**AMERICAN INTERNATIONAL UNIVERSITY BANGLADESH**

**INTRODUCTION TO DATABASE**

**SECTION: I**

**Final project**

**TOPIC NAME: UNIVERSITY MANAGEMENT**

**NAME & ID:**

**SHIHABUN SAKIBA JANNAT (20-41992-1)**

**BADHAN AKTER (20-42225-1)**

**SNAHASISH DEY (20-42237-1)**

**BUSHRA, TAZIN JANNAT (20-42797-1)**

**RAFI REZA HUQ (20-43360-1)**

**CONTENTS**

**SECNARIO**

**ER DIAGRAM**

**NORMALIZATION**

**TABLE CREATION**

**PRIMARY KEY, FOREIGN KEY**

**VALUE INSERT**

**CONSTRAINTS**

**SEQUENCE**

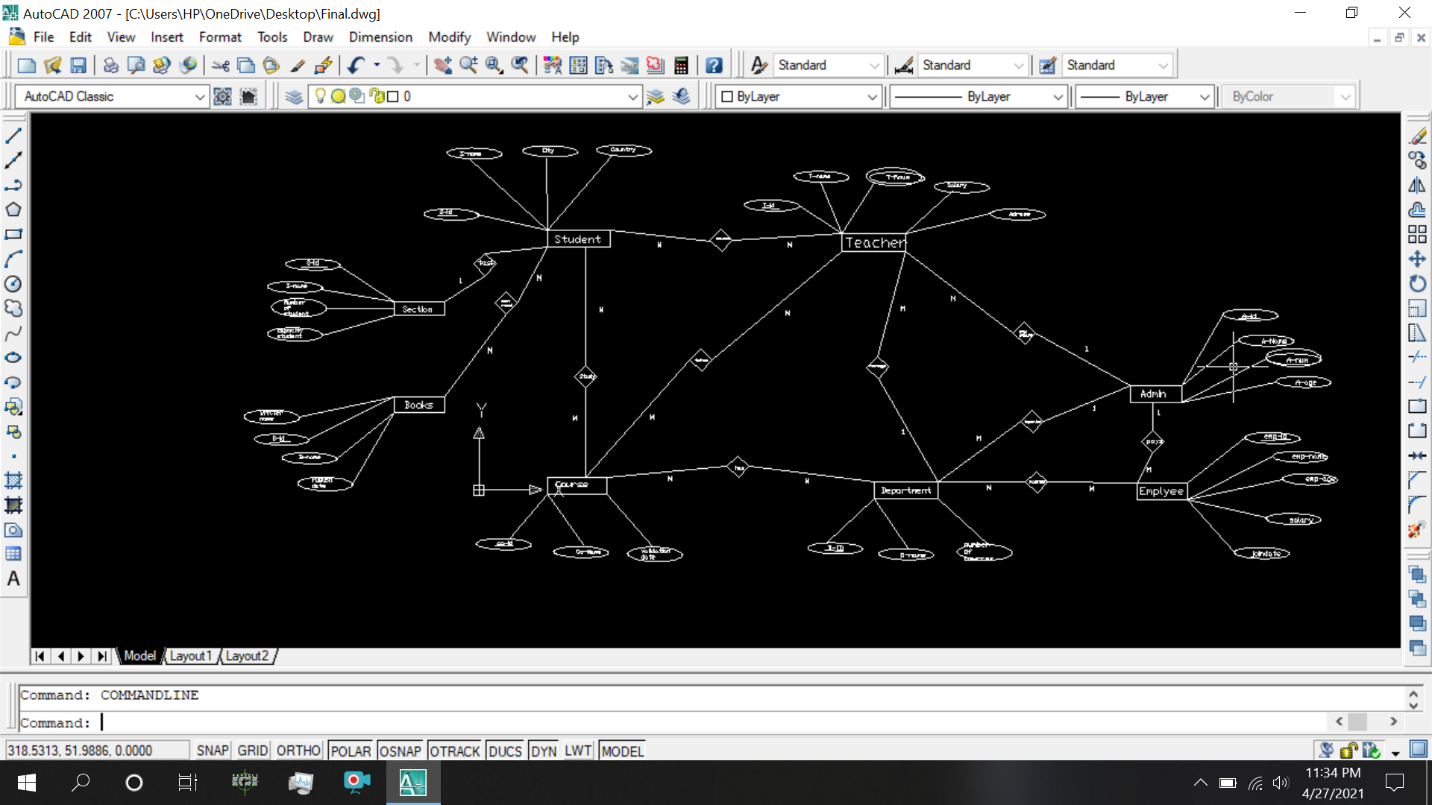
**QUERY WRITING**

**SCENARIO**

**UNIVERSITY MANAGEMENT**

AIUB university has many students who study here. Every student has their own id, name, City and Country . Also every teacher has their id, name, salary, Address and Phone number.   
Teachers teach students by Department wise. Every Department has their own teachers and student also. Department has Id, name and Number of course. And every course must related with their own department. Admin-management pay salary of them. They have also id, name ,age and phone number. Employees are pay from Admin. Every employee has their own id, name , salary, join date, address. Employees are maintained by department. Every student take section for complete their courses. Section has its own id, name, number of section and capacity of student. Students studies many courses and teachers takes many courses. Course has also Id, name, validation date. Student can read books for study. Every book has its own id , number, publish date and writer name.

**Er diagram**



**NORMALIZATION**

**For Relation 1** : Teaches (S\_id, S\_Name, Country, City, T\_id, T-Name, T\_P-Number, Salary, Address)

1NF: Phone Number is a multi valued attribute.

2NF:S\_id, S\_name, Country, City

T\_id, T\_name, , T\_P-Number, Salary, Address  
3NF: S\_id, S\_Name,

C\_id, Country, City

T\_id, T\_Name, T\_P-Number, Salary, Address

Final Table: 1)S\_id,S\_Name,(C\_id)

2)C\_id, Country, City

3)T\_id, T\_name, Salary, Address

4) T\_P-Number,T\_id

5)S\_id, T\_id, N\_id

**For relation 2**: PaySalary (T\_id, T\_name, Salary ,T\_P-Number, Address , A\_id, A\_name, Age, A\_P-number)

1NF: Phone Number is a Multi valued attribute

2NF: T\_id, T\_name, Salary, T\_P-Number, Address

A\_id, A\_name, Age, A\_P-Number

3NF:Non-transitive Dependency

T\_id, T\_name, Salary, T\_P-Number, Address

A\_id, A\_name, Age, A\_P-Number

Final Table: 1)T \_id,T\_name,Salary,Address,(A\_id)

2)A\_id,A\_Name, Age

3) T\_P-Number, T\_id

4) A\_P-Number, A\_id

**For Relation 3**: Pays(A\_id, A\_Name, A\_P-Number, Age,Emp\_id, Emp\_name, Salary, Address, joindate)

1NF:Phone Number is a multi valued attribute

2NF: A\_id, A\_Name, A\_P-Number, Age

Emp\_id, Emp\_name, Salary, Address, joindate

3NF:Non-transitive Dependency

A\_id, A\_Name, A\_P-Number, Age

Emp\_id, Emp\_name, Salary, Address, joindate

Final Table: 1) A\_id, A\_Name, Age

2) Emp\_id, Emp\_name, Salary, Address, joindate, A\_id

3) A\_P-Number, A\_id

**For Relation 4** :Takes (S\_id,S\_name,Country, City, Se\_id, Se\_name, number of section, capacity of student)

1NF:No multi valued attribute.

2NF: S\_id,S\_name, Country, City

Se\_id,Se\_Name , number of section , capacity of student

3NF:S\_id,S\_Name,C\_id

C\_id, Country, City

Se\_id, Se\_Name, number of section, capacity of student

Final Table: 1)S\_id,S\_name,(C\_ID),(Se\_id)

2)C\_ID, Country, City

3)Se\_id,Se\_Name, number of section, capacity of student

**For Relation 5** :Studies(S\_id, S\_name, Country, City, Co\_id, Co\_name, validation-date )

1NF:No multi valued attribute.

2NF:S\_id,S\_name, Country, City

Co\_id,Co\_name, validation-date  
3NF:S\_id,S\_Name

C\_id, Country, City

Co\_id, Co\_name, validation-date

Final Table: 1)S\_id,S\_name,(C\_ID)

2)C\_ID, Country, City

3)Co\_id,Co\_name, validation-date

4)J\_id,(S\_id),(Co\_id)

**For Relation 6** :Takes(T\_id,T\_name,Salary,T\_P-Number, Address, Co\_id,Co-name, validation-date)

1NF: Phone Numer is a multi valued attribute

2NF:T\_id,T\_name,salary,T\_P-Number, Address

Co\_id,Co\_name, validation-date

3NF:Non-Transitive dependancy

T\_id, T\_name, salary, T\_P-Number, Address

Co\_id, Co\_name, validation-date

Final Table: 1)T\_id,T\_name,salary, Address

2)Co\_id,Co\_name,validation-date

3)K\_id,(T\_id),(Co\_id)

4) T\_P-Number, T\_id

**For Relation 7**: Manage(T\_id,T-name,T\_P-number,salary,Address ,D\_id,D\_name,Number of course)

1NF:Phone Number is a Multi valued attribute.

2NF:T\_id,T\_name,Salary,T\_P-Number, Address

D\_id,D\_name,Number of Course  
3NF:Non-Transitive Dependency

T\_id,T\_name,Salary,T\_P-Number, Address

D\_id,D\_name,Number of Course

Final Table: 1)T\_id,T\_name,Salary,Address, (D\_id)

2)D\_id,D\_name,Number of course

3) T\_P-Number,T\_id

**For Relation 8** :Has(Co\_id,Co\_name,validation-date, D\_id,D-name,Number of course)

1NF:No multi valued attribute

2NF:Co\_id,Co\_name, validation-date

D\_id, D\_name, number of course  
3NF:Non-Transitive Dependency

Co\_id,Co\_name,co\_validationdate

D\_id, D\_name, number of course

Final Table: 1)Co\_id, Co\_name, validation-date, (D\_id)

2)D\_id,D\_name,Number of course

**For Relation 9** :Supervise (A\_id,A\_Name,Age,A\_P-number, D\_id,D-name,Number of course)

1NF:phone number is a multi valued attribute

2NF:A\_id,A\_Name,Age,A\_P-number

D\_id,D\_name,number of course  
3NF:Non-Transitive Dependency

Final Table: 1)A\_id,A\_Name,Age

2)D\_id,D\_name,number of course ,(A\_id)

3) A\_P-number, A\_id

**For Relation 10** :Maintain (D\_id,D-name,Number of course, Emp\_ID,Emp\_Name, salary, joindate, Address )

1NF:No multi valued attribute

2NF:D\_id,D\_name,number of course

Emp\_ID,Emp\_Name, salary, joindate, Address   
  
3NF:Non-Transitive Dependency

D\_id,D\_name,number of course

Emp\_ID,Emp\_Name, salary, joindate, Address

Final Table: 1)D\_id,D\_name,Number of course

2)Emp\_ID,Emp\_Name,salary, joindate,Address

3)L\_id, D\_id, Emp\_id

**For Relation 11** :can-read (S\_id, S\_name, Country, City, B\_id, B\_name,writer-name, publish\_date)

1NF:No multi valued attribute.

2NF:S\_id,S\_name, Country, City

B\_id, B\_name,writer-name, publish\_date

3NF:S\_id,S\_Name,

C\_id, Country, City

B\_id, B\_name,writer-name, publish\_date)

Final Table: 1)S\_id, S\_Name, (C\_id)

2)C\_id, Country, City

3)B\_id, B\_name,writer-name, publish\_date  
 4)P\_id, S\_id, B\_id

*FINAL TABLE LIST:*

1)C\_id, Country, City ->location

2) T\_PNumber,T\_id->contact

3)(S\_id, T\_id,) N\_id->new tbl

4)T \_id,T\_name,Salary, Address,(A\_id)->Teacher

5)A\_id,A\_Name, Age->admin

6) A\_P-Number, A\_id->contact2

7) Emp\_id, Emp\_name, Salary, Address, joindate,( A\_id)->employee

8)S\_id,S\_name,(C\_ID),(Se\_id)->Student

9)Se\_id,Se\_Name, number of section, capacity of student->Section

10)J\_id,(S\_id),(Co\_id)->Roll

11)K\_id,(T\_id),(Co\_id)->Serial

12)T\_id,T\_name,Salary,Address (D\_id)->teacher2

13)Co\_id, Co\_name, validation-date, (D\_id)->course

14)D\_id,D\_name,number of course ,(A\_id)->department

15)L\_id, (D\_id, Emp\_id)->new\_table2

16)B\_id, B\_name,writer-name, publish\_date->book  
 17)P\_id, (S\_id, B\_id)->new\_table3

**Table creation**

**1.**create table location(C\_id number (4),Country varchar2 (25),city varchar2 (20))

**2.**create table contact(T\_Pnumber number (12),T\_id number (4))

**3**.create table new\_tbl(S\_id number (4),T\_id number (12),N\_id number (4))

**4.**create table Teacher(T\_id number (4),T\_name varchar2 (20),salary number (10),Address varchar2 (30),A\_id number (4))

**5**.create table Admin(A\_id number(4),A\_name varchar2(20),Age number(2))

**6.**create table contact2(A\_id number (4),A\_Pnumber number (10))

**7.**create table Employee(Emp\_id number(4),Emp\_name varchar2(20),Salary number(10),Adress varchar2(20),Joindate DATE,A\_id number (4))

**8.**create table Student(S\_id number(4),S\_name varchar2(20),C\_id number(4),Se\_id number (4))

**9.**create table Section(Se\_id number(4),se\_name varchar2(20),Number\_of\_section Number(20),Capacity\_of\_student number(4))

**10**.create table Roll(S\_id number(4),J\_id Number(4),Co\_id number(4))

**11.**create table Serial(k\_id number(4),T\_id Number(4),Co\_id number(4))

**12.**create table Teacher2(T\_id number(4),T\_name varchar2(10),Salary number(10),D\_id number (4),Adress varchar2(20))

**13**create table Course(Co\_id number(4),Co\_name varchar2(4),Validation\_date date,D\_id number (4))

**14.**create table Department(D\_id number(4),D\_name varchar2(10),Name\_of\_course number(10),A\_id number (4))

**15.**create table New\_table2(L\_id number(4),D\_id number(4),Emp\_id number(4))

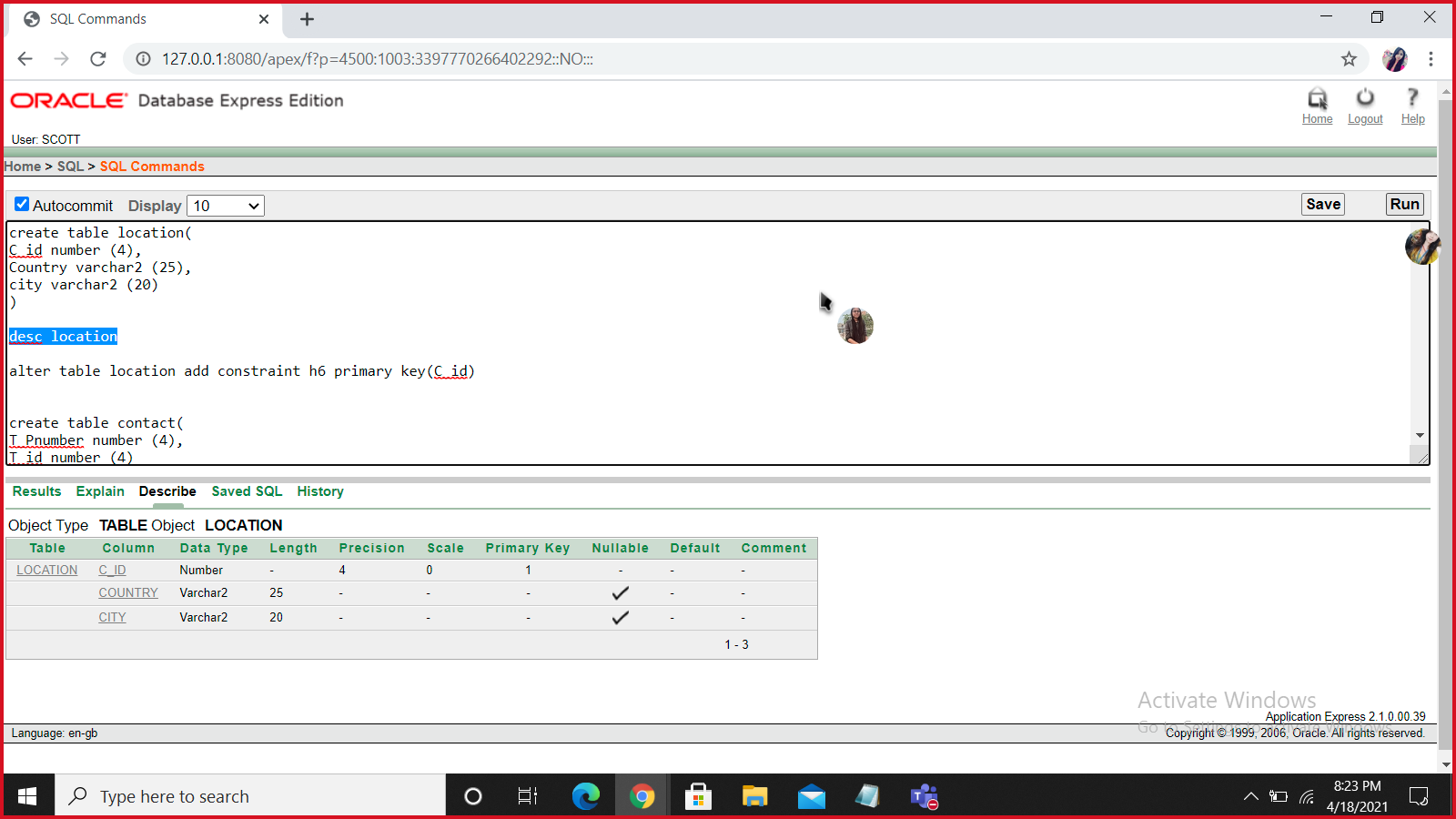
**16.**create table Book(B\_id number(4),B\_name varchar2(20),Writer\_name varchar2(20),Publish\_date date)

**17.**create table New\_table3(P\_id number(4),S\_id number(4),B\_id number (4))

**primary key**

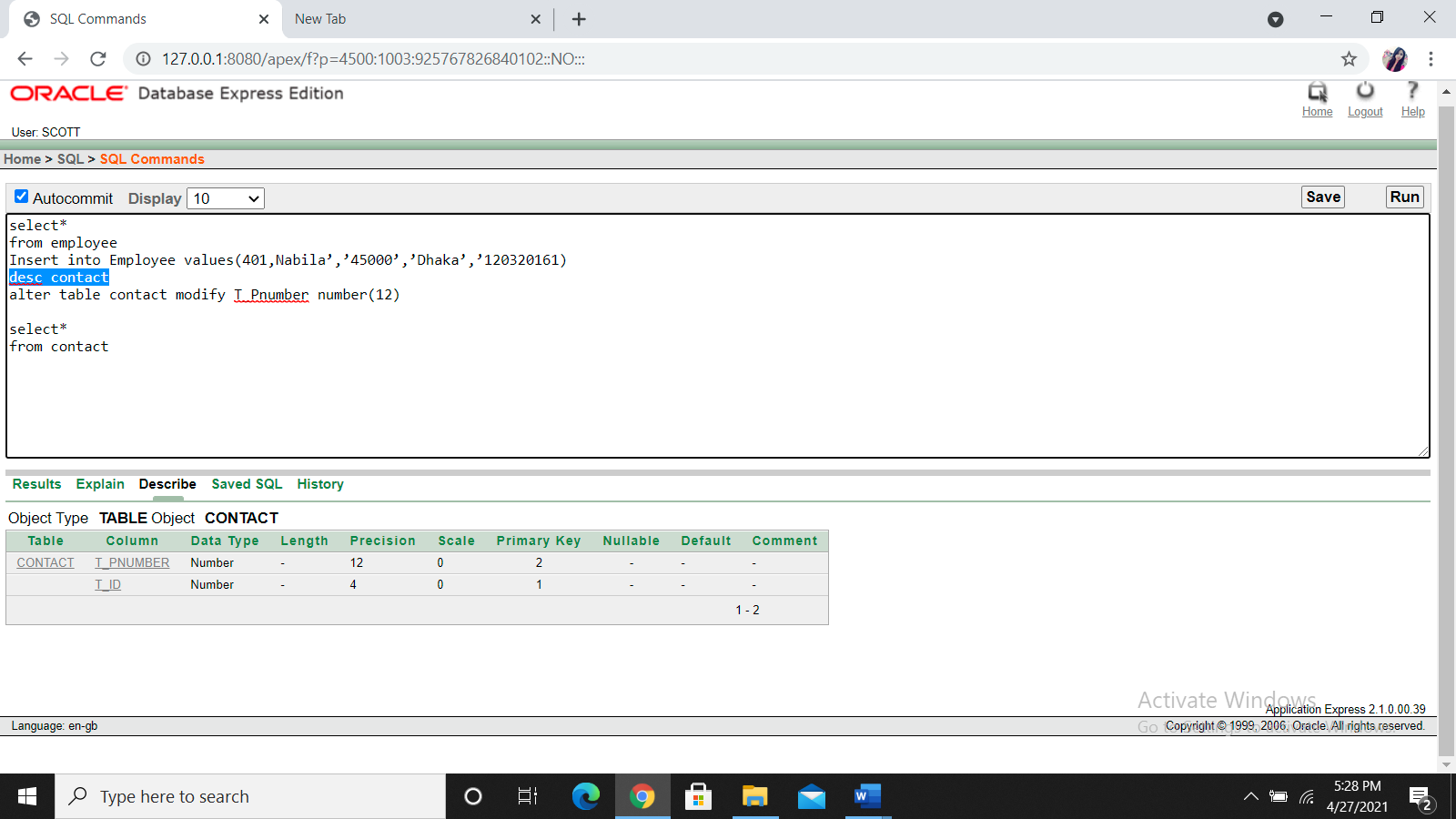
**LOCATION**

alter table location add constraint h6 primary key(C\_id)



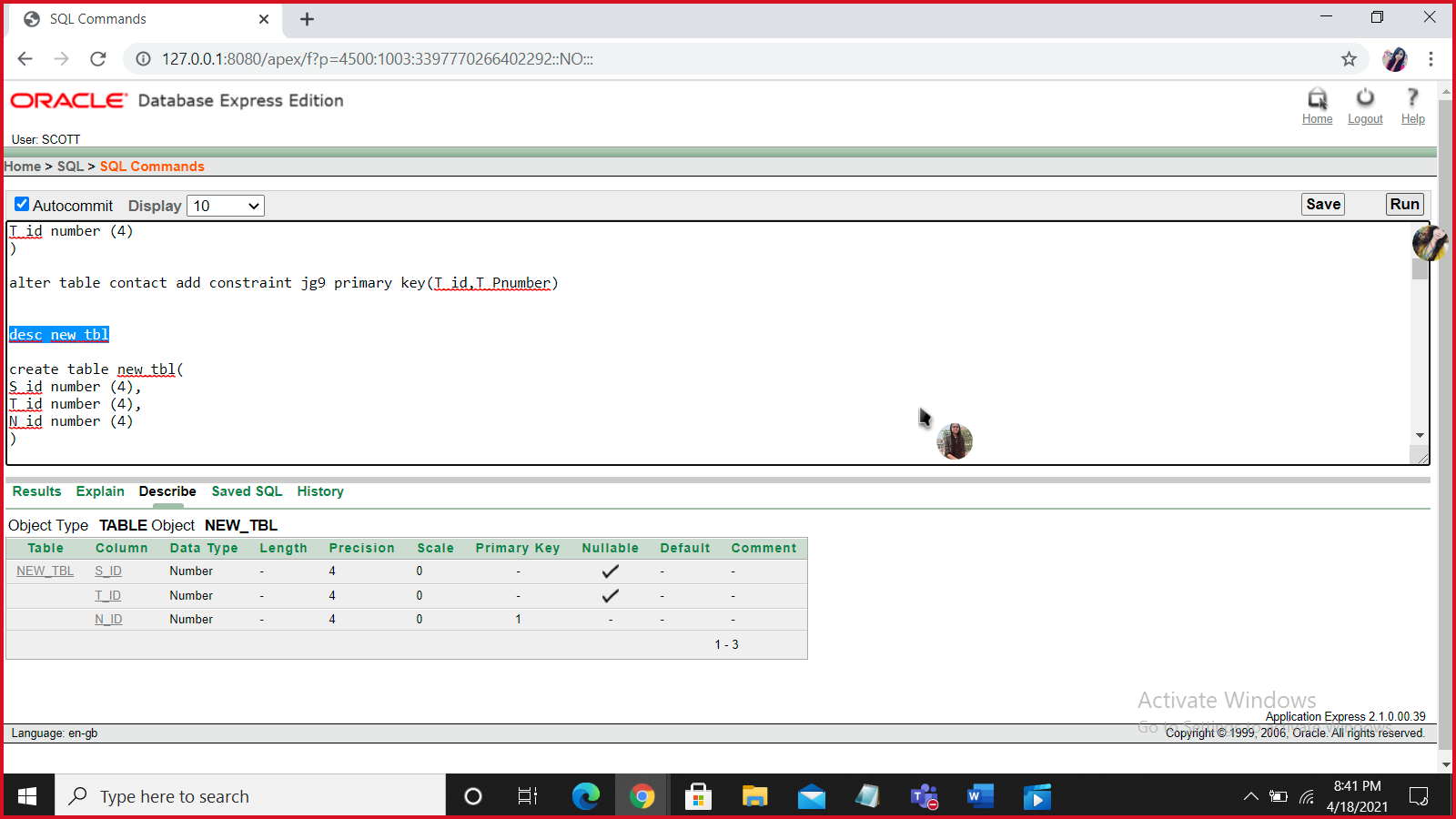
**CONTACT**

alter table contact add constraint jg9 primary key(T\_id,T\_Pnumber)



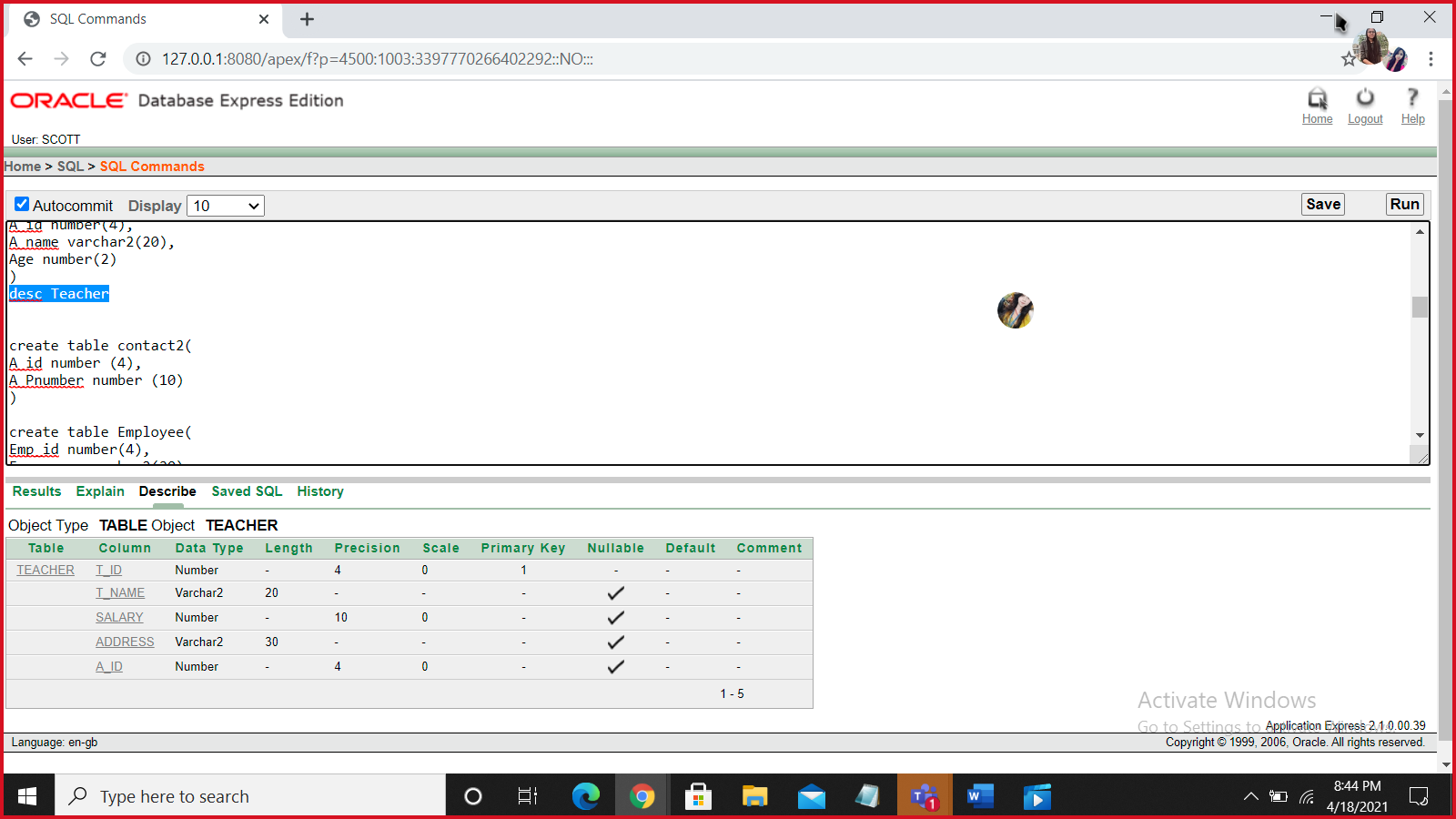
**NEW\_TBL**

alter table new\_tbl add constraint fg7 primary key(N\_id)



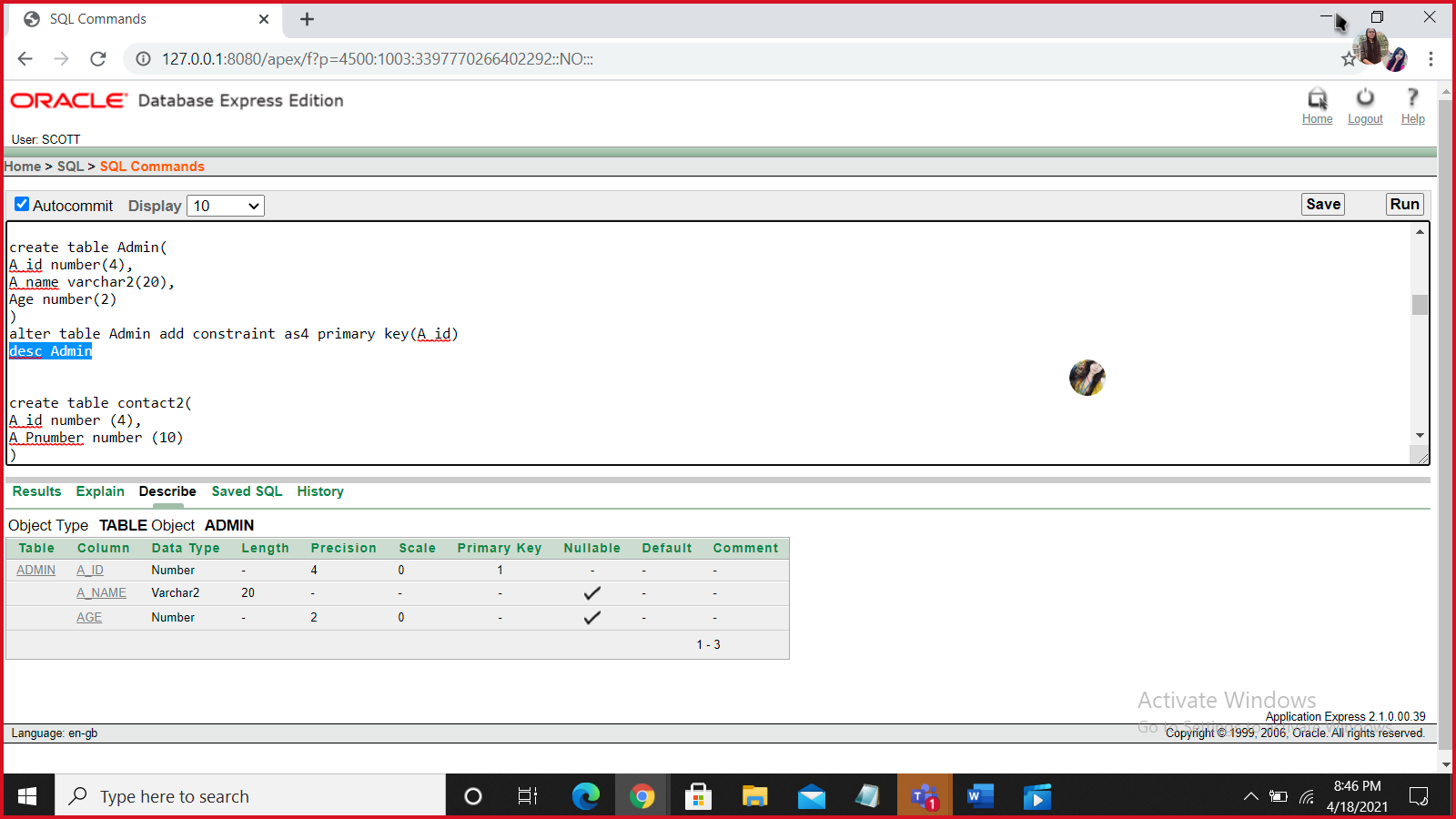
**TEACHER**

alter table Teacher add constraint df6 primary key(T\_id)



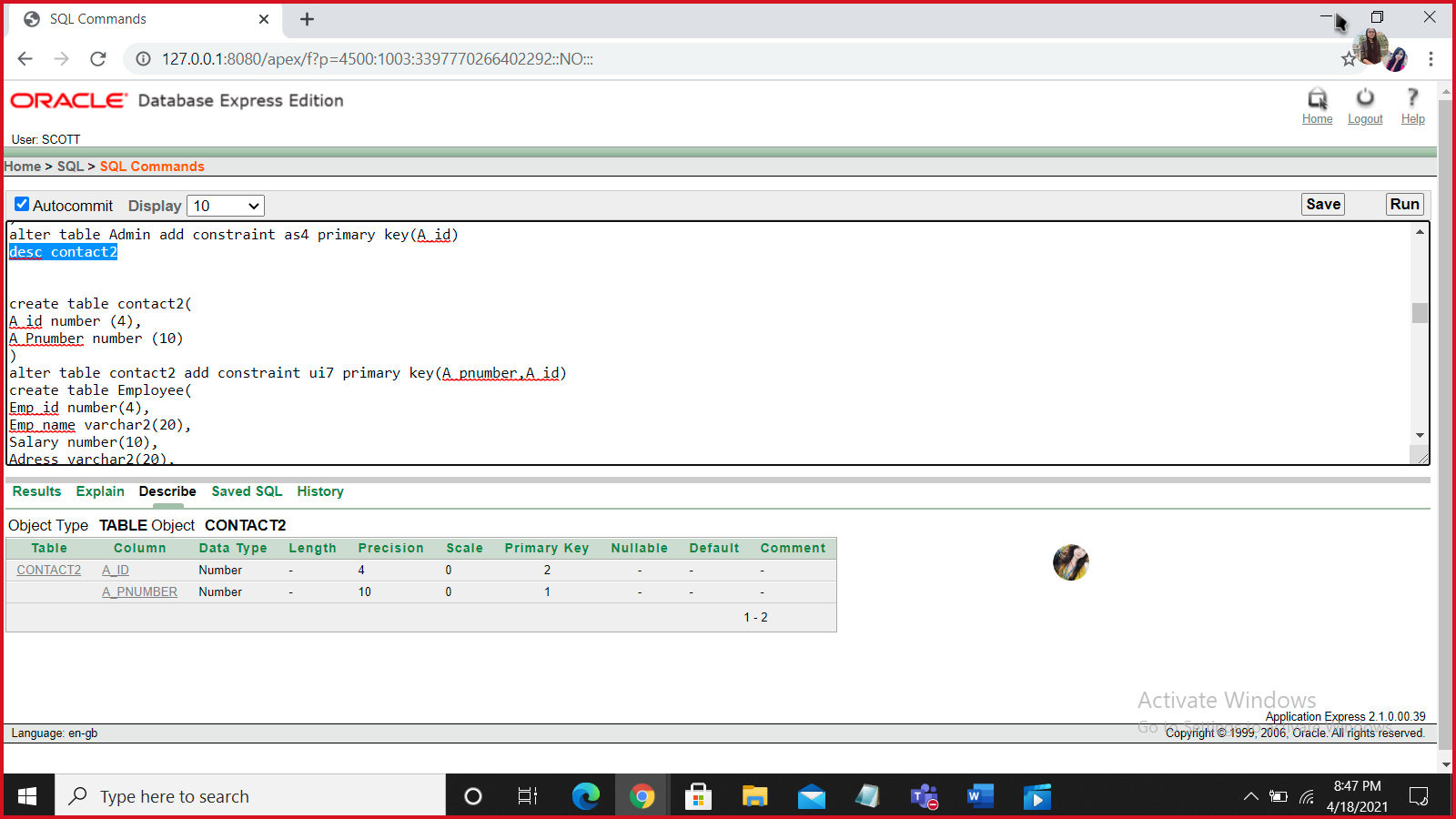
**ADMIN**

alter table Admin add constraint as4 primary key(A\_id)



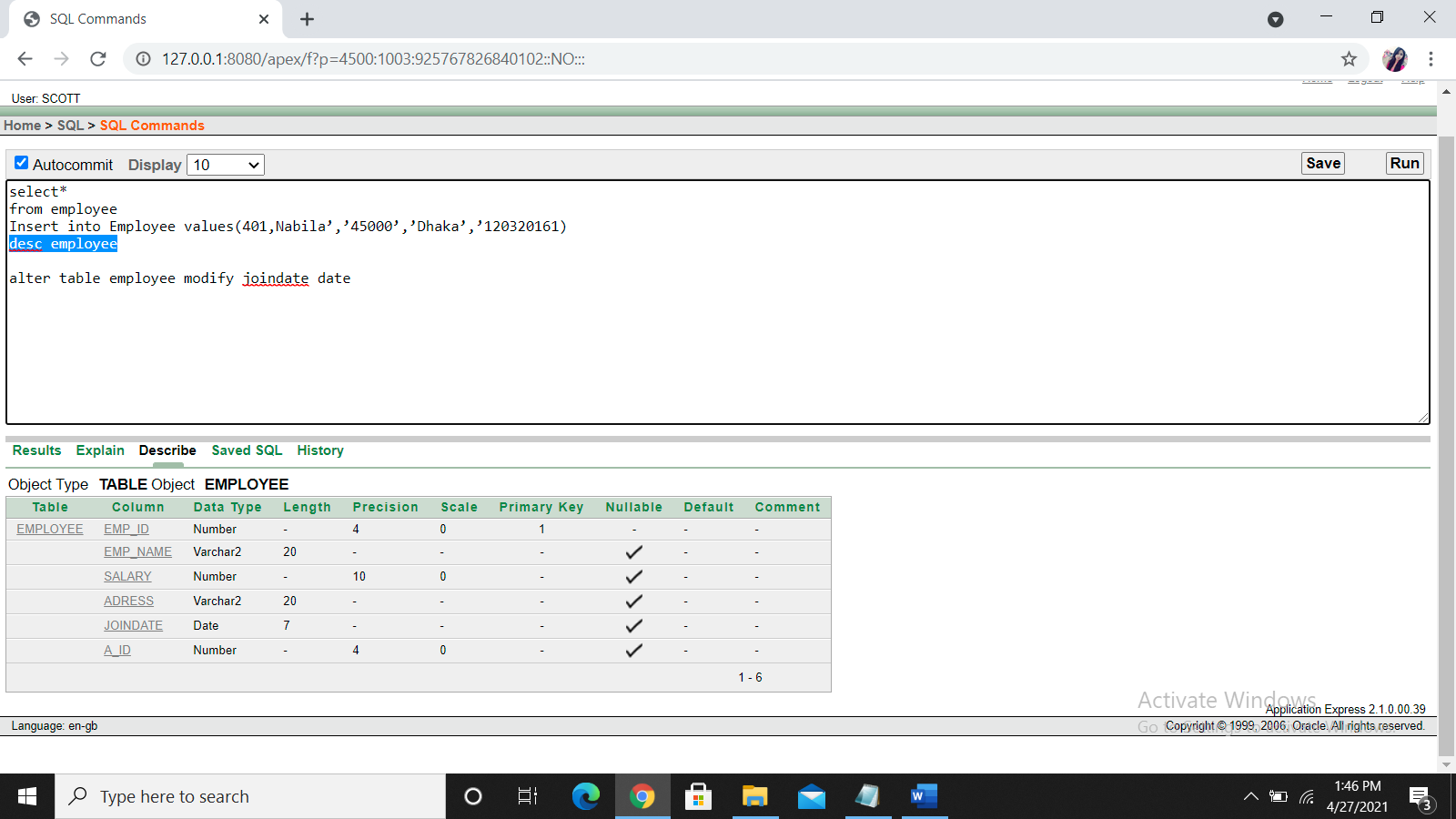
**CONTACT2**

alter table contact2 add constraint ui7 primary key(A\_pnumber,A\_id)



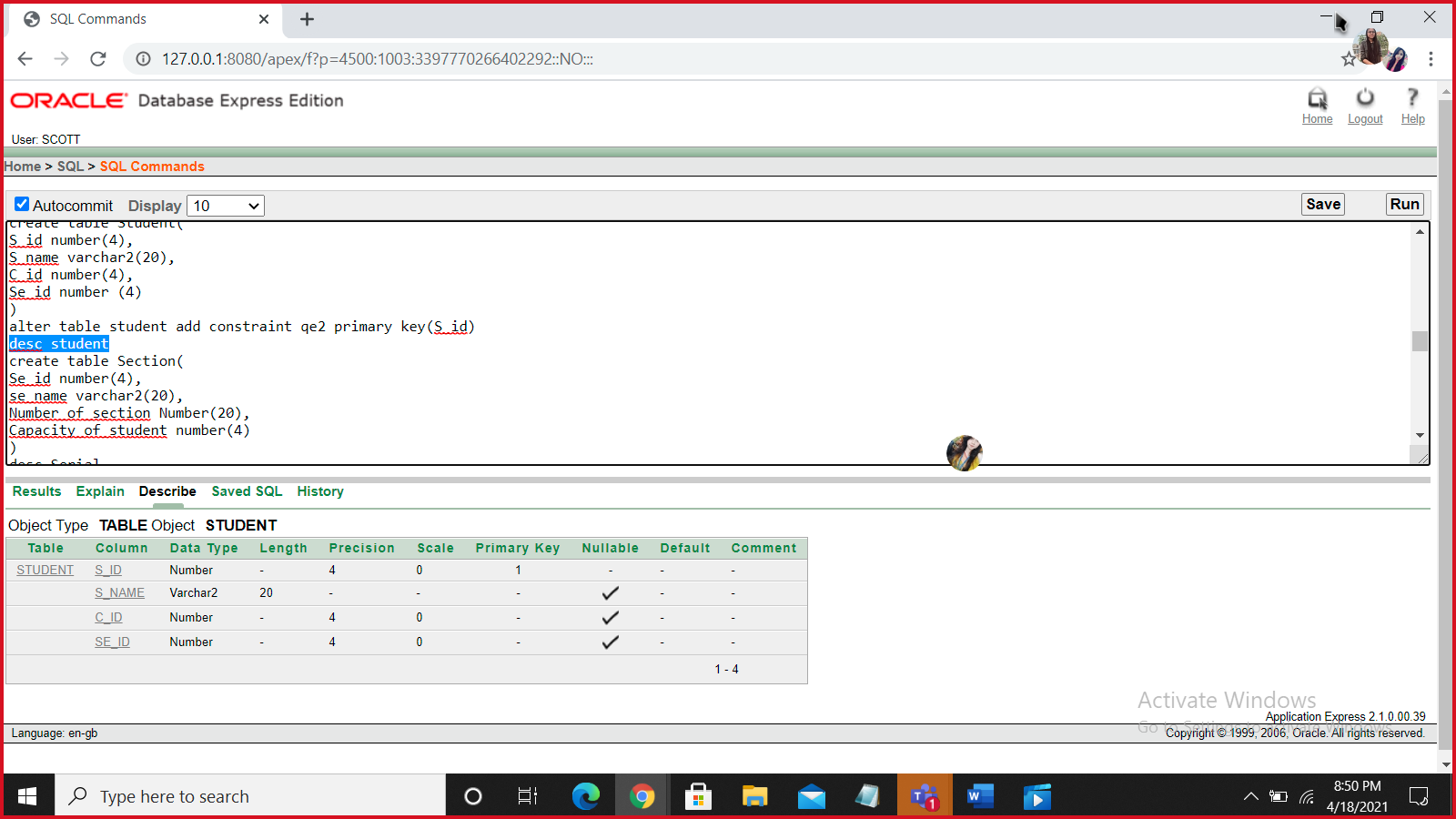
**EMPLOYEE**

alter table employee add constraint ew3 primary key(Emp\_id)



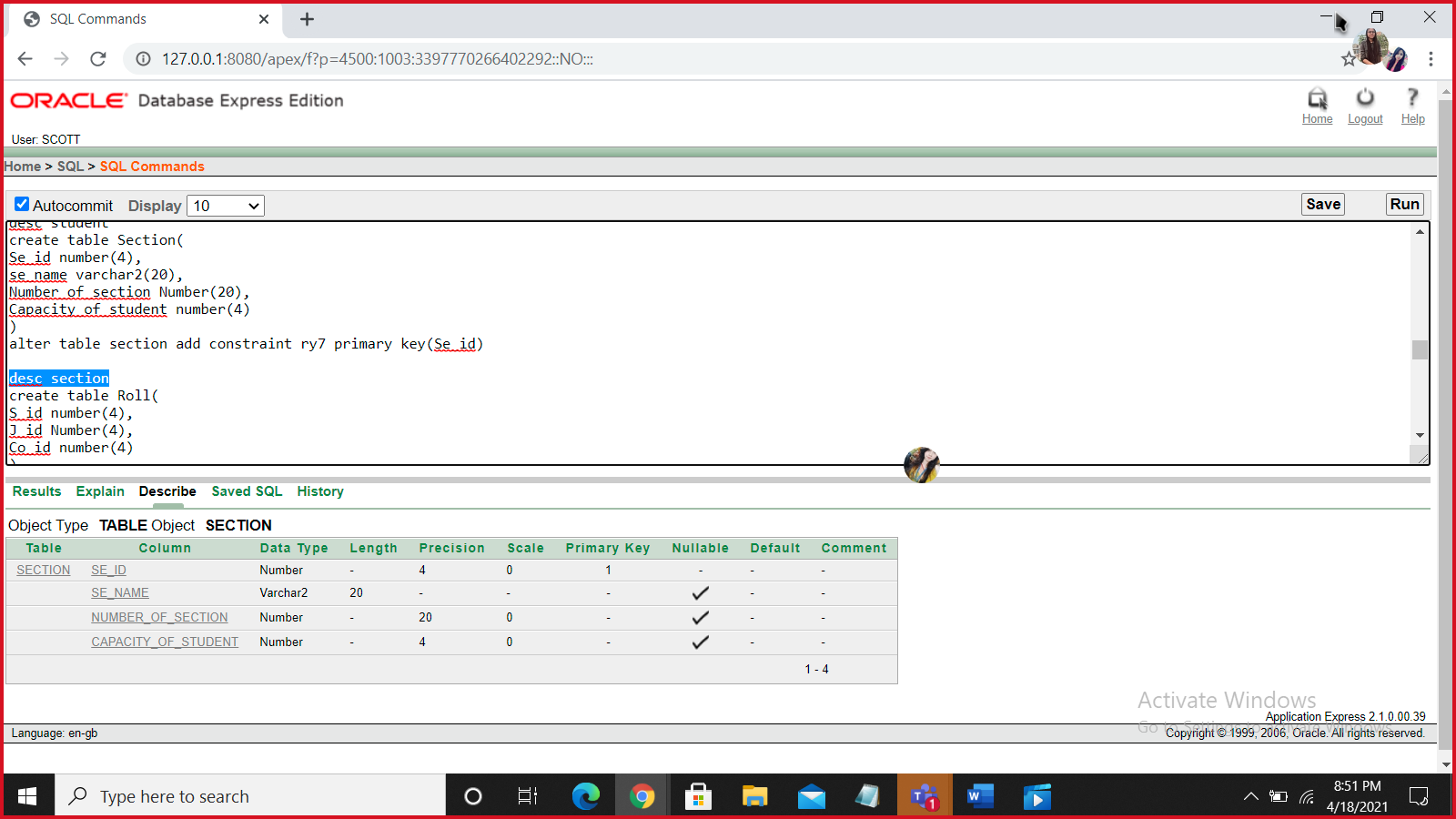
**STUDENT**

alter table student add constraint qe2 primary key(S\_id)



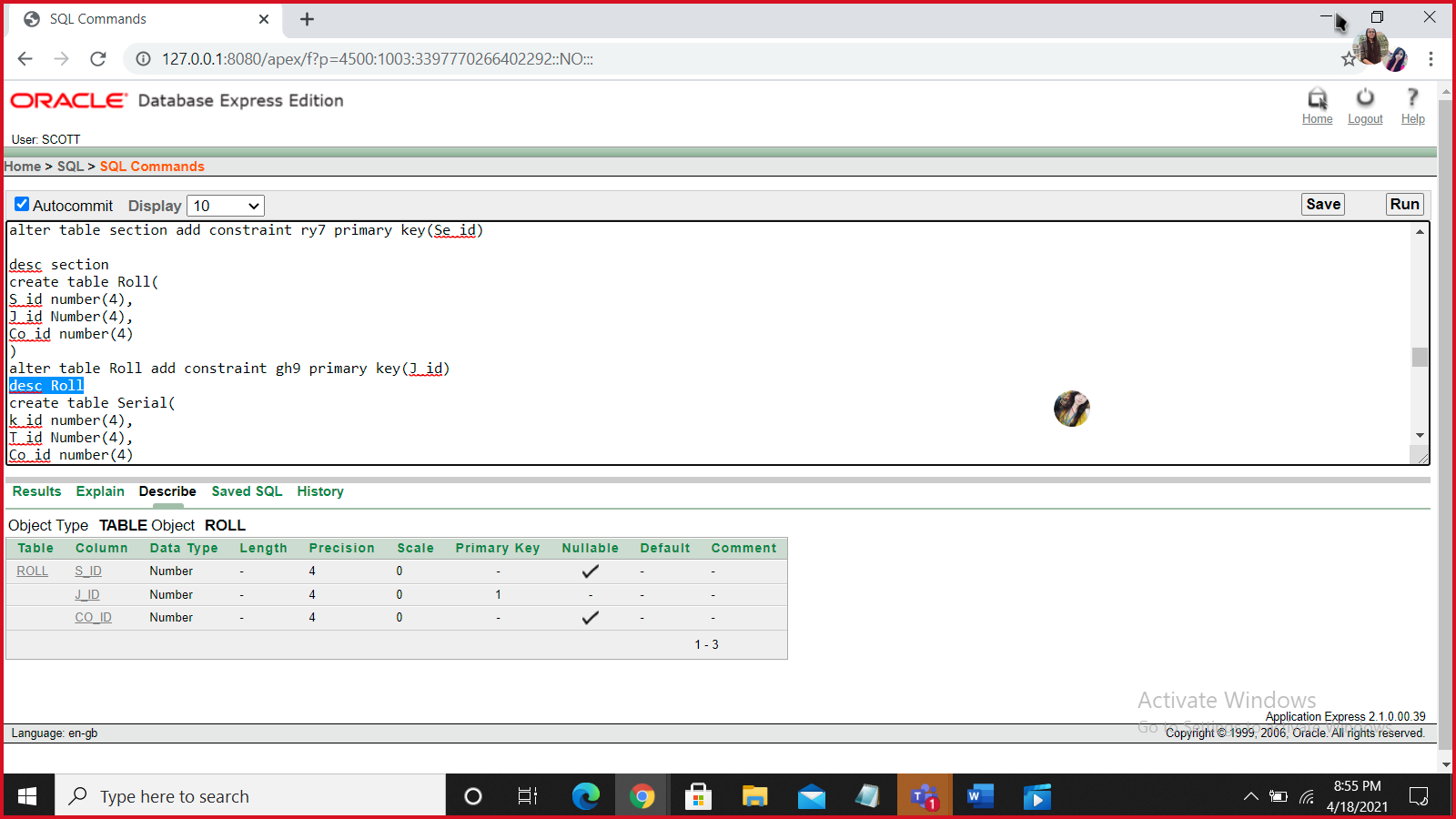
**SECTION**

alter table section add constraint ry7 primary key(Se\_id)



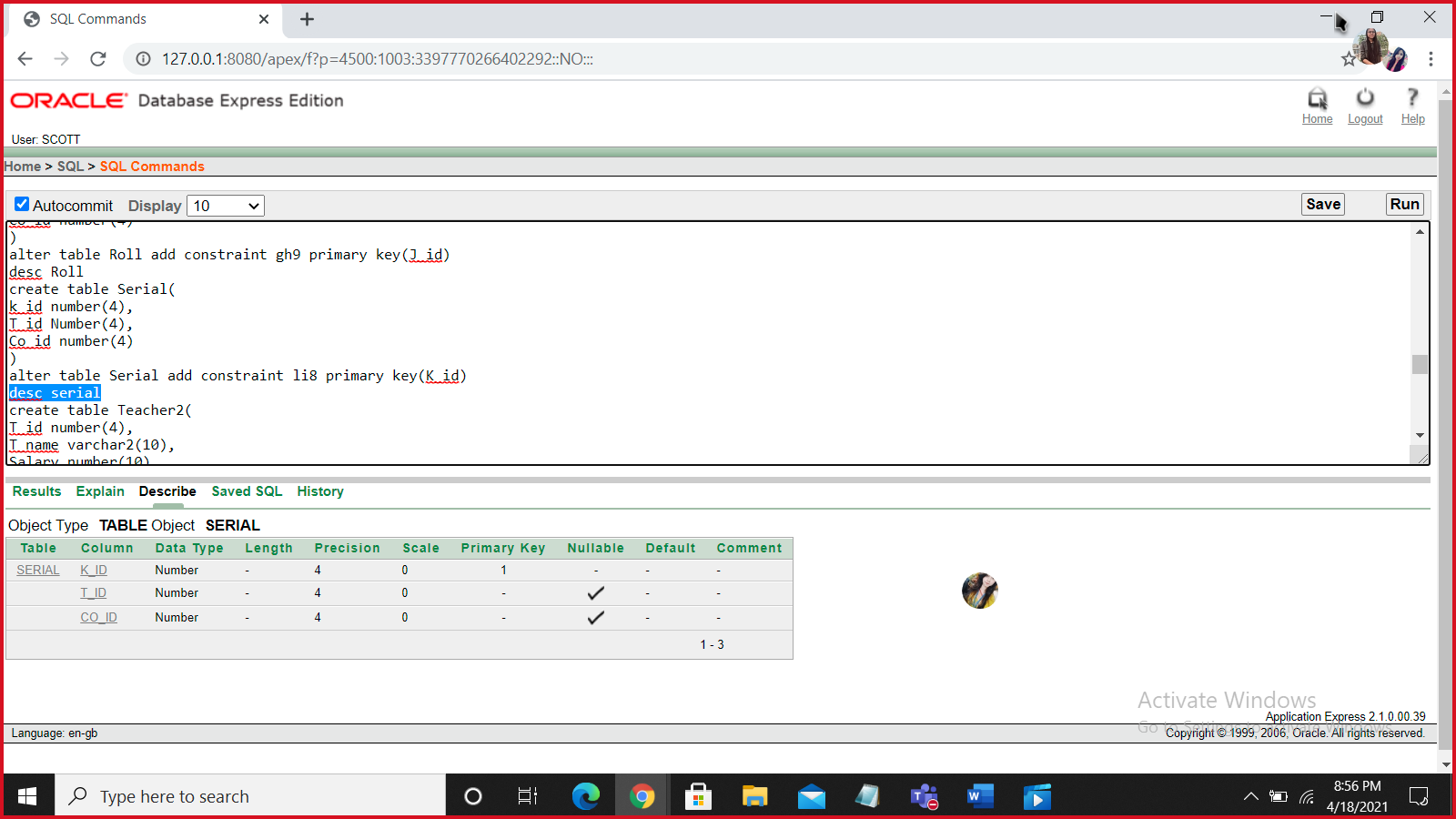
**ROLL**

alter table Roll add constraint gh9 primary key(J\_id)



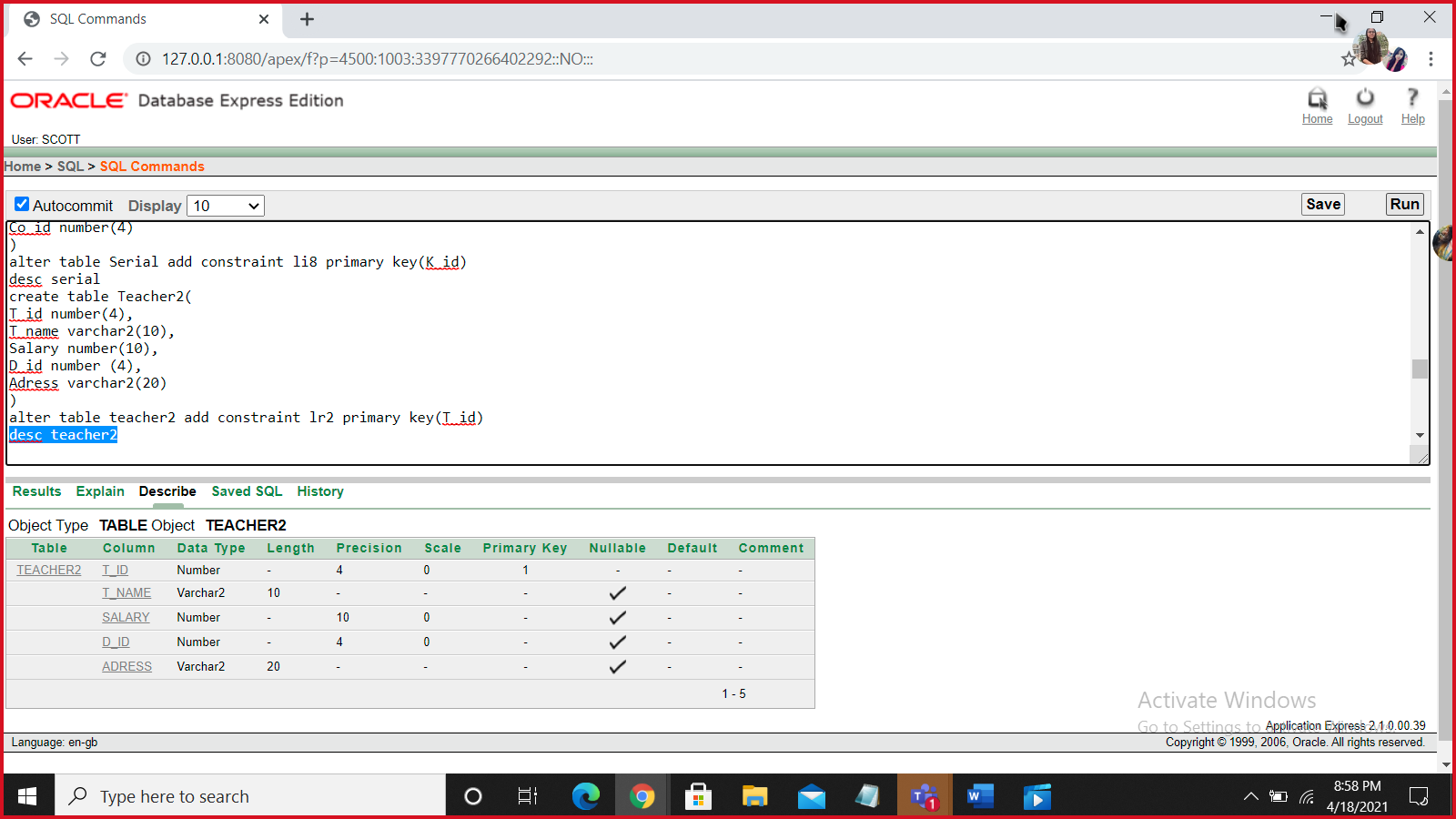
**SERIAL**

alter table Serial add constraint li8 primary key(K\_id)



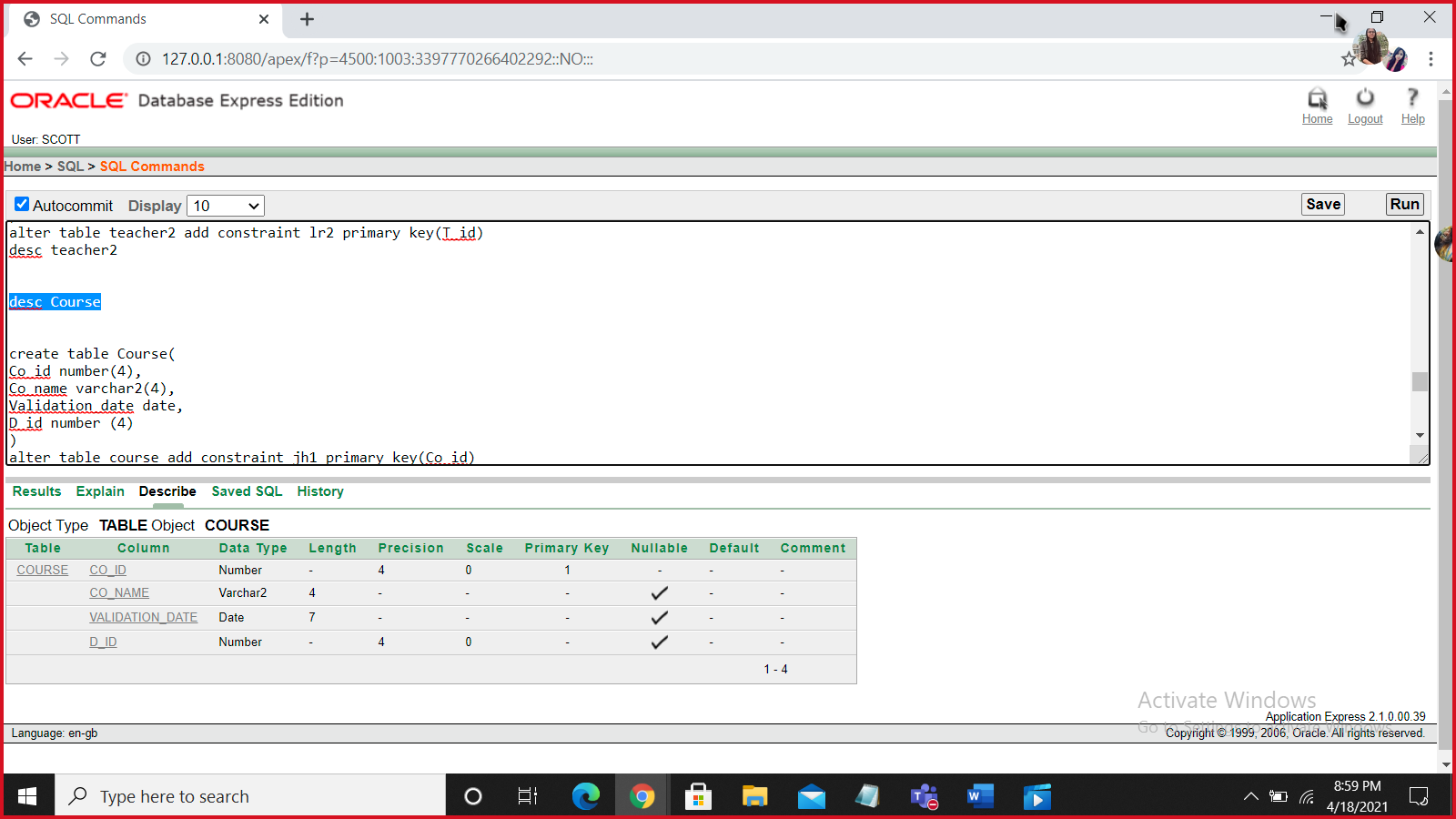
**TEACHER2**

alter table teacher2 add constraint lr2 primary key(T\_id)



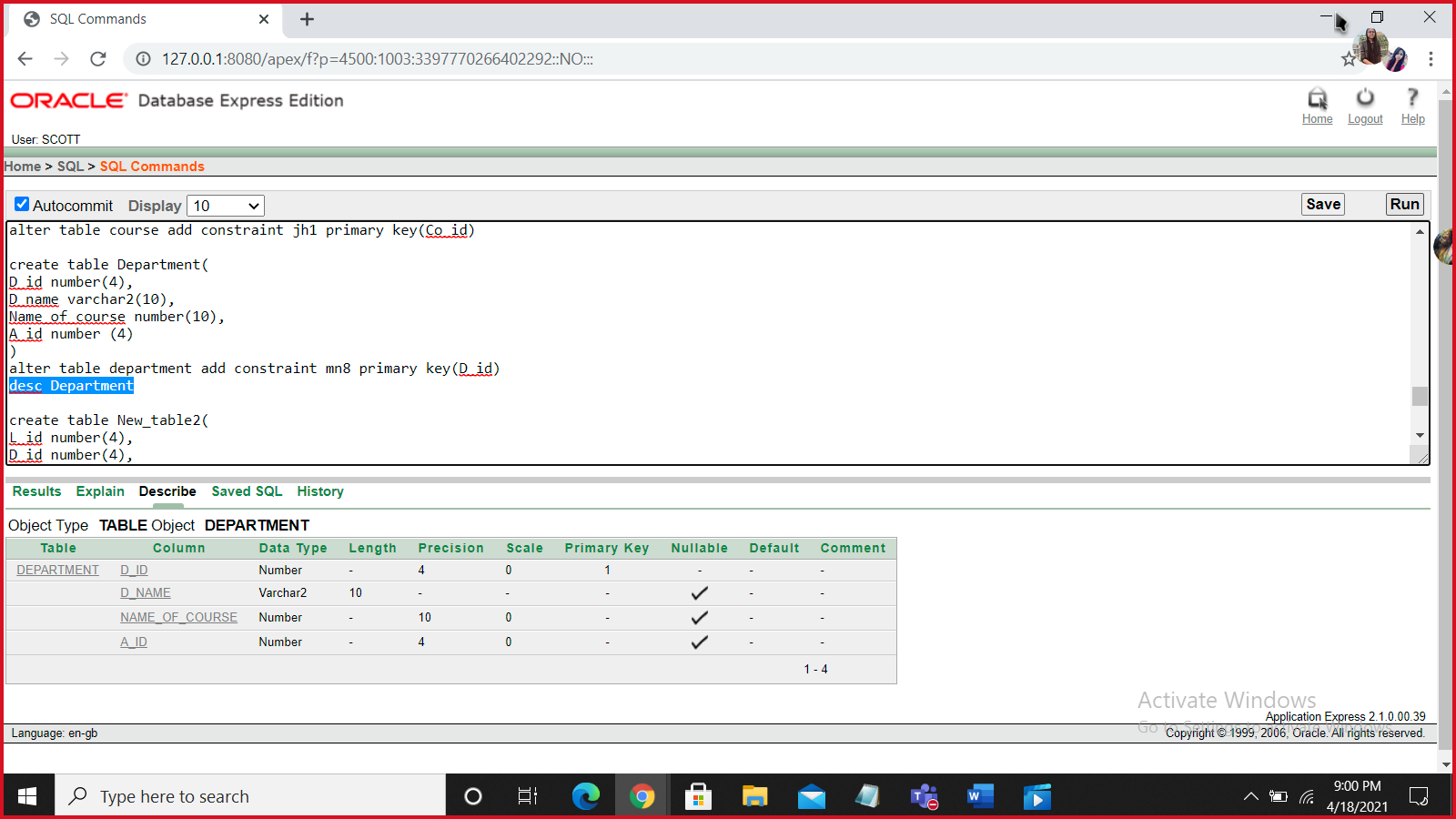
**COURSE**

alter table course add constraint jh1 primary key(Co\_id)



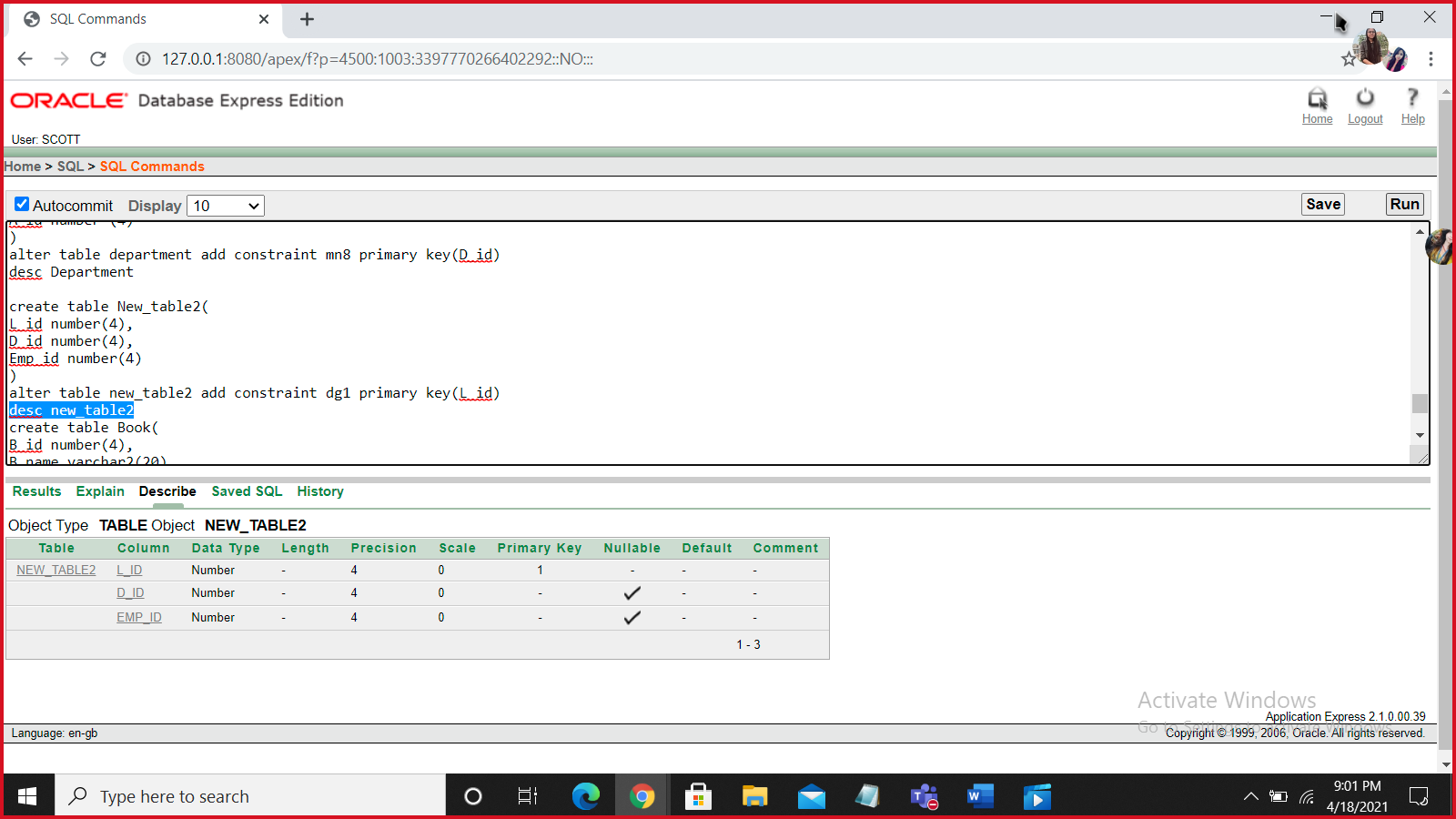
**DEPARTMENT**

alter table department add constraint mn8 primary key(D\_id)



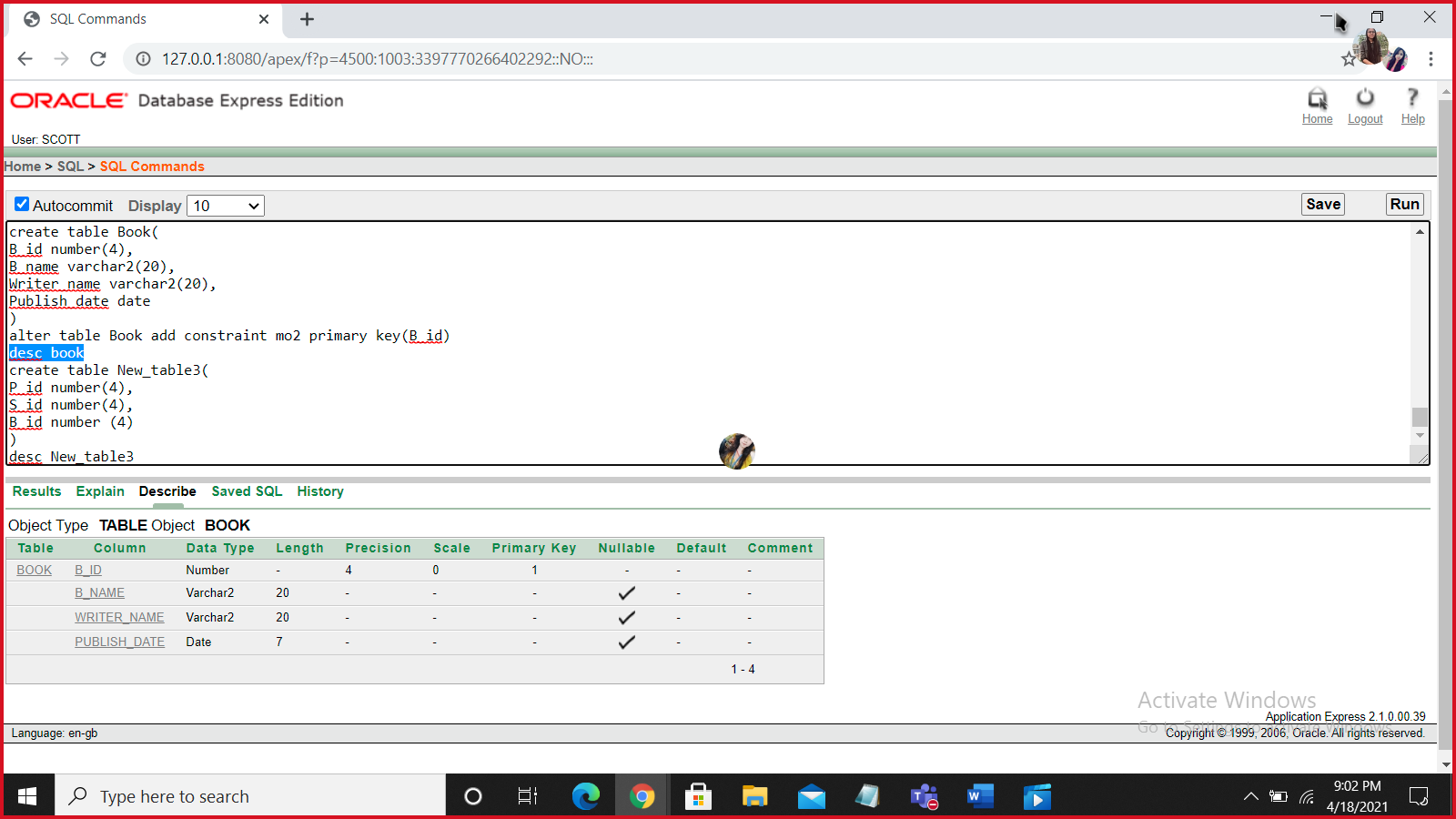
**NEW\_TABLE2**

alter table new\_table2 add constraint dg1 primary key(L\_id)



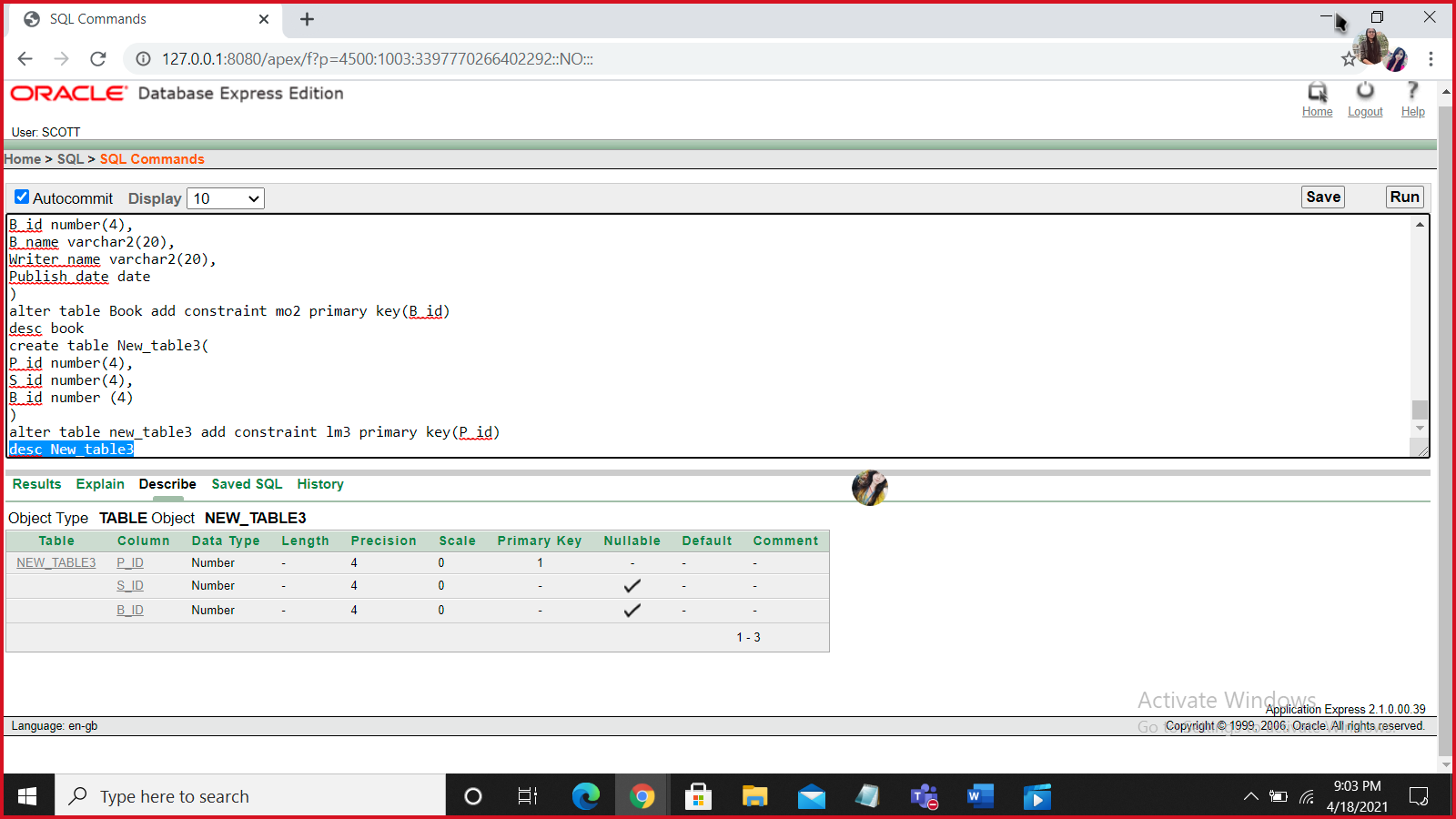
**BOOK**

alter table Book add constraint mo2 primary key(B\_id)



**NEW\_TABLE3**

alter table new\_table3 add constraint lm3 primary key(P\_id)



**foreign key**

alter table teacher add constraint drg foreign key (A\_id) references admin(A\_id)

desc teacher

alter table employee add constraint drf foreign key (A\_id) references admin(A\_id)

desc employee

alter table student add constraint pty foreign key (C\_id) references location(C\_id)

alter table student add constraint lkj foreign key (Se\_id) references section(Se\_id)

desc student

alter table roll add constraint plk foreign key (S\_id) references student(S\_id)

alter table roll add constraint mjk foreign key (Co\_id) references course (Co\_id)

desc roll

alter table serial add constraint klf foreign key (T\_id) references teacher(T\_id)

alter table serial add constraint vbh foreign key (Co\_id) references course(Co\_id)

desc serial

alter table teacher2 add constraint mfg foreign key (D\_id) references department(D\_id)

desc teacher2

alter table course add constraint pli foreign key (D\_id) references department(D\_id)

desc course

alter table department add constraint mkj foreign key (A\_id) references admin(A\_id)

desc department

alter table new\_table2 add constraint dhj foreign key (D\_id) references department(D\_id)

alter table new\_table2 add constraint cfg foreign key (Emp\_id) references employee(Emp\_id)

desc new\_table2

alter table new\_table3 add constraint l6j foreign key (S\_id) references student(S\_id)

alter table new\_table3 add constraint kdo foreign key (B\_id) references book(B\_id)

desc new\_table3

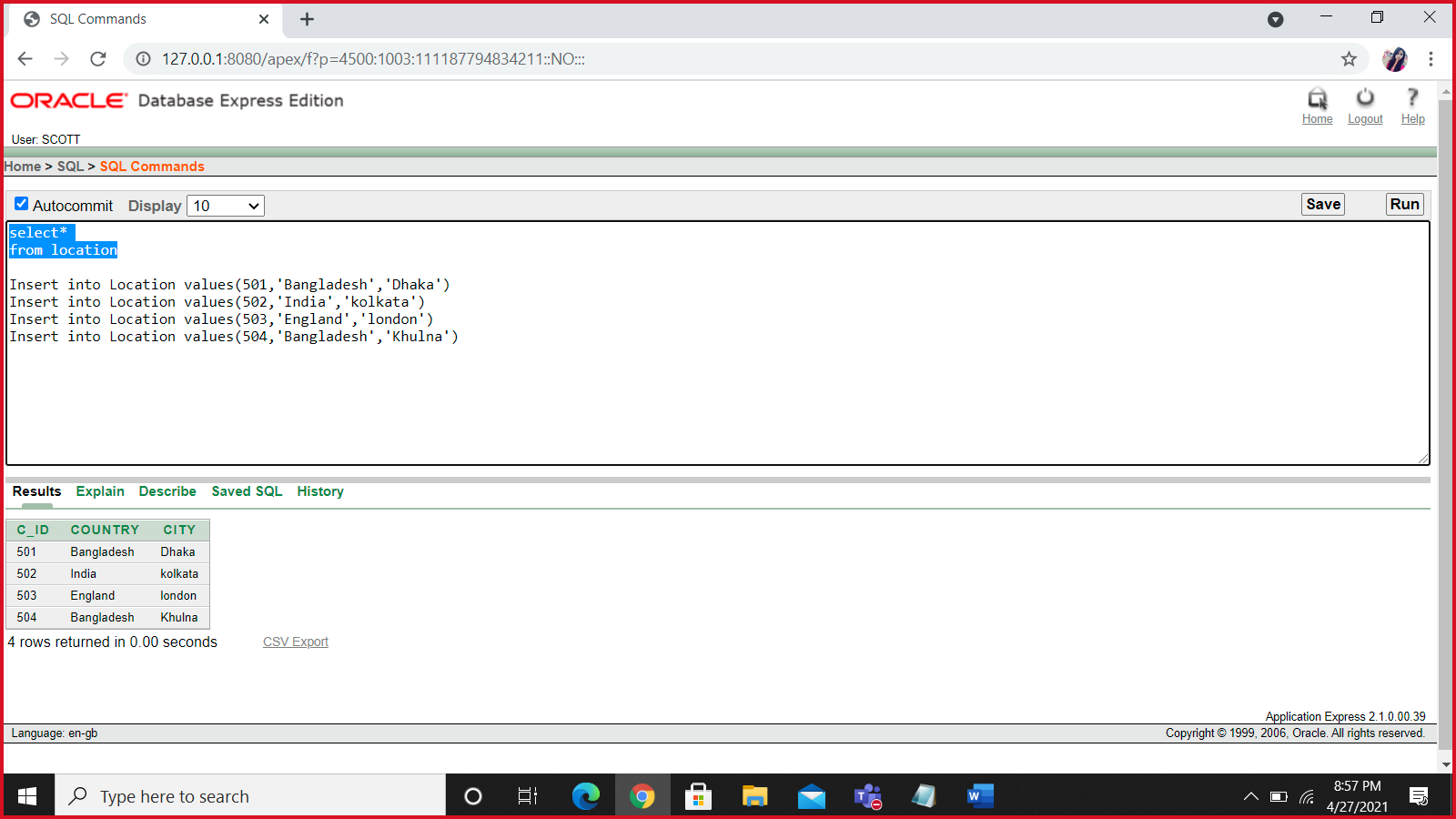
**VALUE INSERT**

**Location**

Insert into Location values(501,'Bangladesh','Dhaka')

Insert into Location values(502,'India','kolkata')

Insert into Location values(503,'England','london')

Insert into Location values(504,'Bangladesh','Khulna')

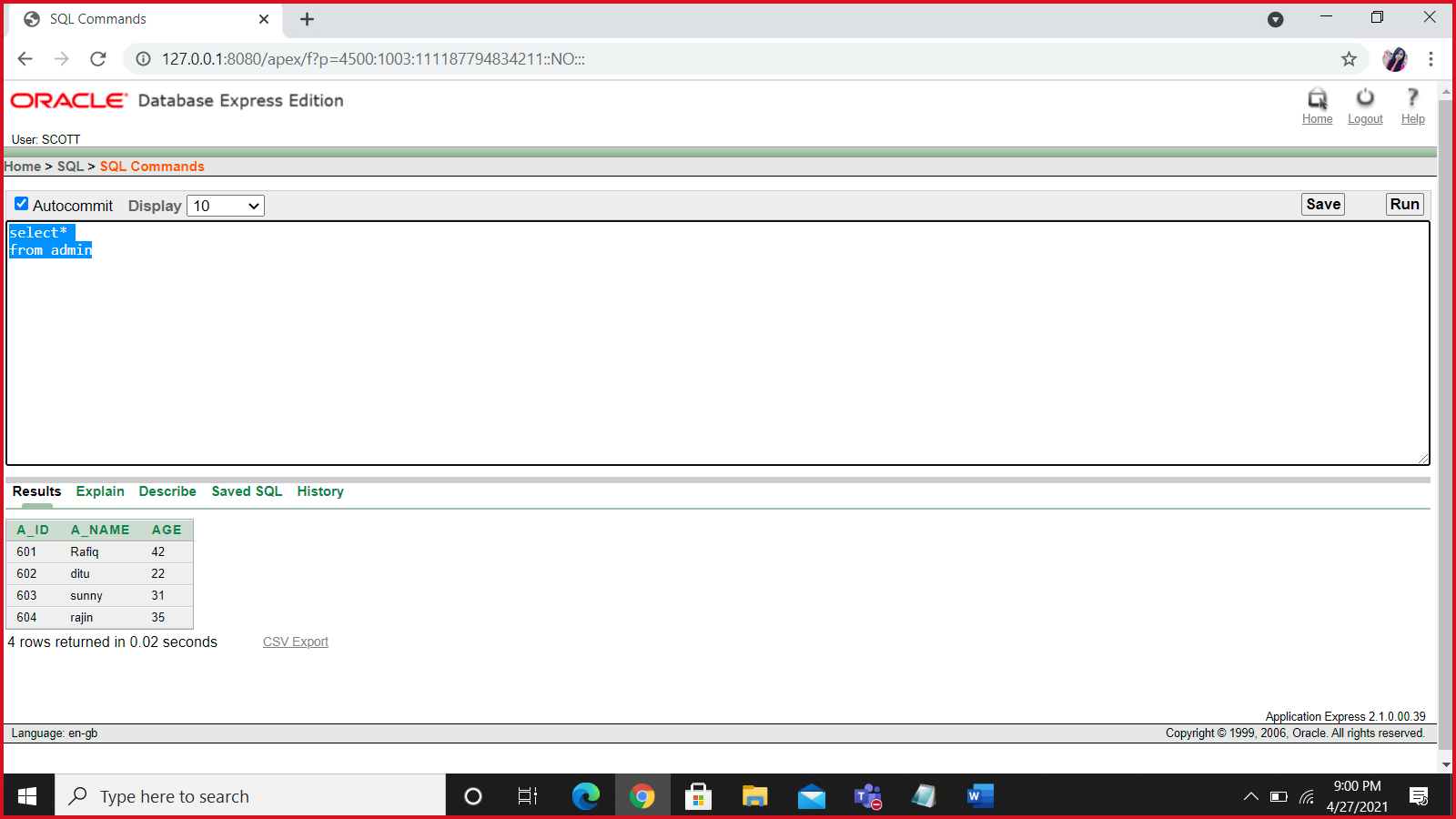
**admin**

Insert into Admin values(601,’Rafiq’,42)

Insert into Admin values(602,’ditu’,22)

Insert into Admin values(603,’sunny’,31)

Insert into Admin values(604,’rajin’,35)



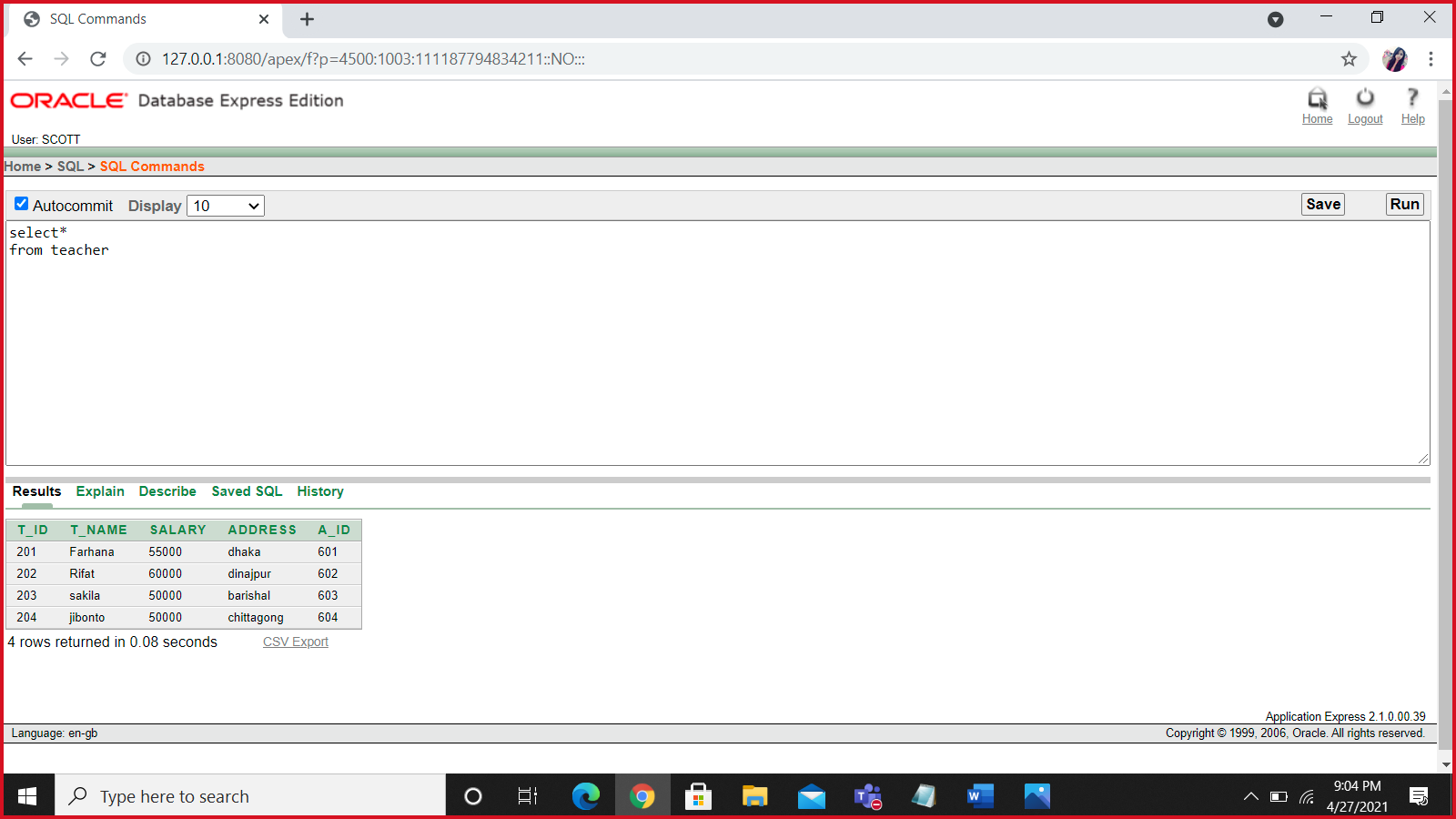
**Teacher**

Insert into Teacher values(201,'Farhana',55000,'dhaka',601)

Insert into Teacher values(202,'Rifat',60000,'dinajpur',602)

Insert into Teacher values(203,'sakila',50000,'barisal',603)

Insert into Teacher values(204,'jibonto',50000,'khulna',604)



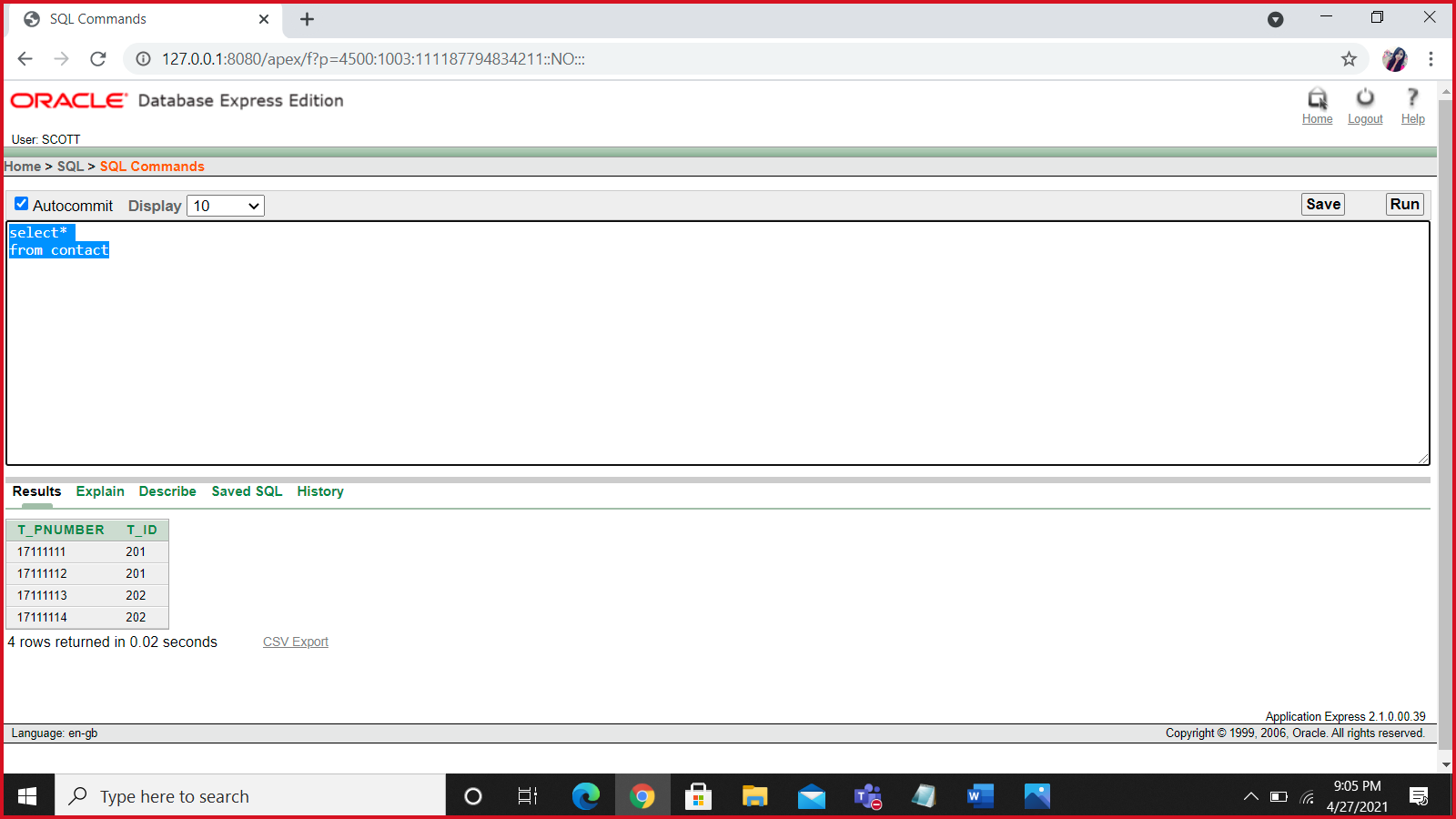
**Contact**

Insert into Contact values(‘017111111’,201)

Insert into Contact values(’017111112’,201)

Insert into Contact values(‘017111113’,202)

Insert into Contact values(‘017111114’,202)



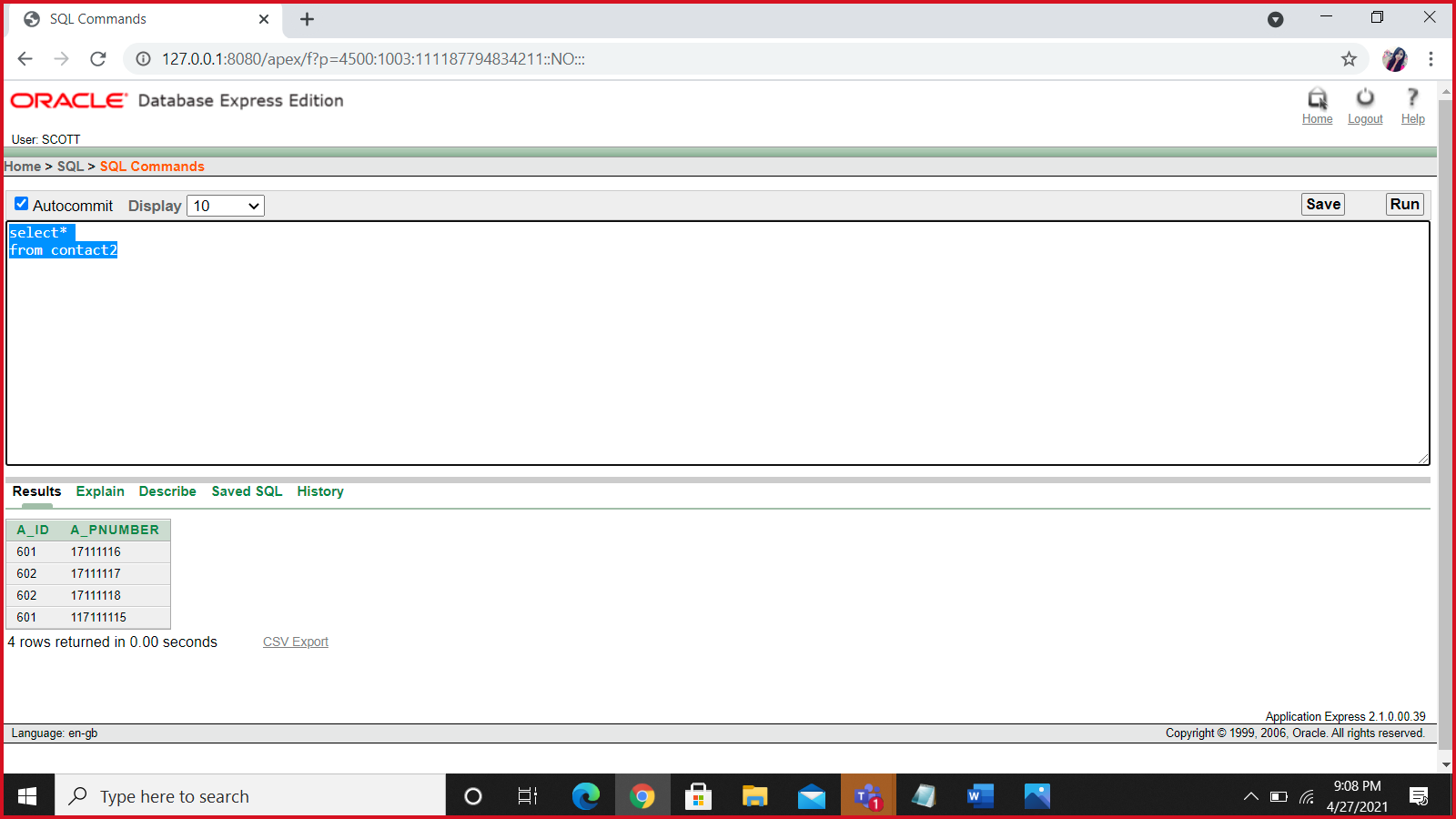
**Contact2**

Insert into Contact2 values(601,0117111115)

Insert into Contact2 values(601,017111116)

Insert into Contact2 values(602,017111117)

Insert into Contact2 values(602,017111118)



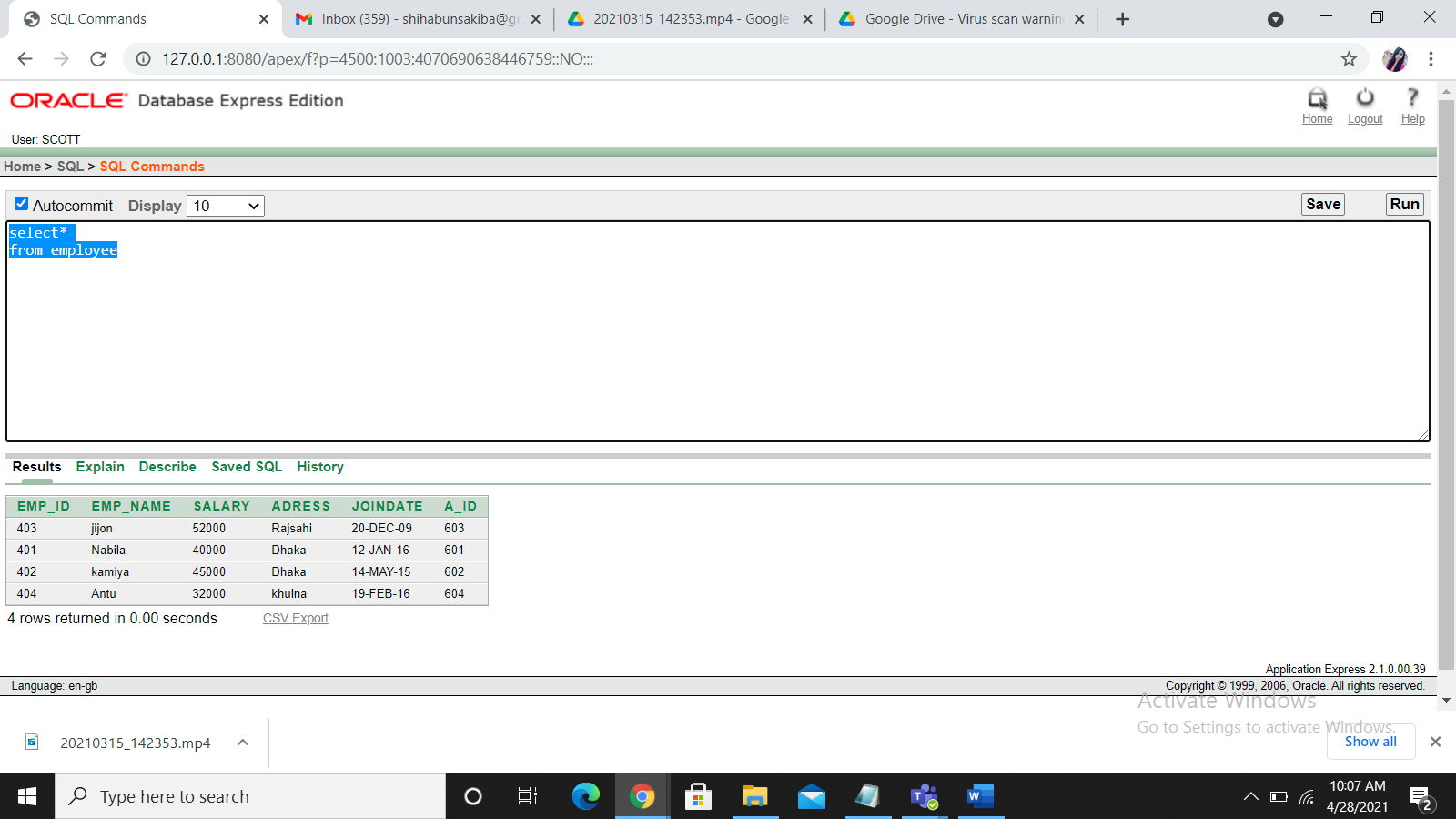
**Employee**

insert into Employee values(401,'Nabila',45000,'Dhaka','12-jan-16',601)

insert into Employee values(402,'kamiya',45000,'Dhaka','14-may-15',602)

insert into Employee values(403,'jijon',45000,'Rajsahi','20-dec-09',603)

insert into Employee values(404,'Antu',45000,'khulna','19-feb-16',604)



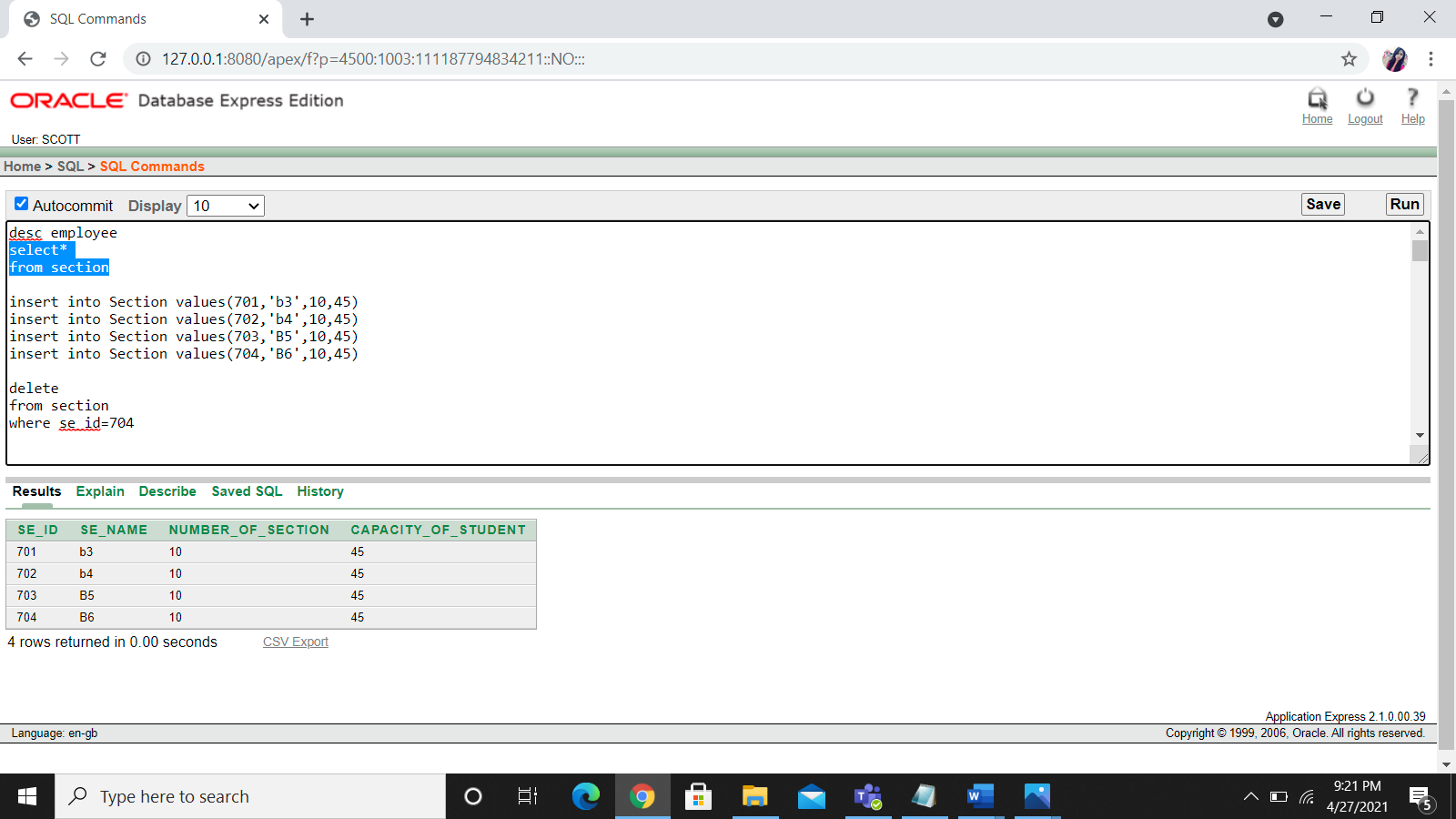
**Section**

insert into Section values(701,'b3',10,45)

insert into Section values(702,'b4',10,45)

insert into Section values(703,'B5',10,45)

insert into Section values(704,'B6',10,45)



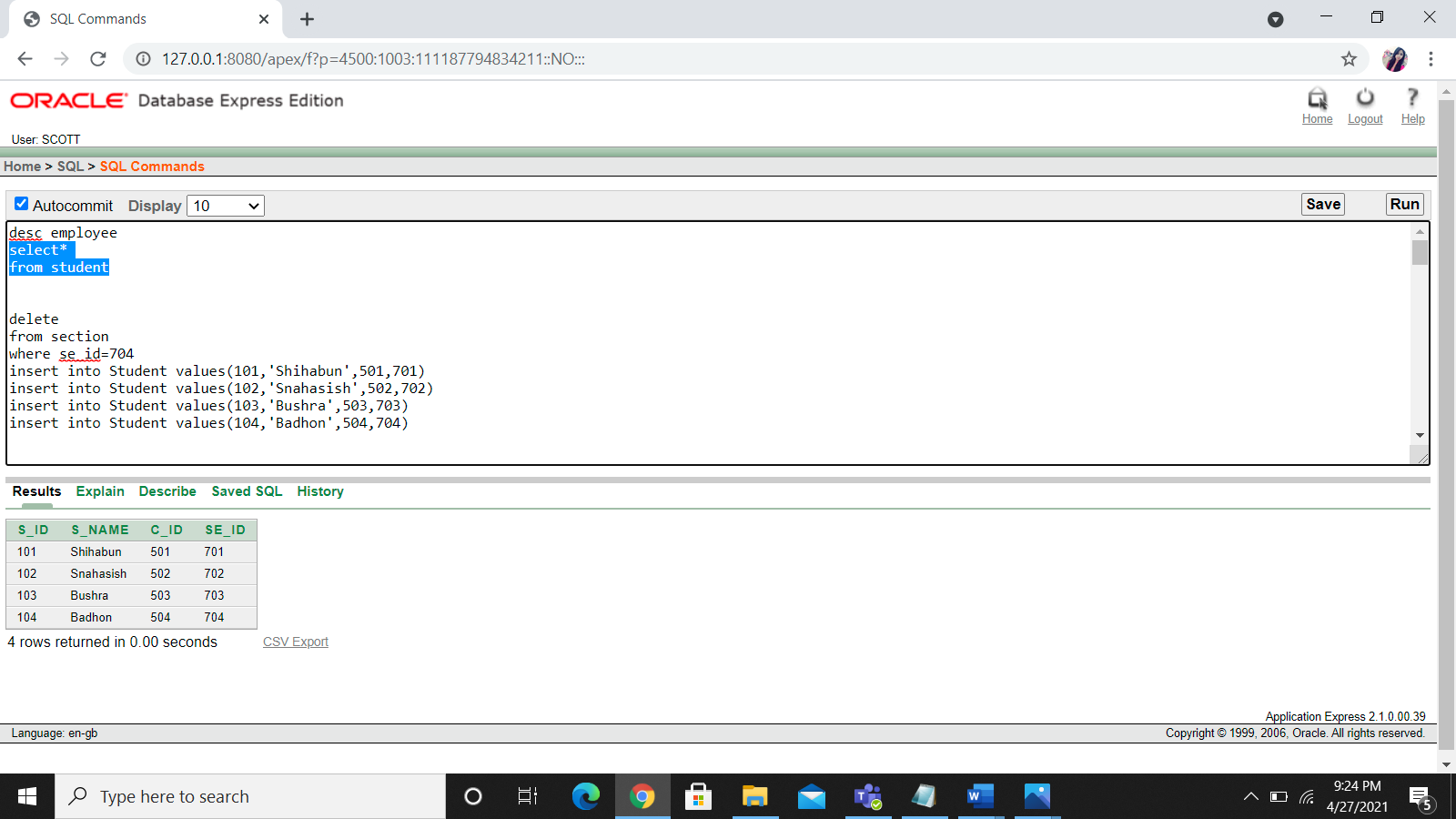
**student**

insert into Student values(101,'Shihabun',501,701)

insert into Student values(102,'Snahasish',502,702)

insert into Student values(103,'Bushra',503,703)

insert into Student values(104,'Badhon',504,704)



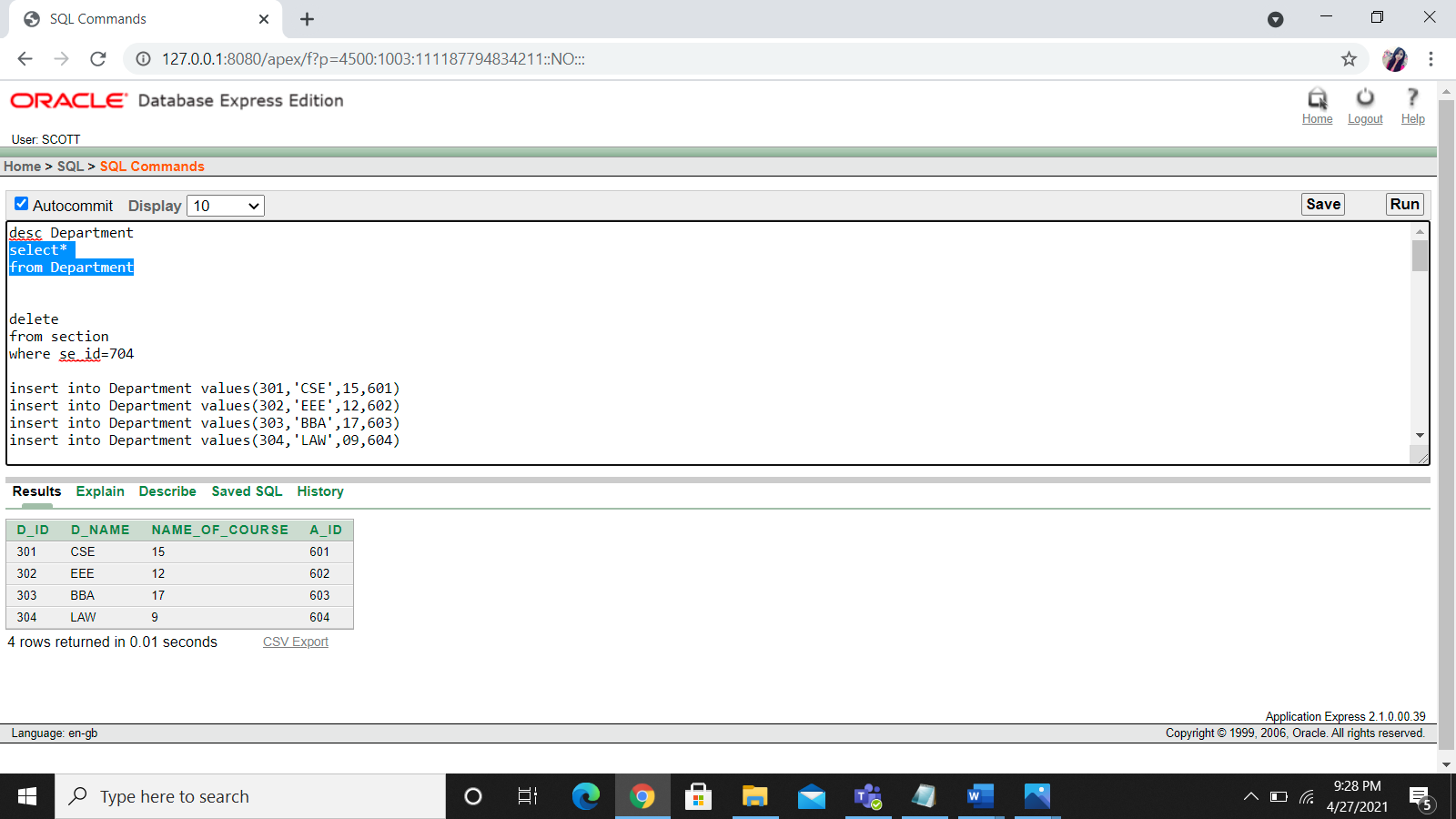
**DEPARTMENT**

insert into Department values(301,'CSE',15,601)

insert into Department values(302,'EEE',12,602)

insert into Department values(303,'BBA',17,603)

insert into Department values(304,'LAW',09,604)



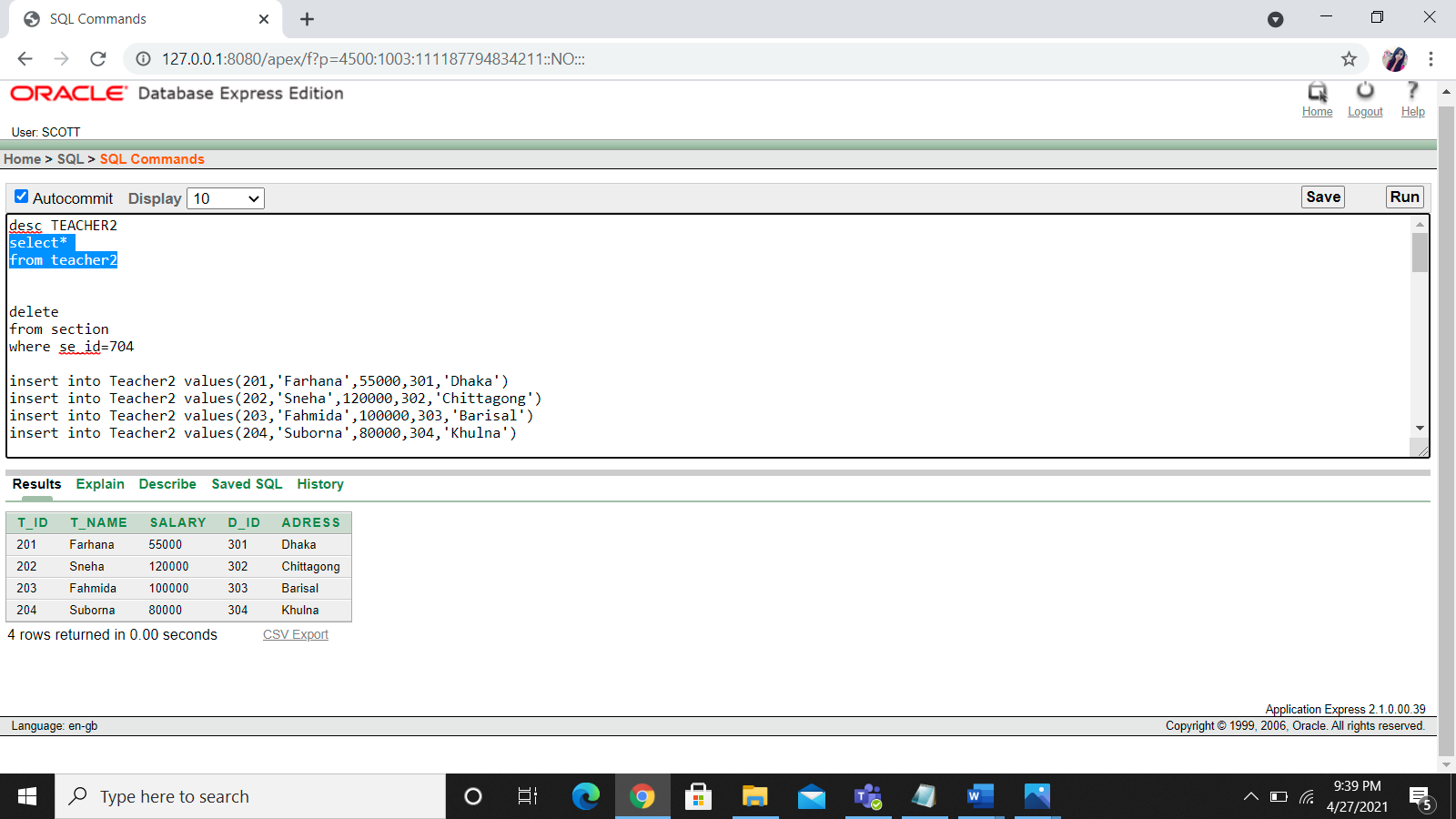
**Teacher2**

insert into Teacher2 values(201,'Farhana',55000,301,'Dhaka')

insert into Teacher2 values(202,'Sneha',120000,302,'Chittagong')

insert into Teacher2 values(203,'Fahmida',100000,303,'Barisal')

insert into Teacher2 values(204,'Suborna',80000,304,'Khulna')



**course**

insert into Course values(801,'Java','25-jan-21',301)

insert into Course values(802,'ICS','11-may-21',302)

insert into Course values(803,'IEC','22-jun-21',303)

insert into Course values(804,'IPL','25-sep-21',304)



**Constraint used in this table**

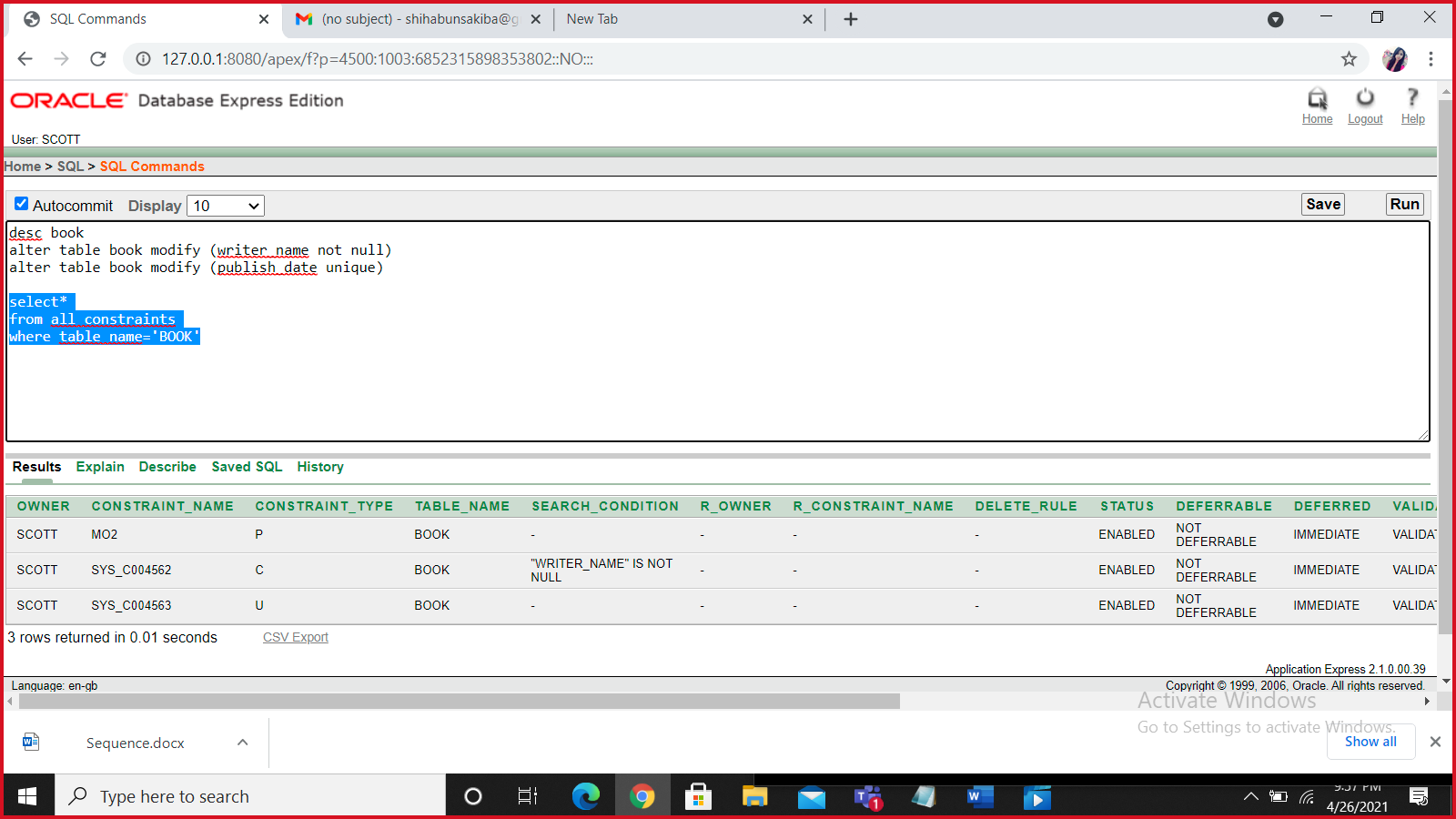
**Book**

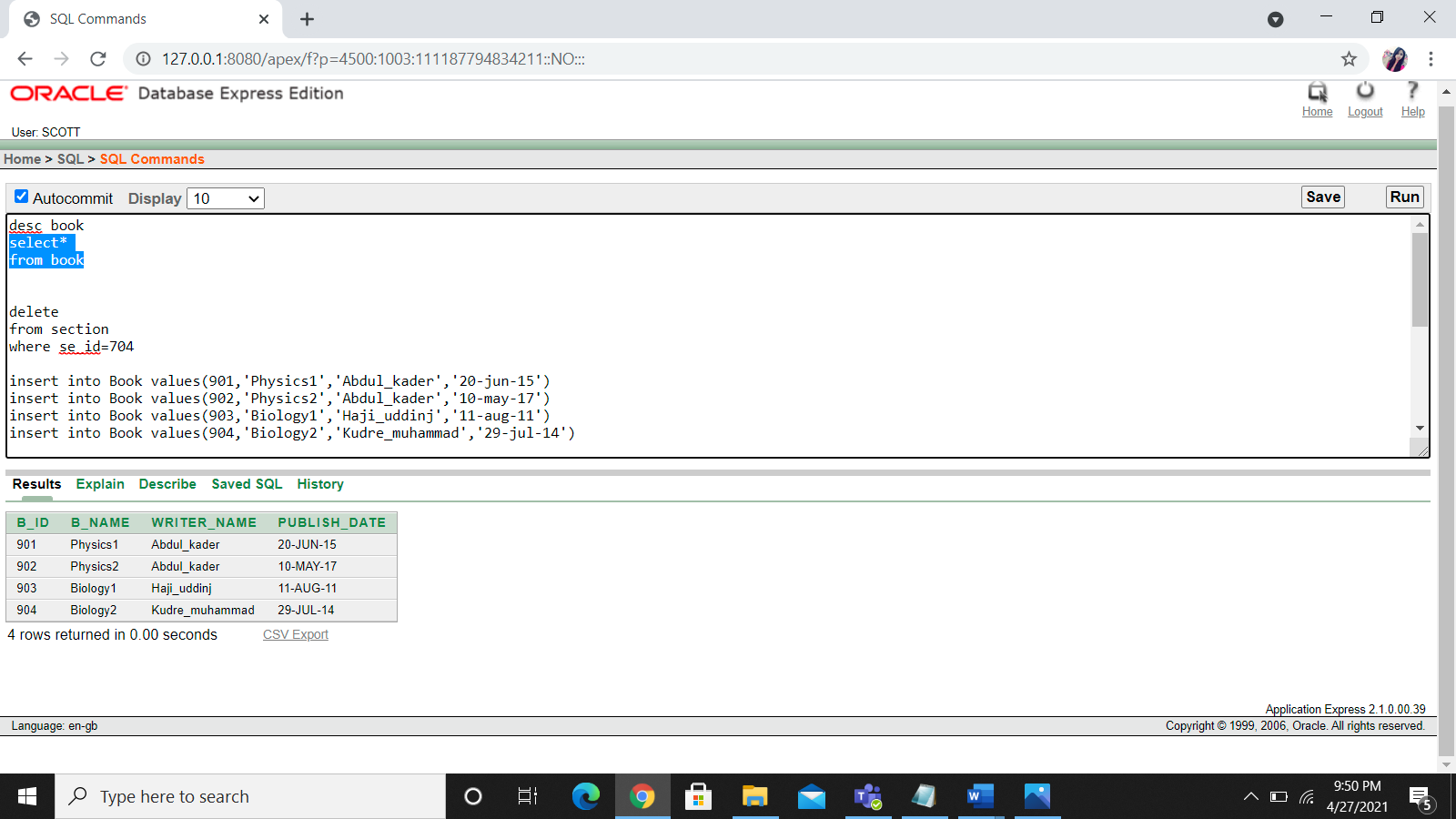
insert into Book values(901,'Physics1','Abdul\_kader','20-jun-15')

insert into Book values(902,'Physics2','Abdul\_kader','10-may-17')

insert into Book values(903,'Biology1','Haji\_uddinj','11-aug-11')

insert into Book values(904,'Biology2','Kudre\_muhammad','29-jul-14')





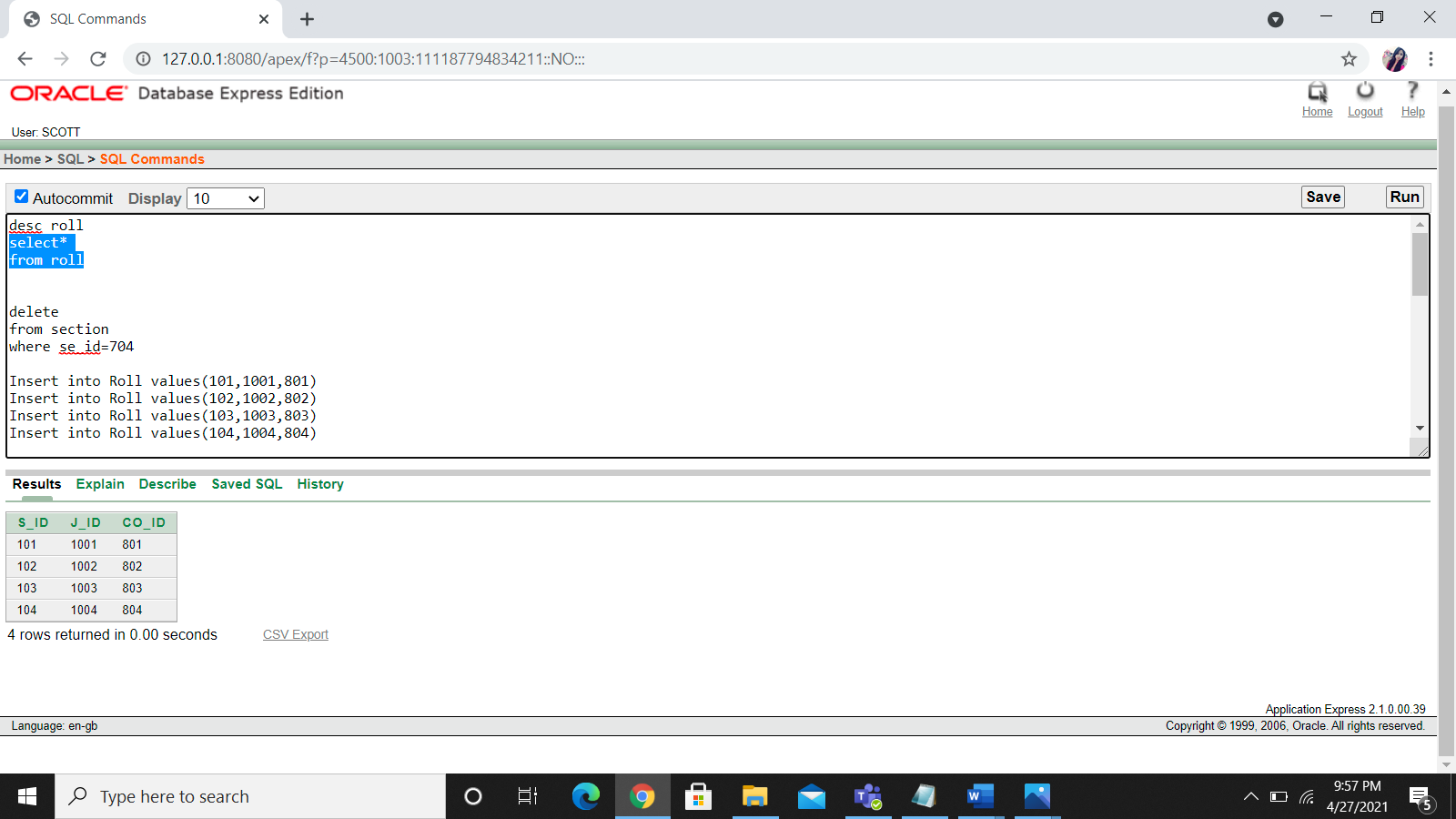
**roll**

Insert into Roll values(101,1001,801)

Insert into Roll values(102,1002,802)

Insert into Roll values(103,1003,803)

Insert into Roll values(104,1004,804)



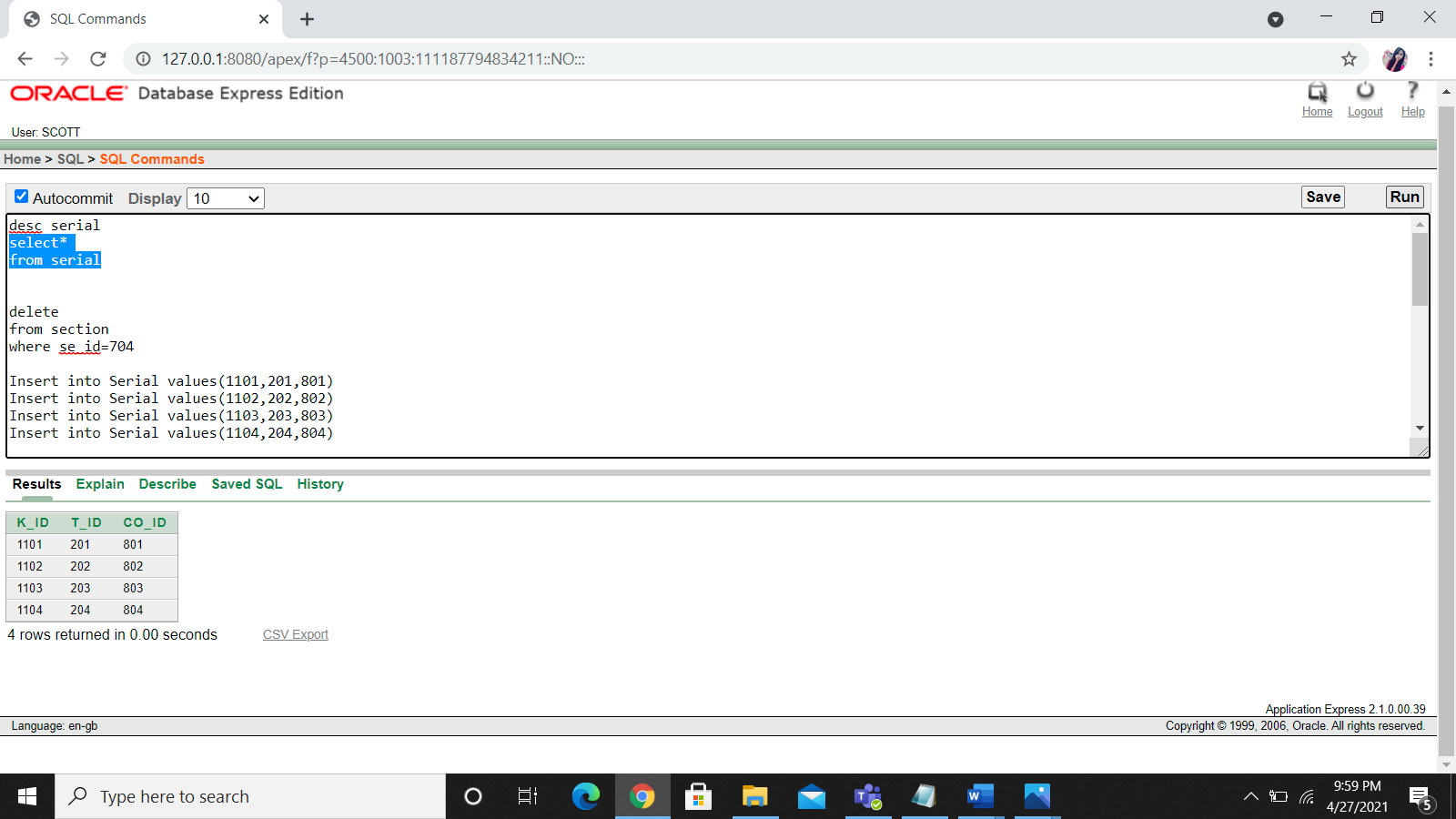
**Serial**

Insert into Serial values(1101,201,801)

Insert into Serial values(1102,202,802)

Insert into Serial values(1103,203,803)

Insert into Serial values(1104,204,804)



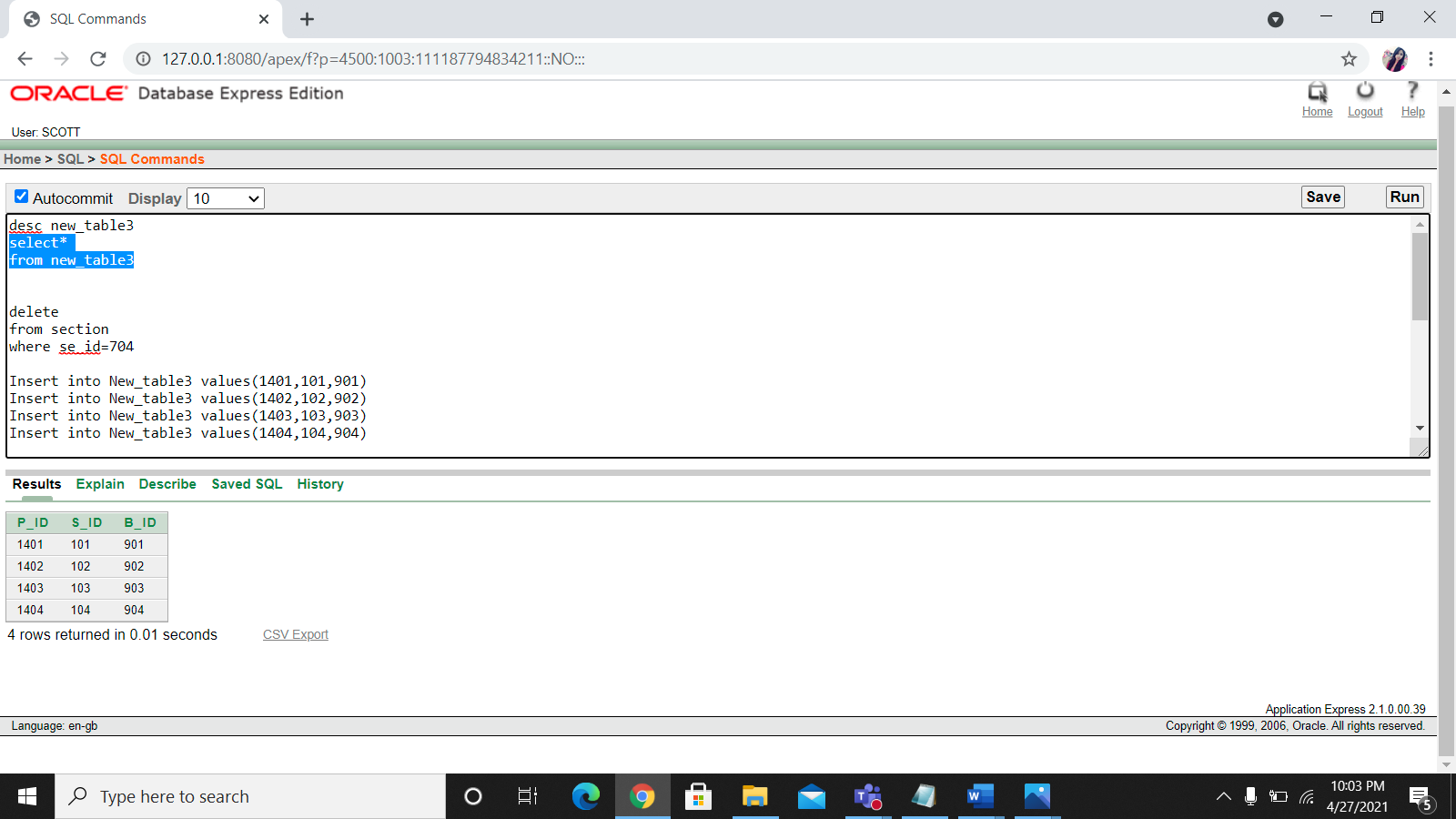
**New\_table3**

Insert into New\_table3 values(1401,101,901)

Insert into New\_table3 values(1402,102,902)

Insert into New\_table3 values(1403,103,903)

Insert into New\_table3 values(1404,104,904)



**Value insertion with sequence use**

**New\_table**

create sequence new\_tbl\_seq

start with 50

increment by 2

maxvalue 80

nocycle

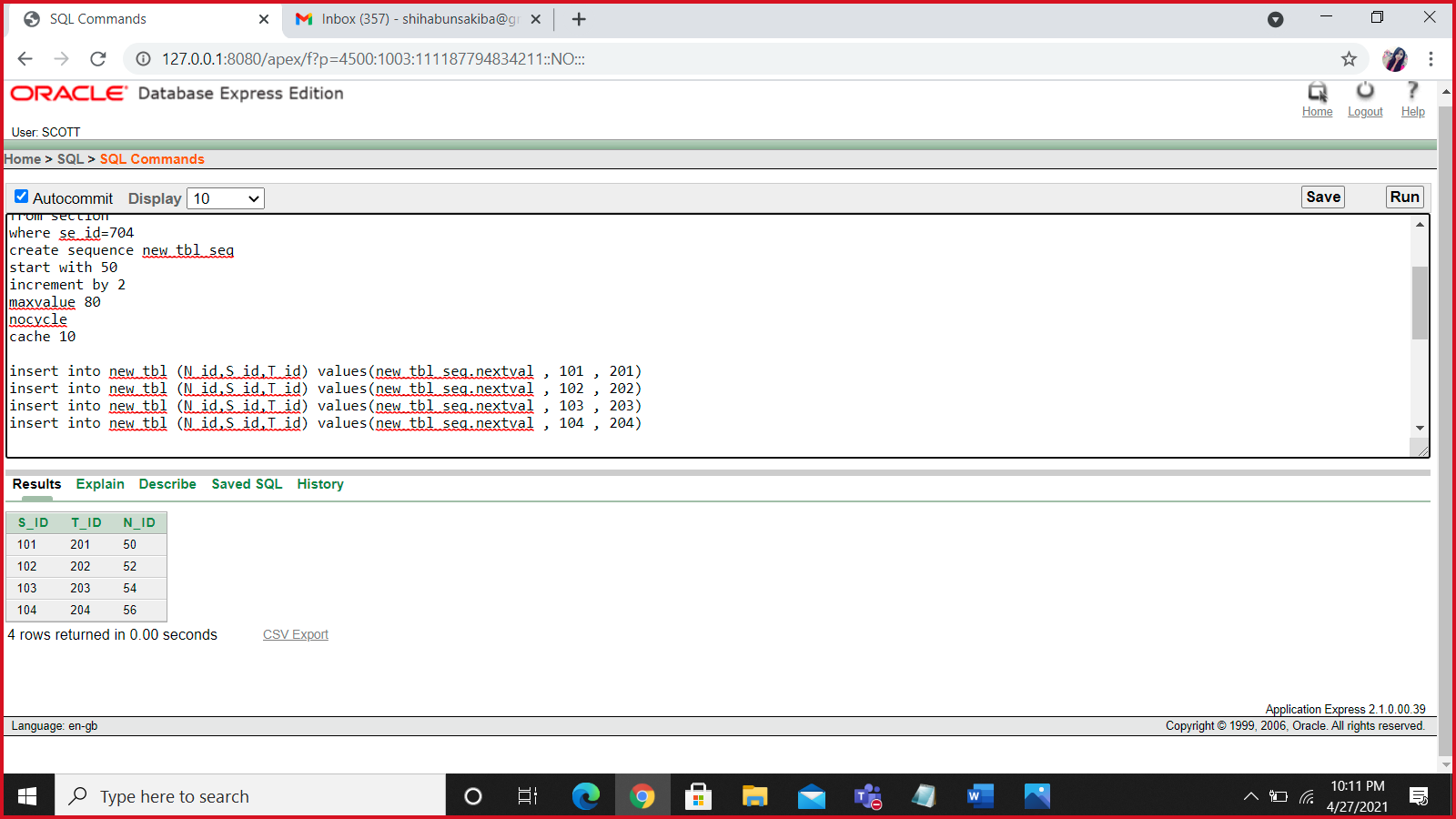
cache 10

insert into new\_tbl (N\_id,S\_id,T\_id) values(new\_tbl\_seq.nextval , 101 , 201)

insert into new\_tbl (N\_id,S\_id,T\_id) values(new\_tbl\_seq.nextval , 102 , 202)

insert into new\_tbl (N\_id,S\_id,T\_id) values(new\_tbl\_seq.nextval , 103 , 203)

insert into new\_tbl (N\_id,S\_id,T\_id) values(new\_tbl\_seq.nextval , 104 , 204)



**New\_table2**

create sequence new\_tbl2\_seq

start with 150

increment by 4

maxvalue 180

nocycle

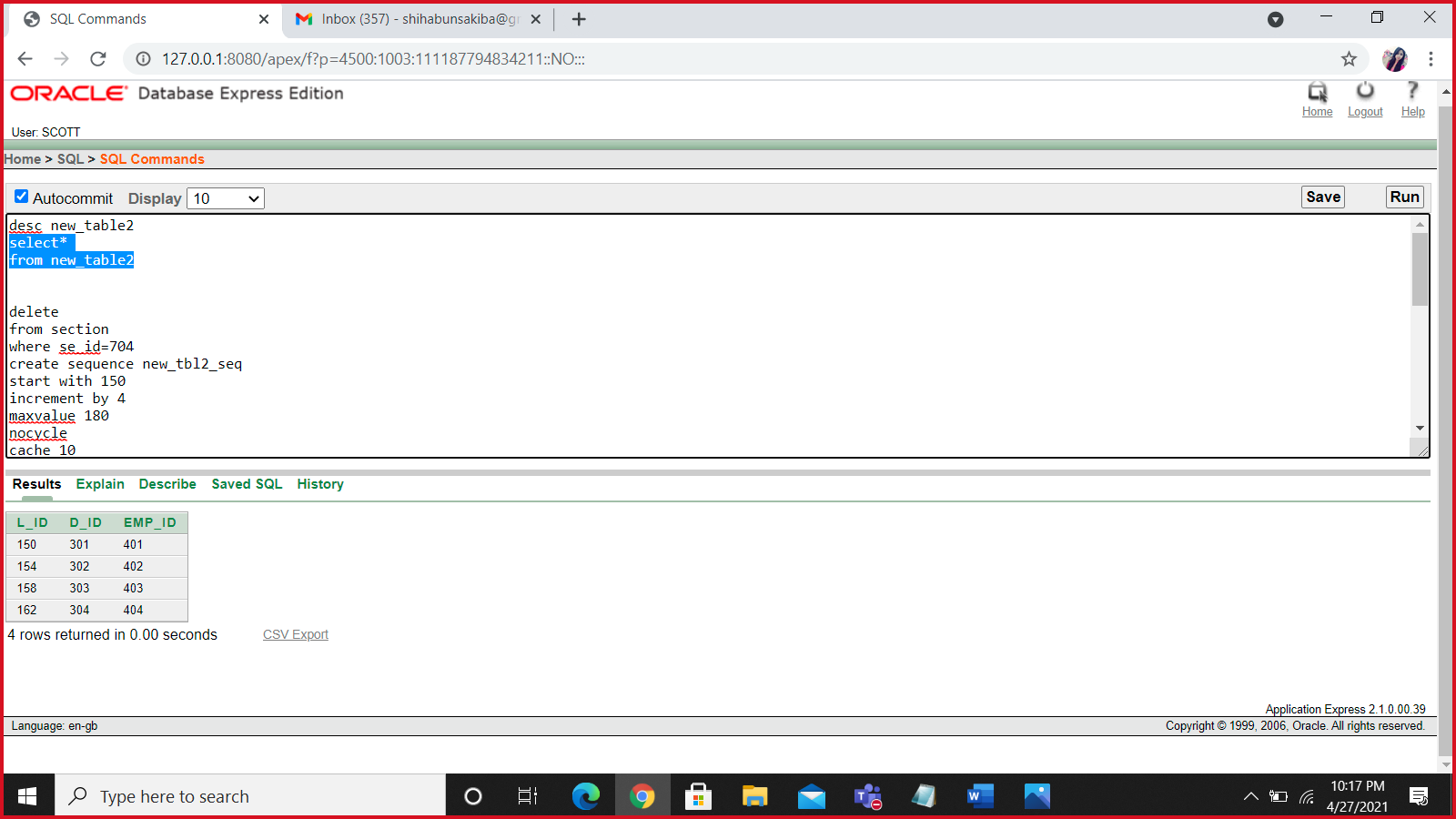
cache 10

insert into new\_table2 (L\_id,D\_id,Emp\_id) values(new\_tbl2\_seq.nextval , 301, 401)

insert into new\_table2 (L\_id,D\_id,Emp\_id) values(new\_tbl2\_seq.nextval , 302, 402)

insert into new\_table2 (L\_id,D\_id,Emp\_id) values(new\_tbl2\_seq.nextval , 303, 403)

insert into new\_table2 (L\_id,D\_id,Emp\_id) values(new\_tbl2\_seq.nextval , 304, 404)



**QUERY WRITING**

1.Display the teacher name,address and salary of all teachers whose salary is equal to the minimum salary

2. Display salary and name whose Salary is less or equal to the salary of employee id 403

3. Display employee names who joined on 14th February 2015

4. Write a query to display the name, department number, and department name for  
all employees.

5.Find average, maximum, minimum & summation salary of the employees. Label the columns Maximum, Minimum, Sum, and Average, respectively

6. Find the number of employee who have salary >32000

7. create a view called student *view base on the S*id,S\_name,c\_id,Se\_id

8. show the information of all employee like " Nabila lives Dhaka"

9. write a query for S\_ID,S\_ID,s\_name for student and roll

10. create a view called Admin \_*view base on the a\_*id,a\_name,age