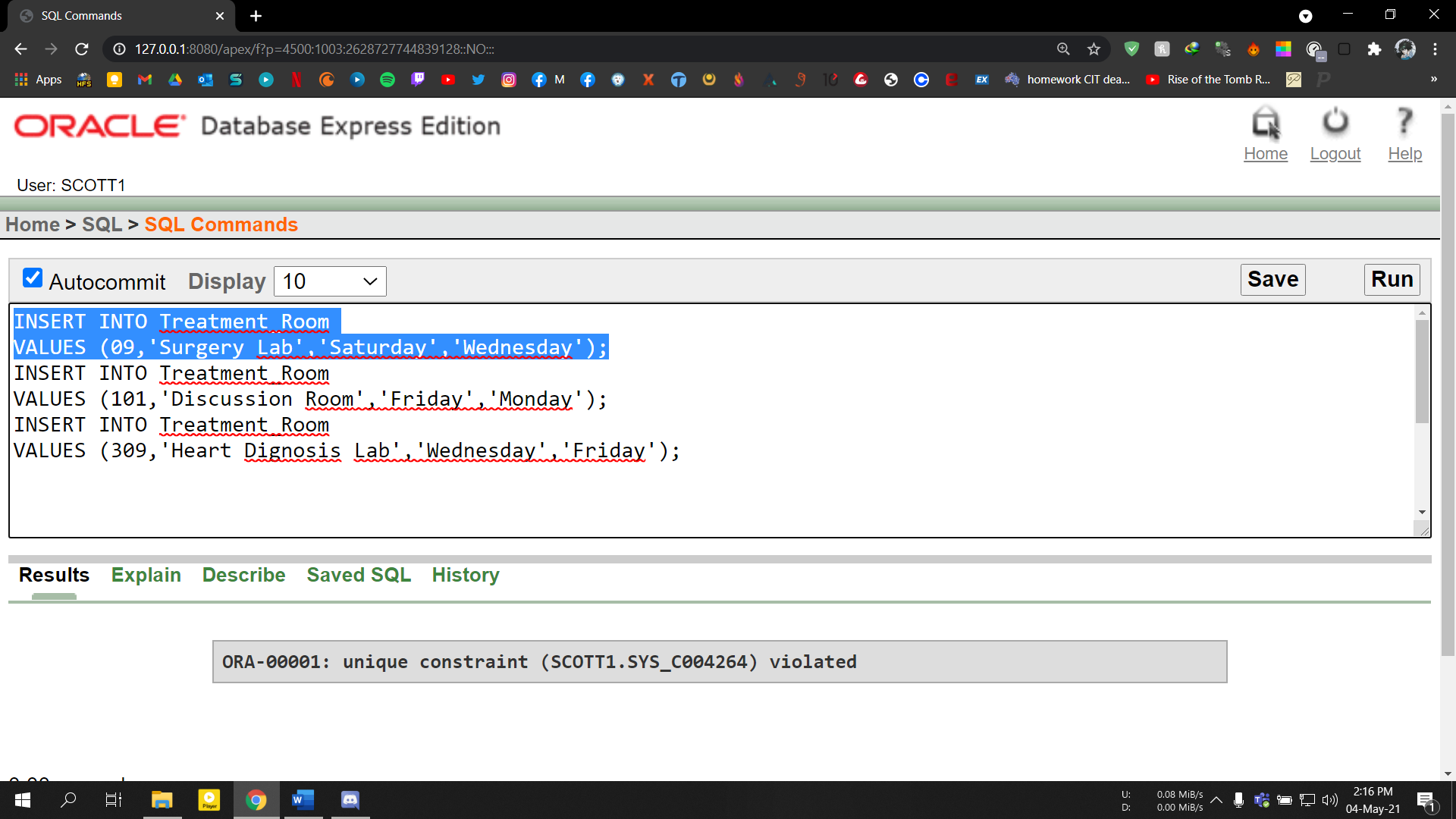
INSERT INTO Treatment\_Room

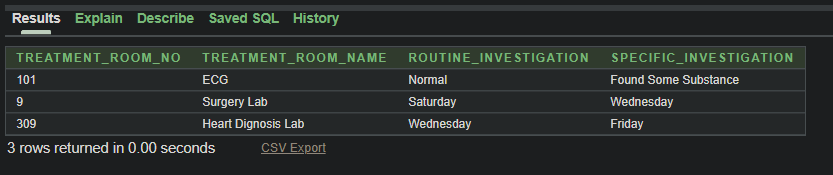
VALUES (101,'Discussion Room','Friday','Monday');

INSERT INTO Treatment\_Room

VALUES (309,'Heart Dignosis Lab','Wednesday','Friday');

**Screenshot:**



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**Joining**

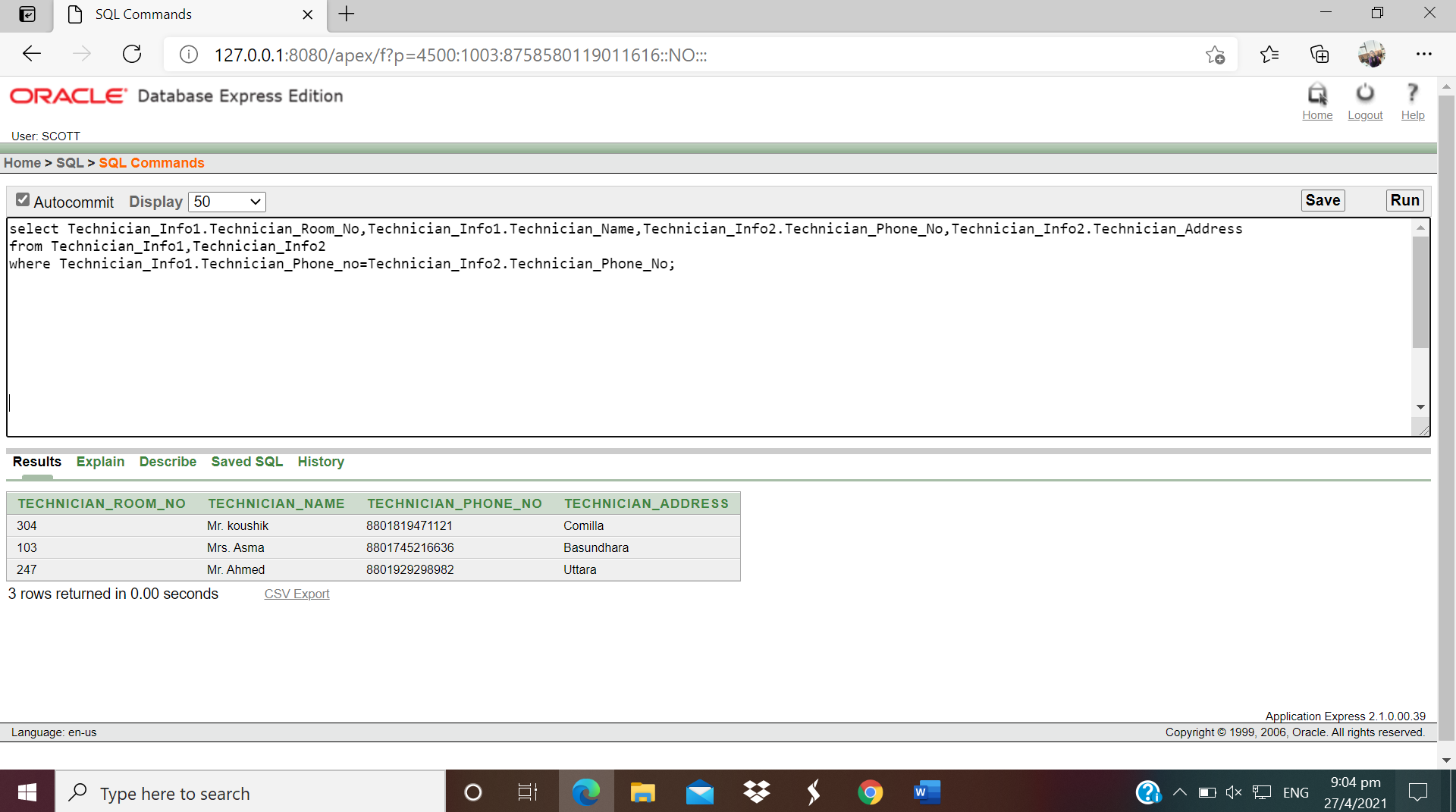
**Equijoin 01:**

select Technician\_Info1.Technician\_Room\_No,Technician\_Info1.Technician\_Name,Technician\_Info2.Technician\_Phone\_No,Technician\_Info2.Technician\_Address

from Technician\_Info1,Technician\_Info2

where Technician\_Info1.Technician\_Phone\_no=Technician\_Info2.Technician\_Phone\_No;

**Screenshot:**



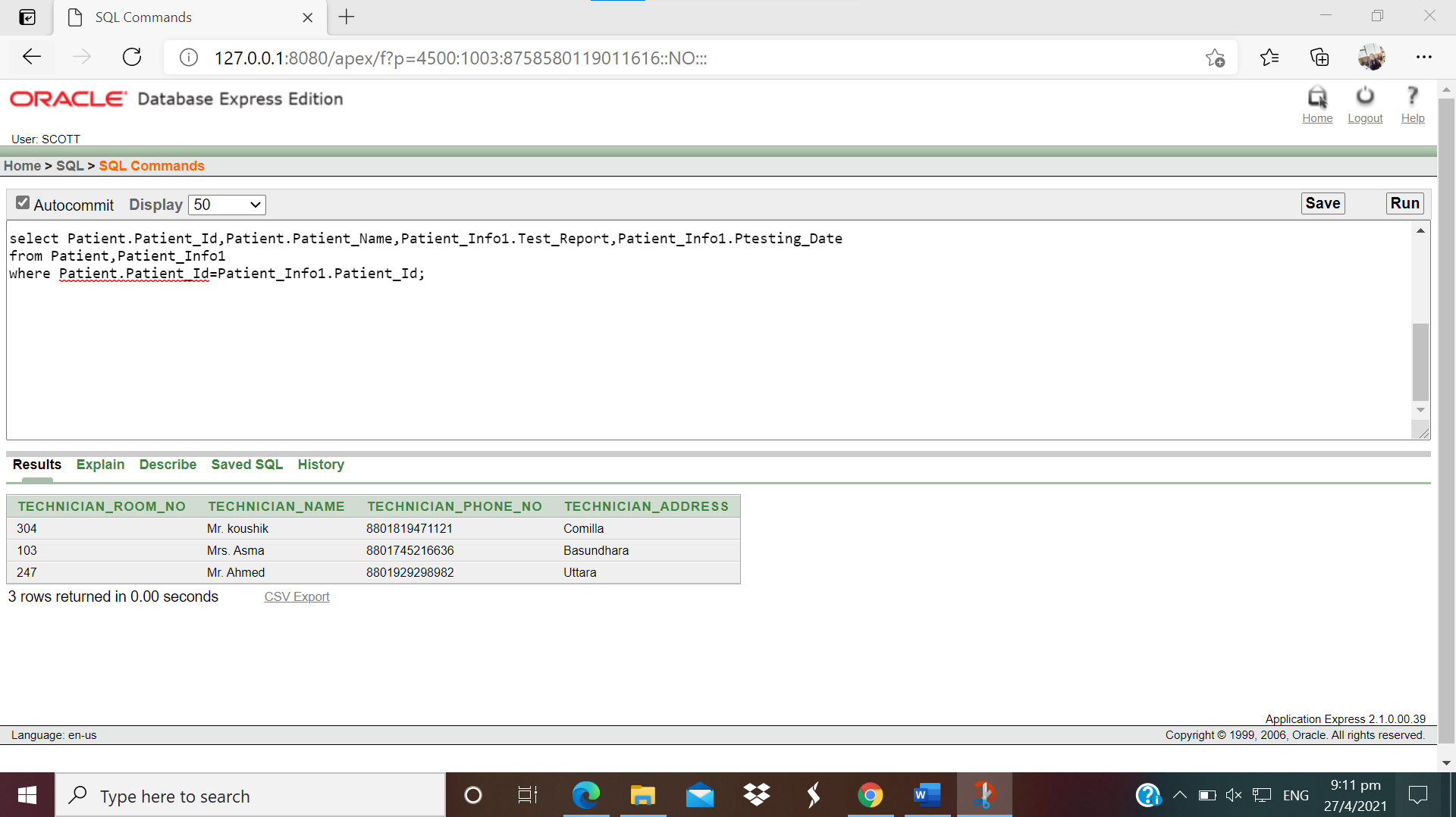
**Equijoin 02:**

select Patient.Patient\_Id,Patient.Patient\_Name,Patient\_Info1.Test\_Report,Patient\_Info1.Ptesting\_Date

from Patient,Patient\_Info1

where Patient.Patient\_Id=Patient\_Info1.Patient\_Id;

**Screenshot:**



**Outer Join:**

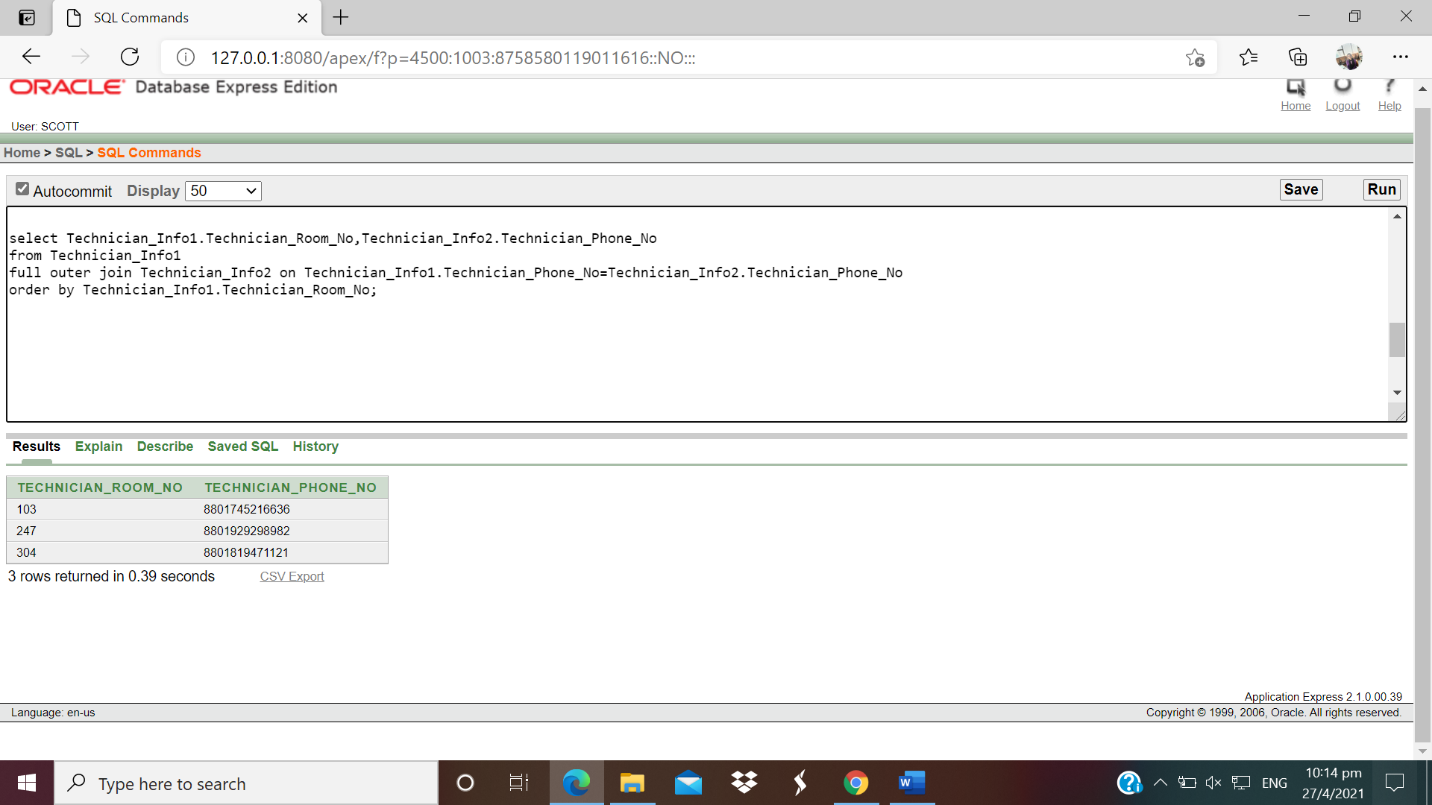
select Technician\_Info1.Technician\_Room\_No,Technician\_Info2.Technician\_Phone\_No

from Technician\_Info1

full outer join Technician\_Info2 on Technician\_Info1.Technician\_Phone\_No=Technician\_Info2.Technician\_Phone\_No

order by Technician\_Info1.Technician\_Room\_No;

**Screenshot:**



**Self Join:**

select Patient.Patient\_Name as Patient\_Name1,Patient\_Info2.Patient\_Name as Patient\_Name2,Patient.City

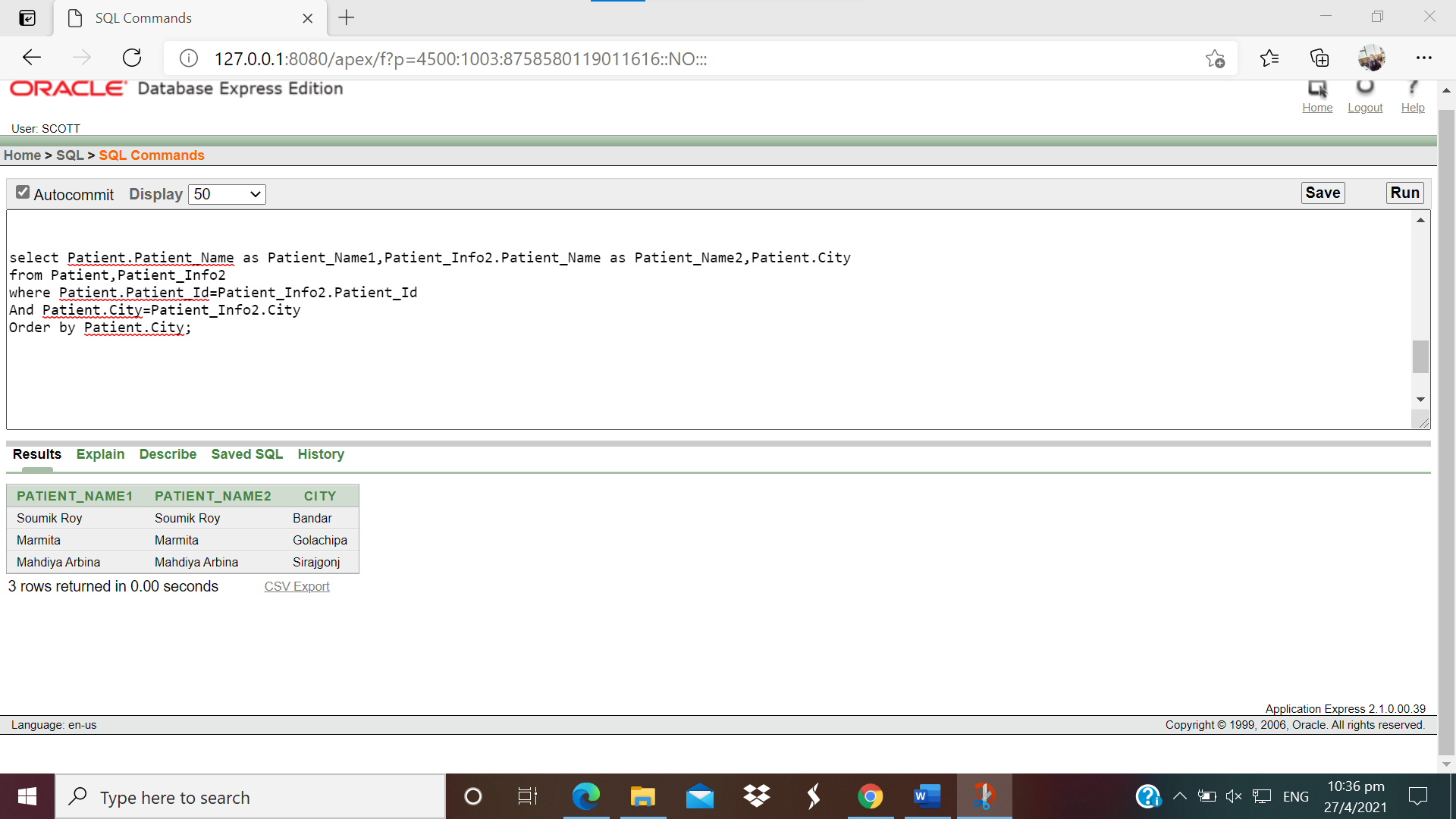
from Patient,Patient\_Info2

where Patient.Patient\_Id=Patient\_Info2.Patient\_Id

And Patient.City=Patient\_Info2.City

Order by Patient.City;

**Screenshot:**



**Subquery**

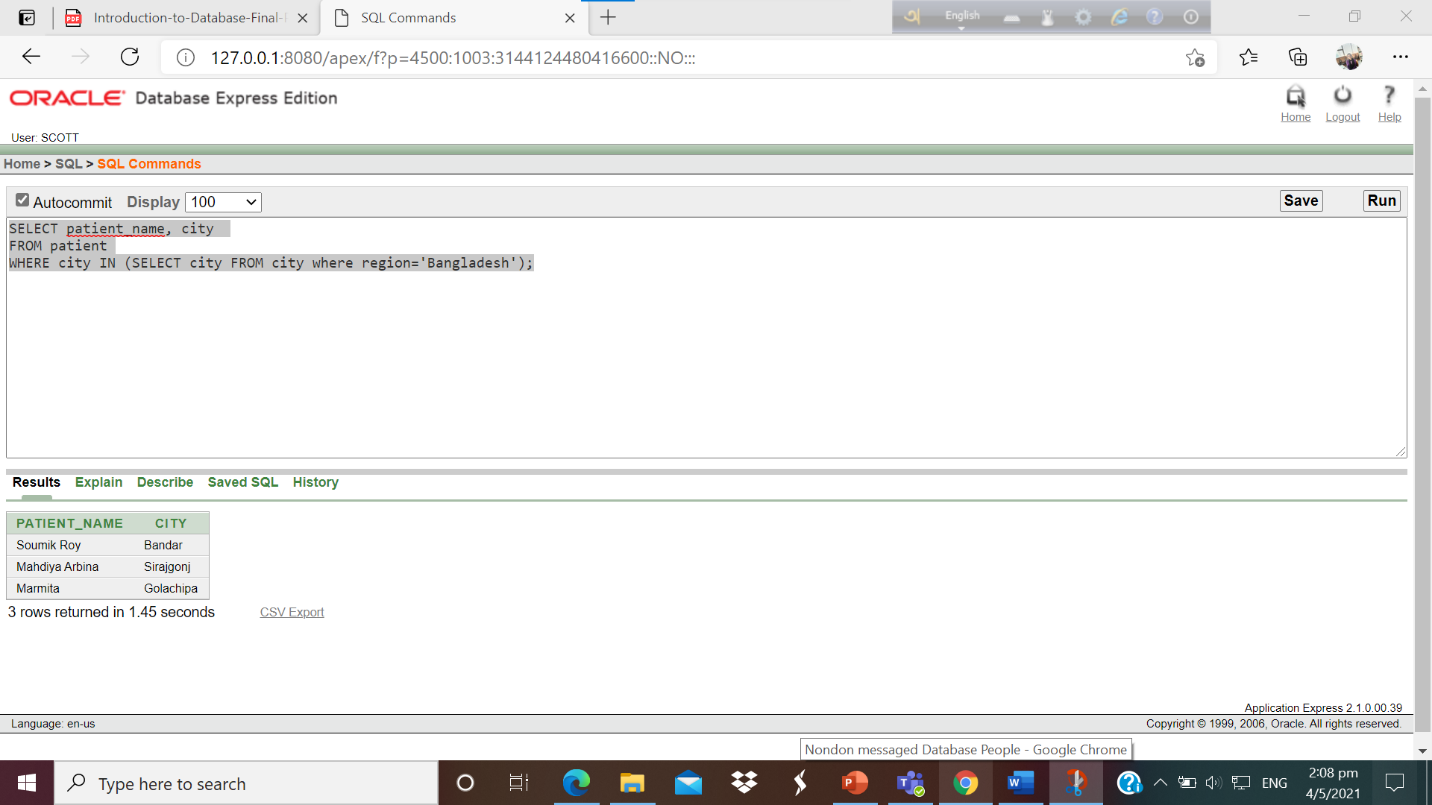
**1. Find the patientname, city who lives in Bangladesh**

SELECT patient\_name, city

FROM patient

WHERE city IN (SELECT city FROM city where region='Bangladesh');

**Screenshot:**



**2.Display the street\_name along their street\_number which is belong same region.**

select street\_name,street\_number

from city

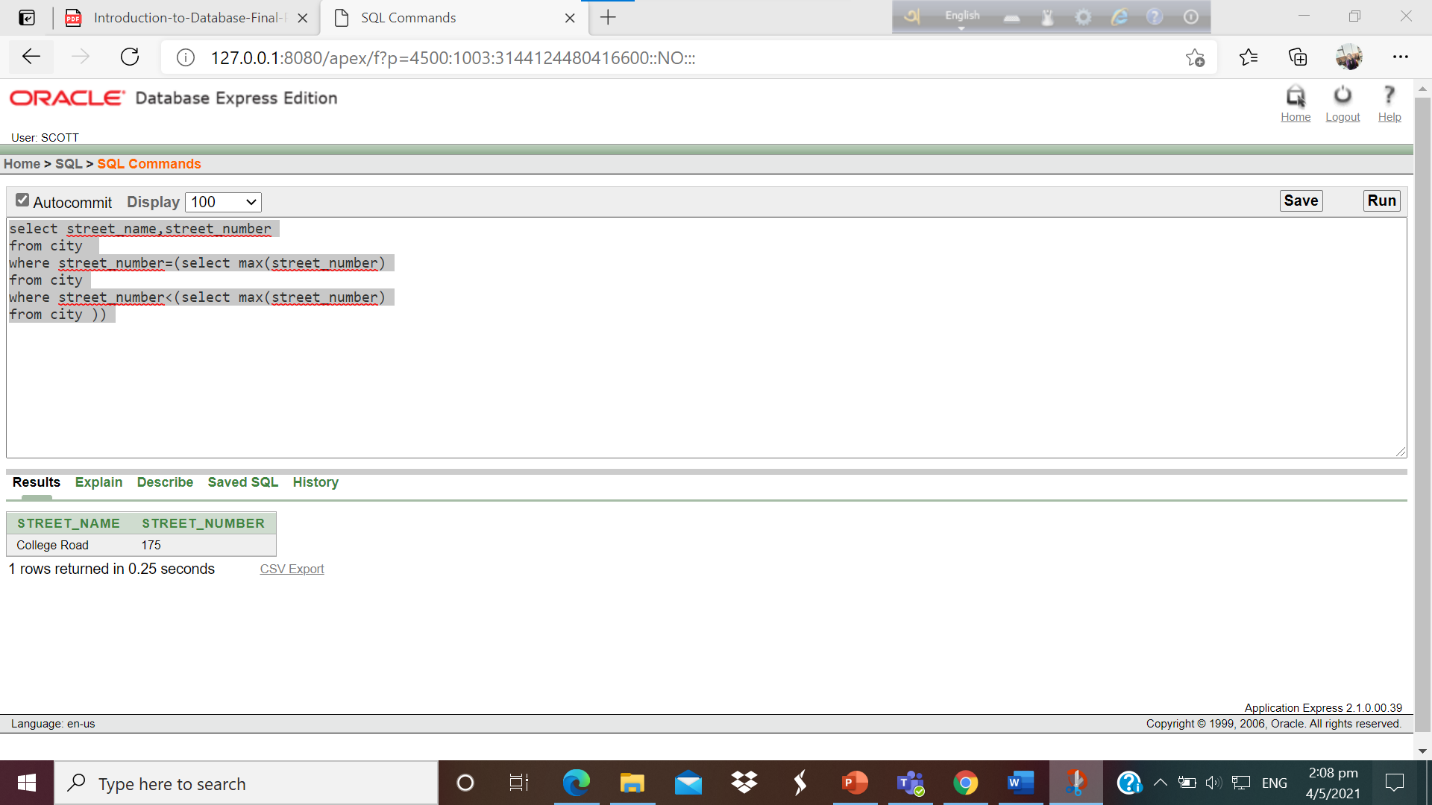
where street\_number=(select max(street\_number)

from city

where street\_number<(select max(street\_number)

from city ))

**Screenshot:**



**3.** **Display the test\_report\_fee according highest fee of instrument**

select test\_report\_fee,instrument\_fee

from test\_report

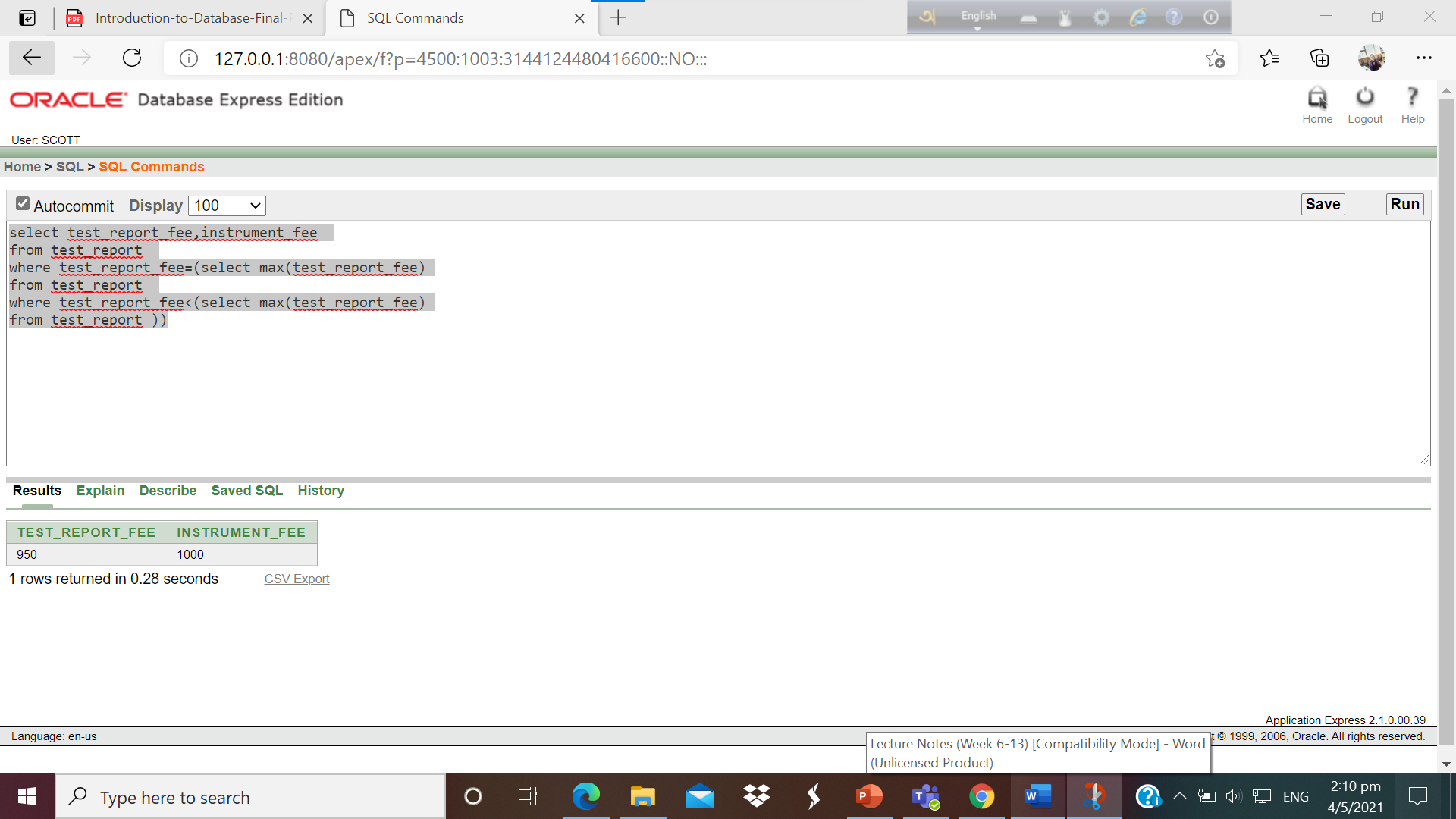
where test\_report\_fee=(select max(test\_report\_fee)

from test\_report

where test\_report\_fee<(select max(test\_report\_fee)

from test\_report ))

**Screenshot:**

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**4.** **Find the patient\_name tested date in 2021.**

SELECT patient\_id,patient\_name, pgender

FROM patient

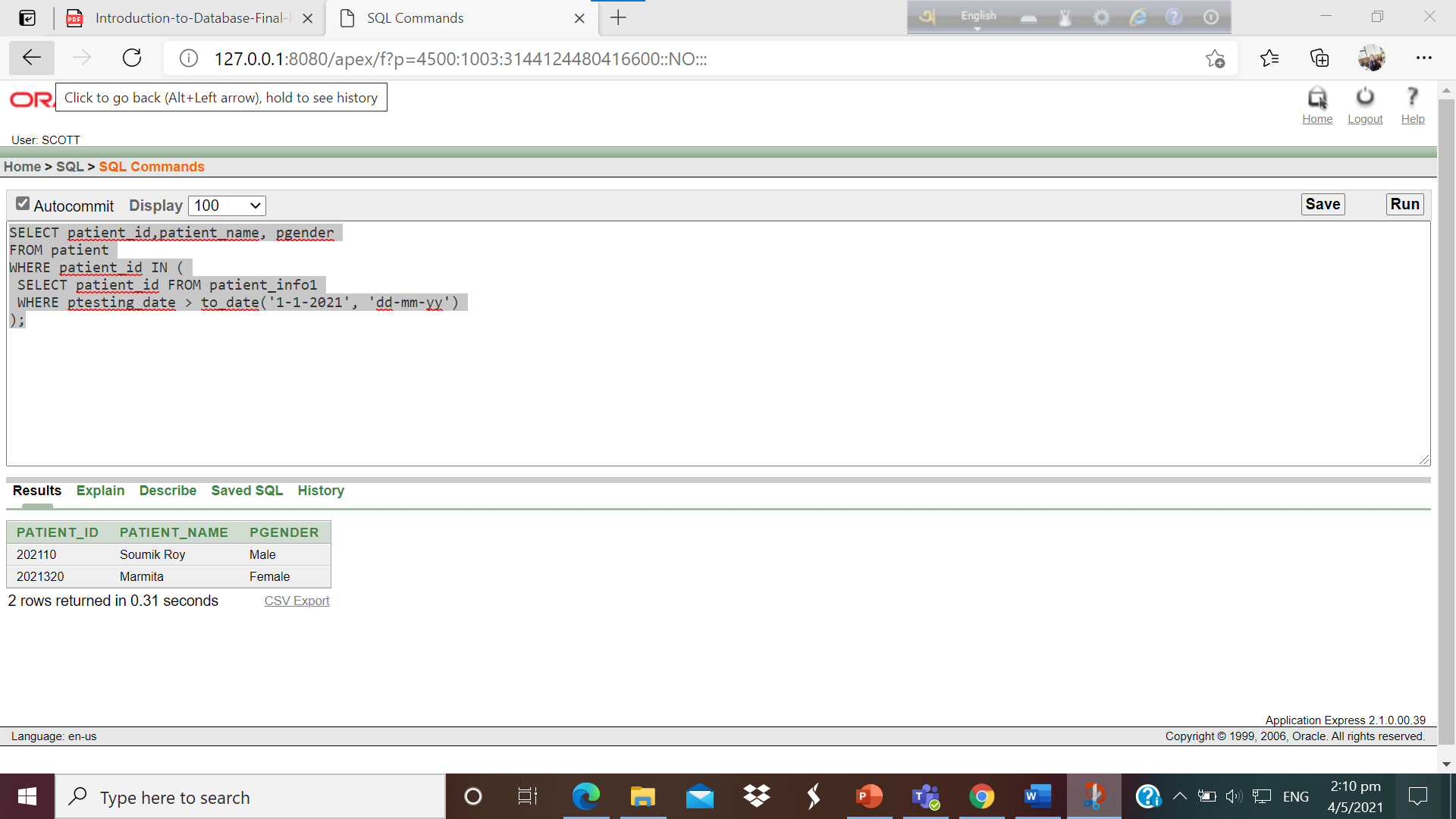
WHERE patient\_id IN (

SELECT patient\_id FROM patient\_info1

WHERE ptesting\_date > to\_date('1-1-2021', 'dd-mm-yy')

);

**Screenshot:**



**View**

**Complex View 01:**

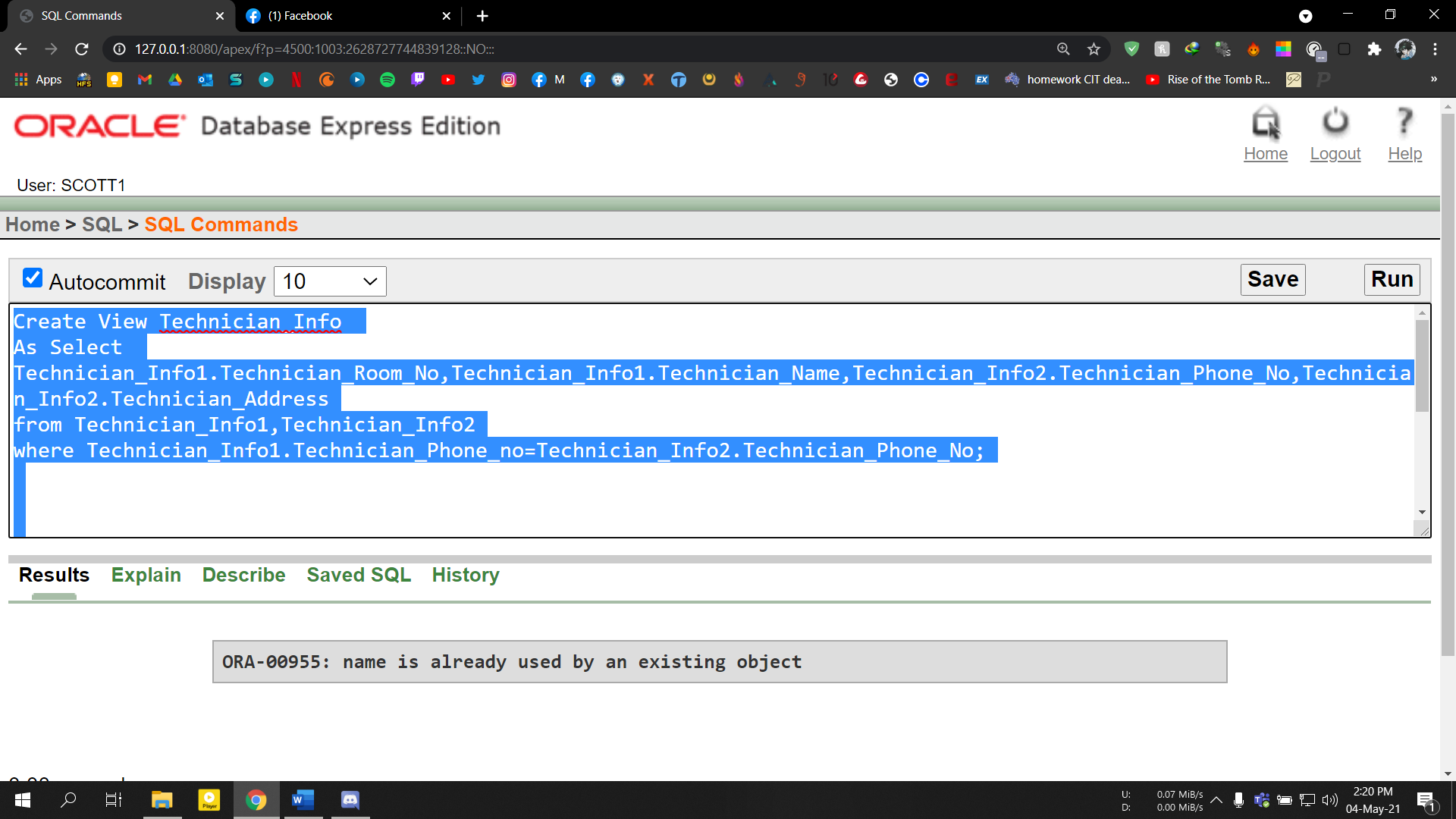
Create View Technician\_Info

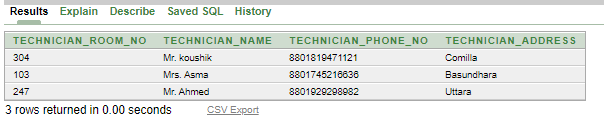
As Select Technician\_Info1.Technician\_Room\_No,Technician\_Info1.Technician\_Name,Technician\_Info2.Technician\_Phone\_No,Technician\_Info2.Technician\_Address

from Technician\_Info1,Technician\_Info2

where Technician\_Info1.Technician\_Phone\_no=Technician\_Info2.Technician\_Phone\_No;

**Screenshot:**





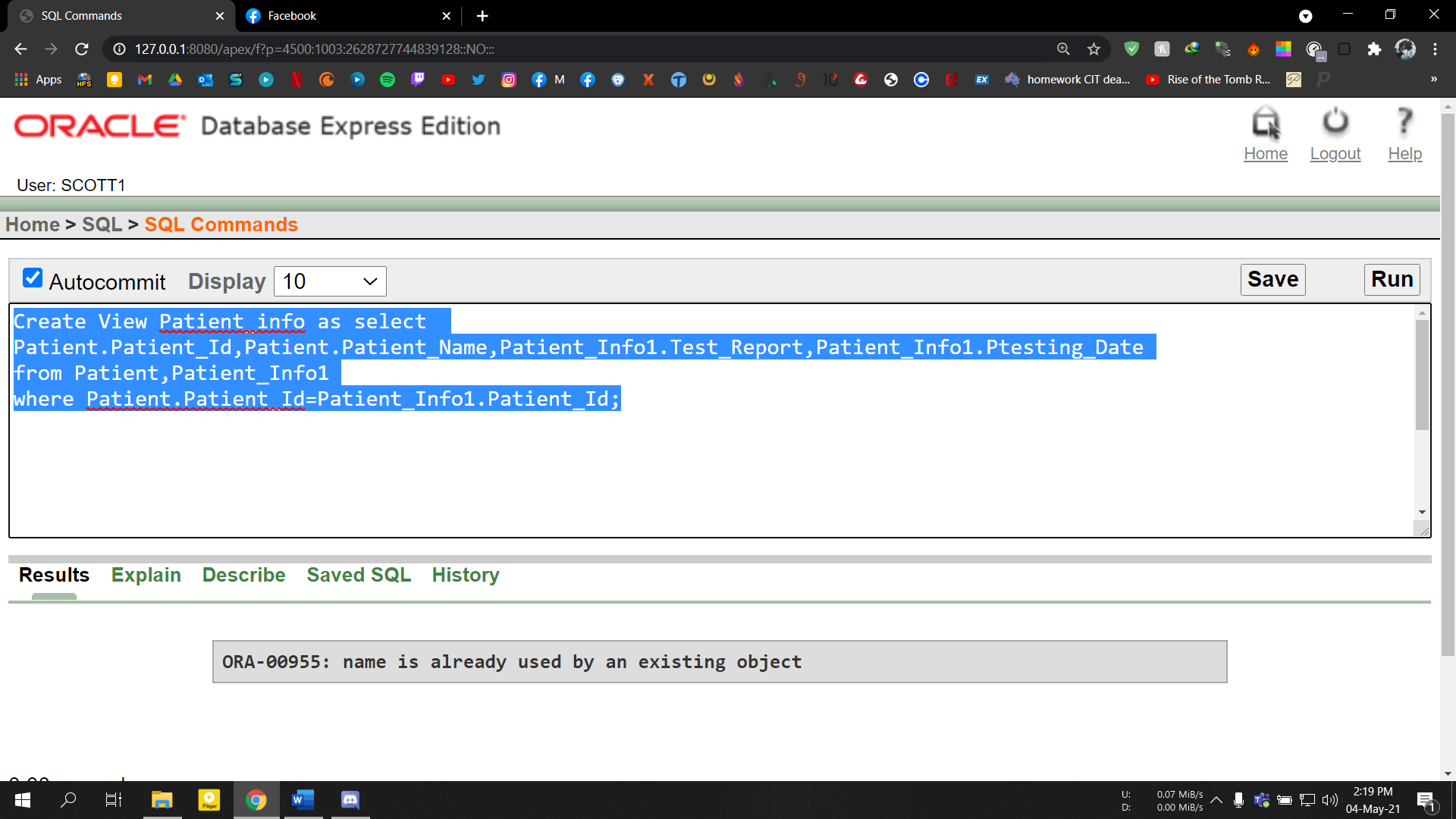
**Complex View 02:**

Create View Patient\_info as select Patient.Patient\_Id,Patient.Patient\_Name,Patient\_Info1.Test\_Report,Patient\_Info1.Ptesting\_Date

from Patient,Patient\_Info1

where Patient.Patient\_Id=Patient\_Info1.Patient\_Id;

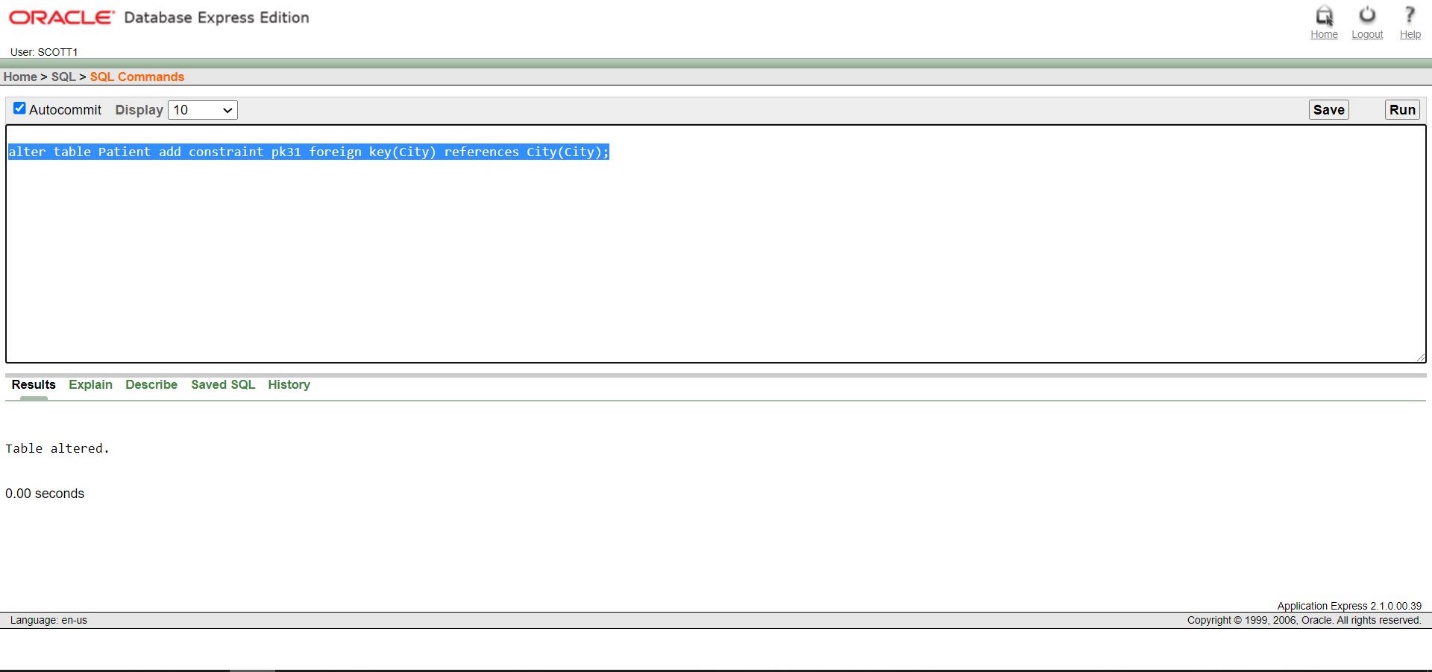
**Screenshot:**

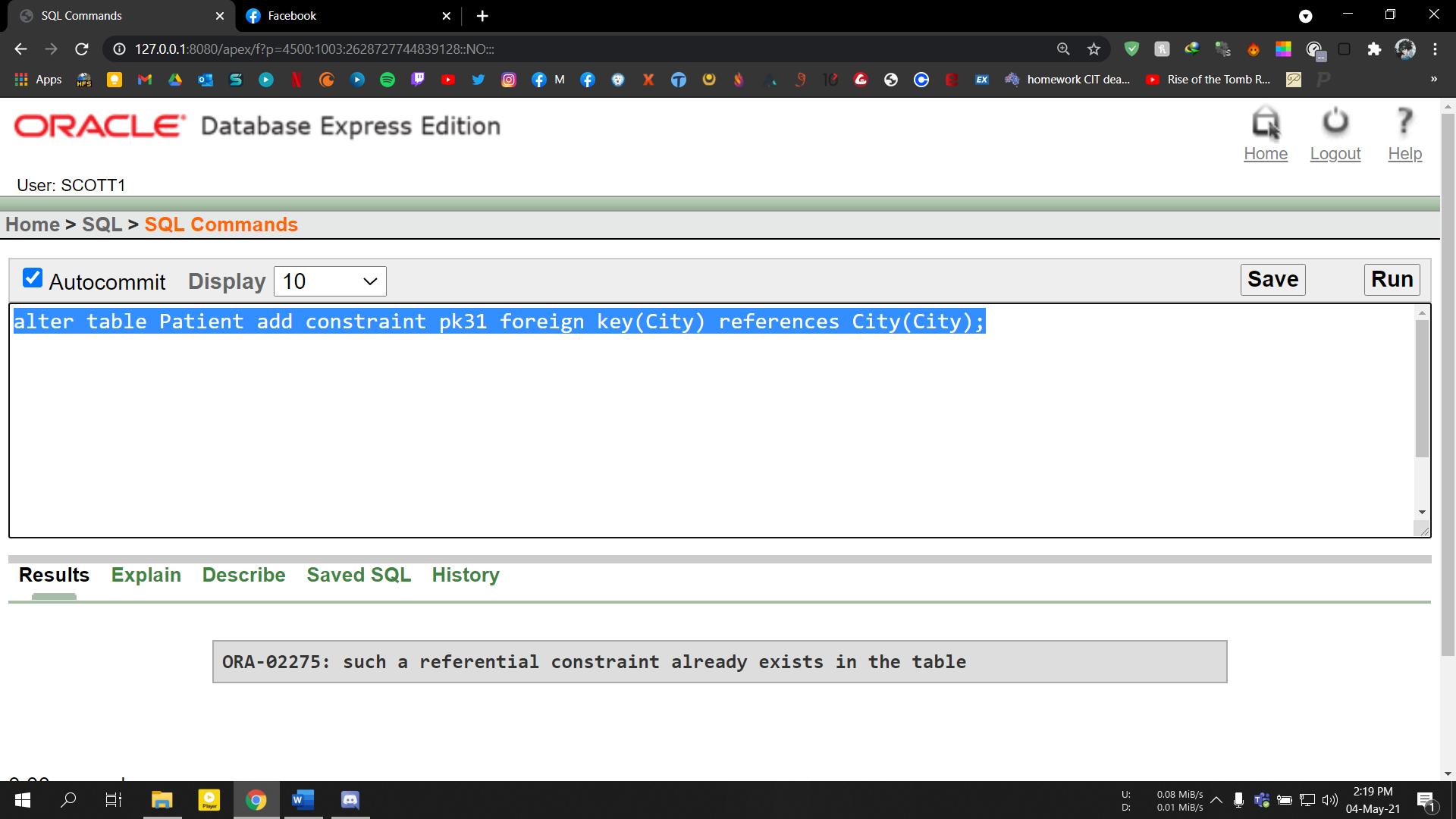


**Constraint Adding**

alter table Patient add constraint pk31 foreign key(City) references City(City);

**Screenshot:**





**History:**

