Experiment-8: To implement the concept of subquery

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Branch: CSE-IOT **Section/Group:** A

Semester: 3 **Date of Performance:** Nov 18,2021

Subject Name: DBMS LAB **Subject Code:** 20CSP-233

1. **Aim/Overview of the practical:**

   To implement the concept of subquery.

2. **Task to be done:**

   Implementation of Subquery commands of SQL with proper Input queries syntax and the output.

3. **Theme/Interests definition(For creative domains):**

   SUBQUERIES: A subquery is a form of an SQL statement that appears inside another SQL statement. It is also termed as nested subquery. The statement containing a subquery is called a parent statement. The parent statement uses the rows (i.e., the result set) returned by the subquery.

   It can be used for the following:

   To insert records in a target table

   To create tables and insert records in the table

   created To update records in a target table

   To create views

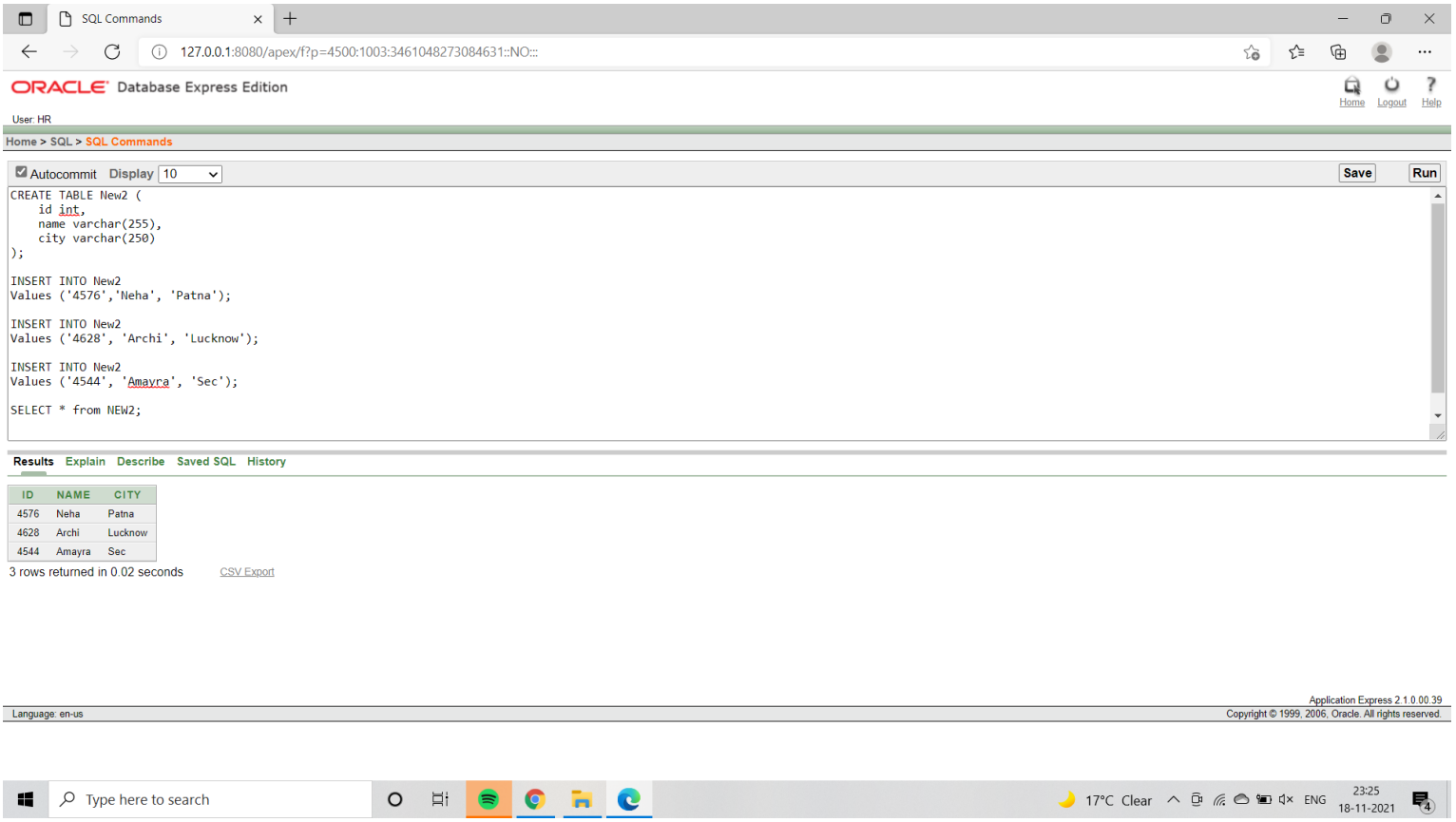
   To provide values for conditions in WHERE, HAVING, IN and so on used with SELECT, UPDATE and DELETE statements.

4. Observations/Discussions(For applied/experimental sciences/materials based labs):

1. View Data In The Tables:

Example: - SELECT * FROM STUDENT101;

OUTPUT:



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Home > SQL > SQL Commands

Autocommit Display 10 Save Run

```
Select * from NEW1;
```

Results Explain Describe Saved SQL History

ID	NAME
4501	Ruthvik
4505	Shivansh
4548	Ajay
4570	Suyash
4525	Saksham
4522	Anandu
4570	Jelly Pavan Kumar
4500	Style

8 rows returned in 0.00 seconds CSV Export

Application Express 2.1.0.00.39

Language: en

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2. Using Sub-query In The FROM Clause:-

Command: - SELECT

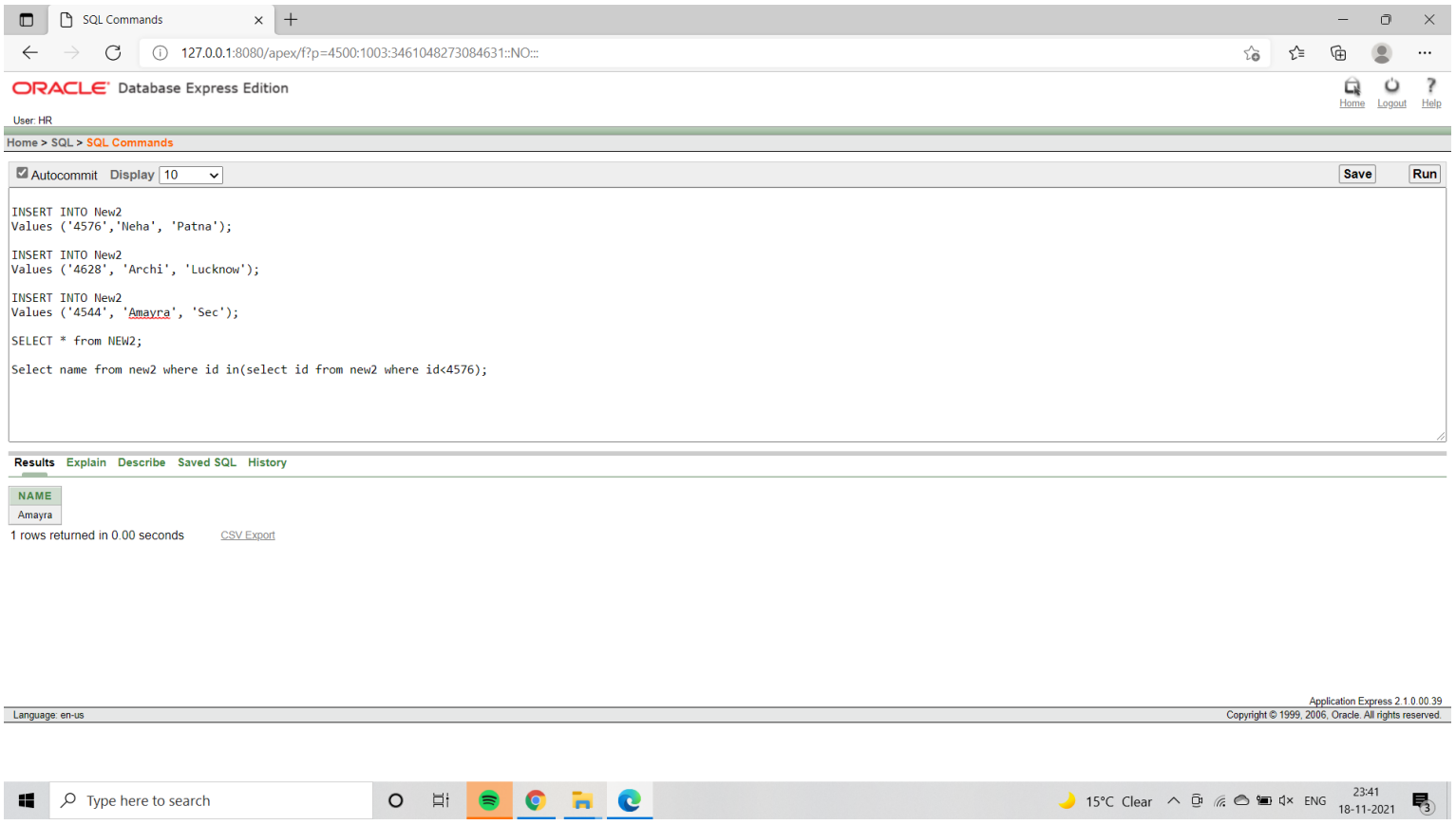
Example: Select name from student101 where id IN(select id from dept101 where age>20);

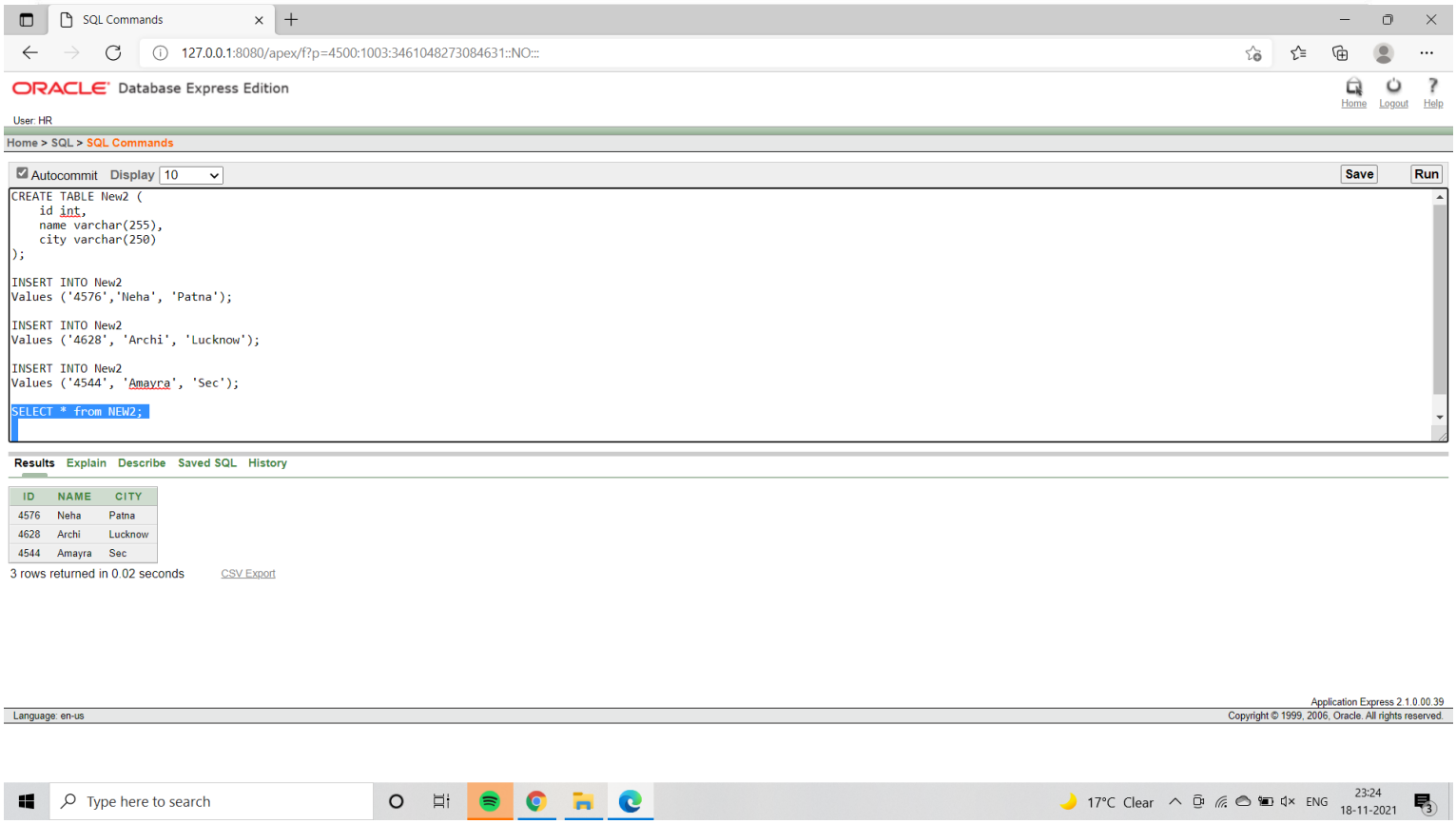
3. Using Sub-query In The WHERE Clause:-

Command: - SELECT

Example: Select name from student101 where id IN(select id from dept101 where age<20);

Output:




SQL Commands
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ORACLE Database Express Edition
Home Logout Help
User: HR
Home > SQL > SQL Commands
Autocommit Display 10
Save Run
CREATE TABLE New2 (
id int,
name varchar(255),
city varchar(250)
);
INSERT INTO New2
Values ('4576','Neha', 'Patna');
INSERT INTO New2
Values ('4628', 'Archi', 'Lucknow');
INSERT INTO New2
Values ('4544', 'Amayra', 'Sec');
SELECT * from NEW2;
Results Explain Describe Saved SQL History
ID NAME CITY
4576 Neha Patna
4628 Archi Lucknow
4544 Amayra Sec
3 rows returned in 0.02 seconds CSV Export
Application Express 2.1.0.00.39
Language: en-us
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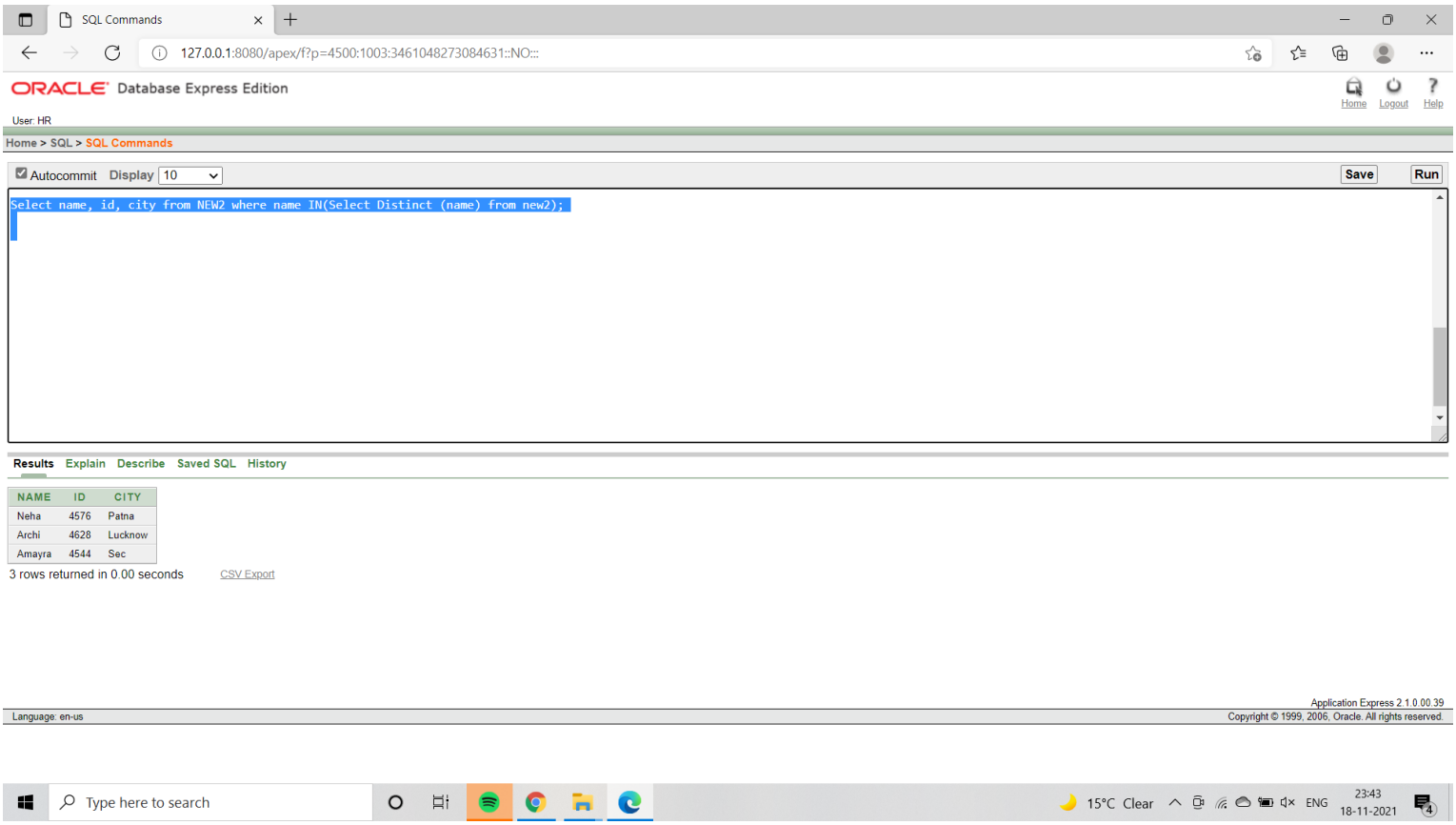
18-11-2021

4. Nested Sub-Query

1. IN

Example: Select name, age, branch FROM dept101 WHERE name IN(SELECT DISTINCT(name) FROM student101);

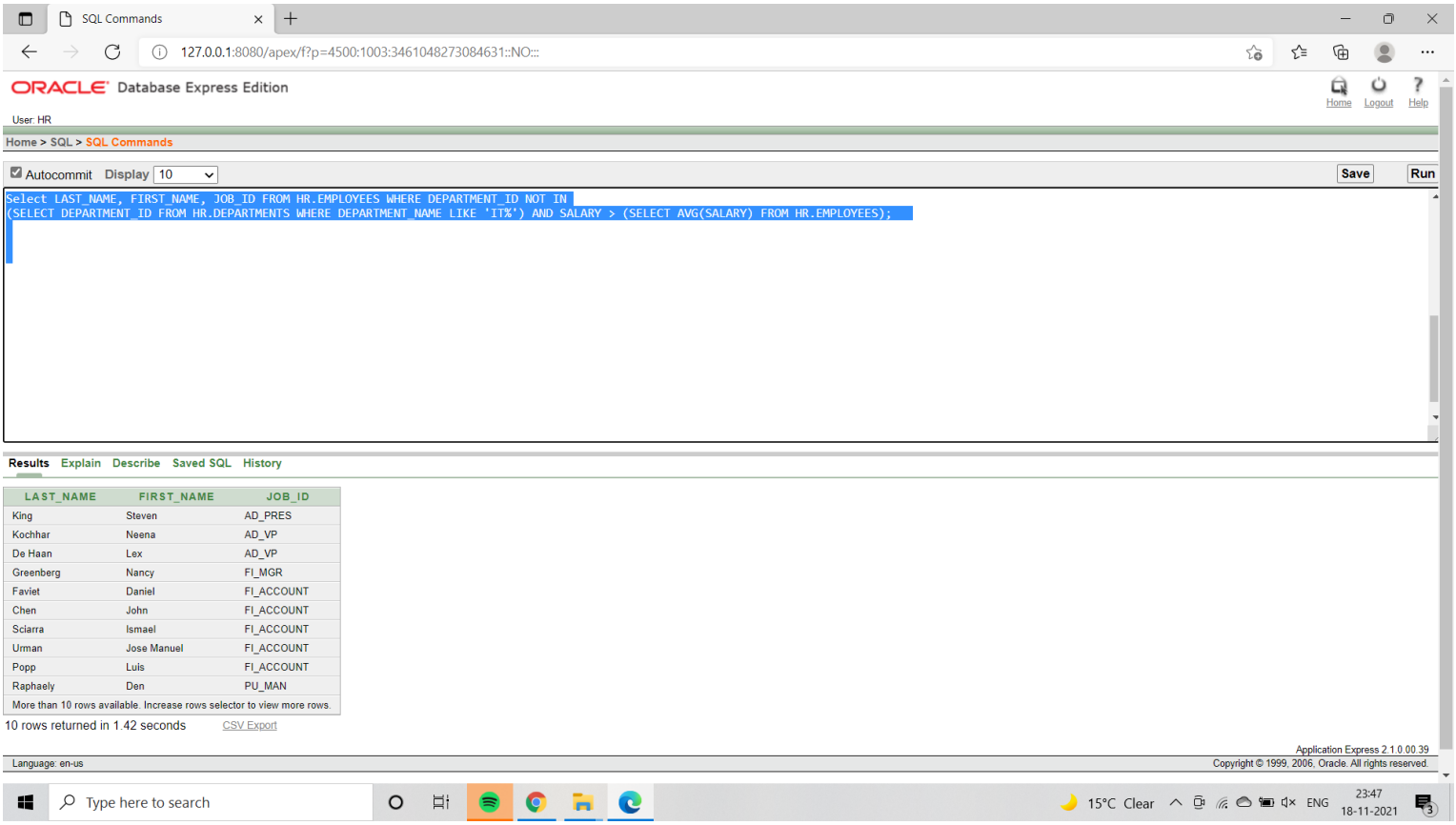
Output:-



2. NOT IN

Example: Select LAST_NAME, FIRST_NAME, JOB_ID FROM HR.EMPLOYEES WHERE DEPARTMENT_ID NOT IN (SELECT DEPARTMENT_ID FROM HR.DEPARTMENTS WHERE DEPARTMENT_NAME LIKE 'IT%') AND SALARY > (SELECT AVG(SALARY) FROM HR.EMPLOYEES);

Output:-



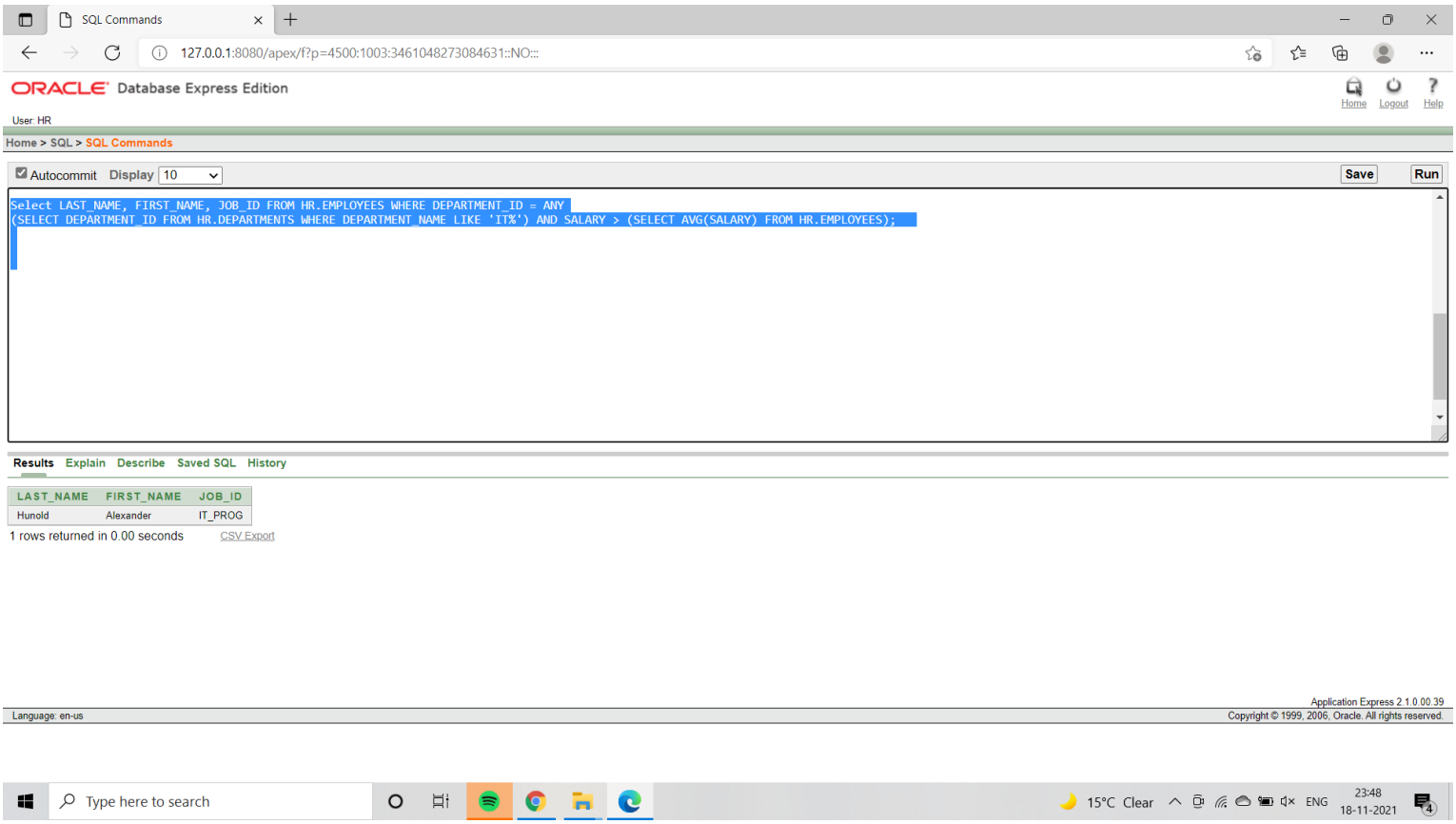
3. ANY

Example:

Select LAST_NAME, FIRST_NAME, JOB_ID FROM HR.EMPLOYEES WHERE DEPARTMENT_ID = ANY (SELECT DEPARTMENT_ID FROM HR.DEPARTMENTS WHERE DEPARTMENT_NAME

LIKE 'IT%') AND SALARY > (SELECT AVG(SALARY) FROM HR.EMPLOYEES);

Output:

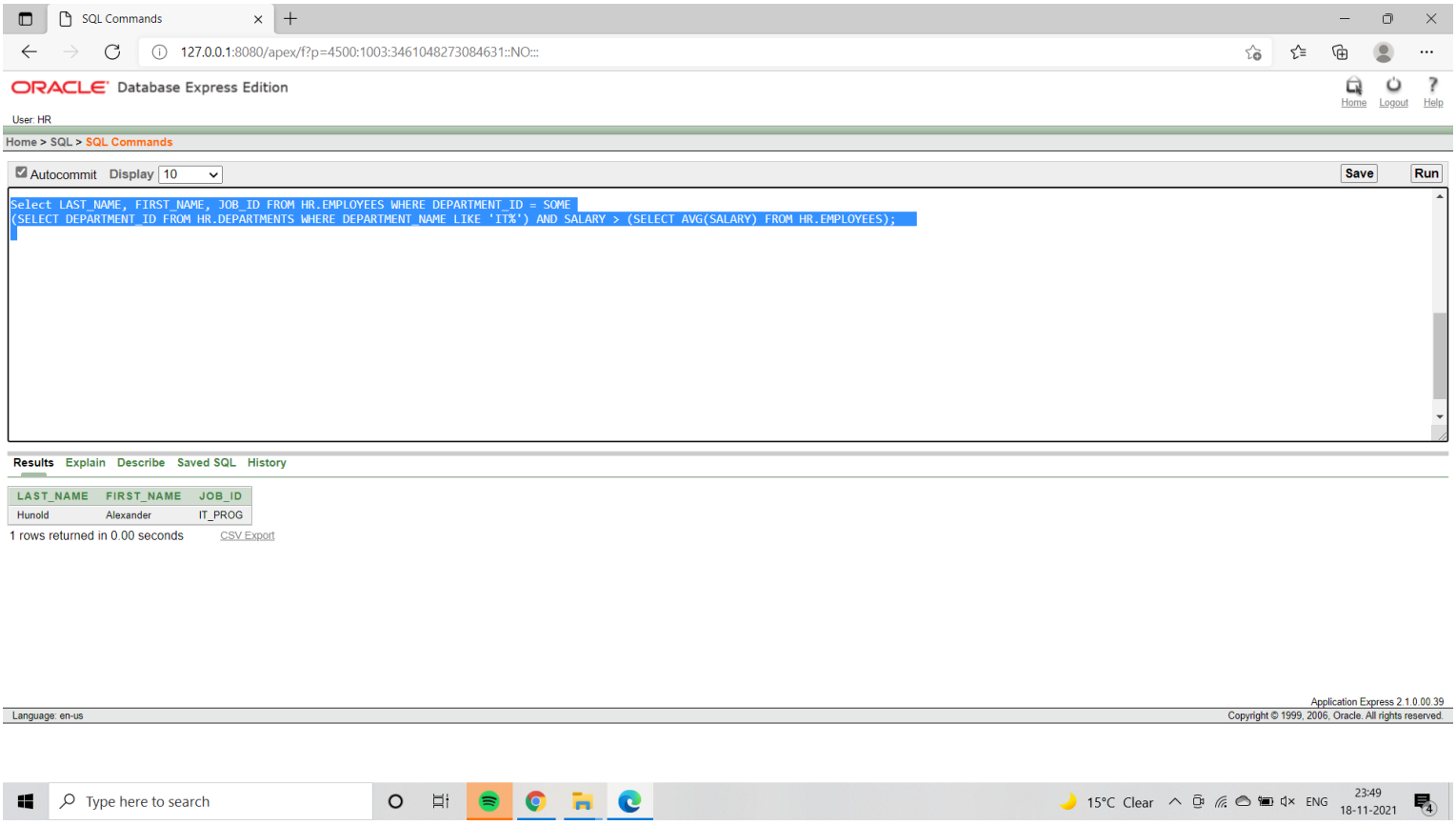


4. SOME

Example:

```
Select LAST_NAME, FIRST_NAME, JOB_ID FROM
HR.EMPLOYEES WHERE DEPARTMENT_ID = SOME
(SELECT DEPARTMENT_ID FROM HR.DEPARTMENTS WHERE DEPARTMENT_NAME
LIKE 'IT%') AND SALARY > (SELECT AVG(SALARY) FROM HR.EMPLOYEES);
```

Output:



4. NOT EQUAL ALL (! = ALL)

Example:

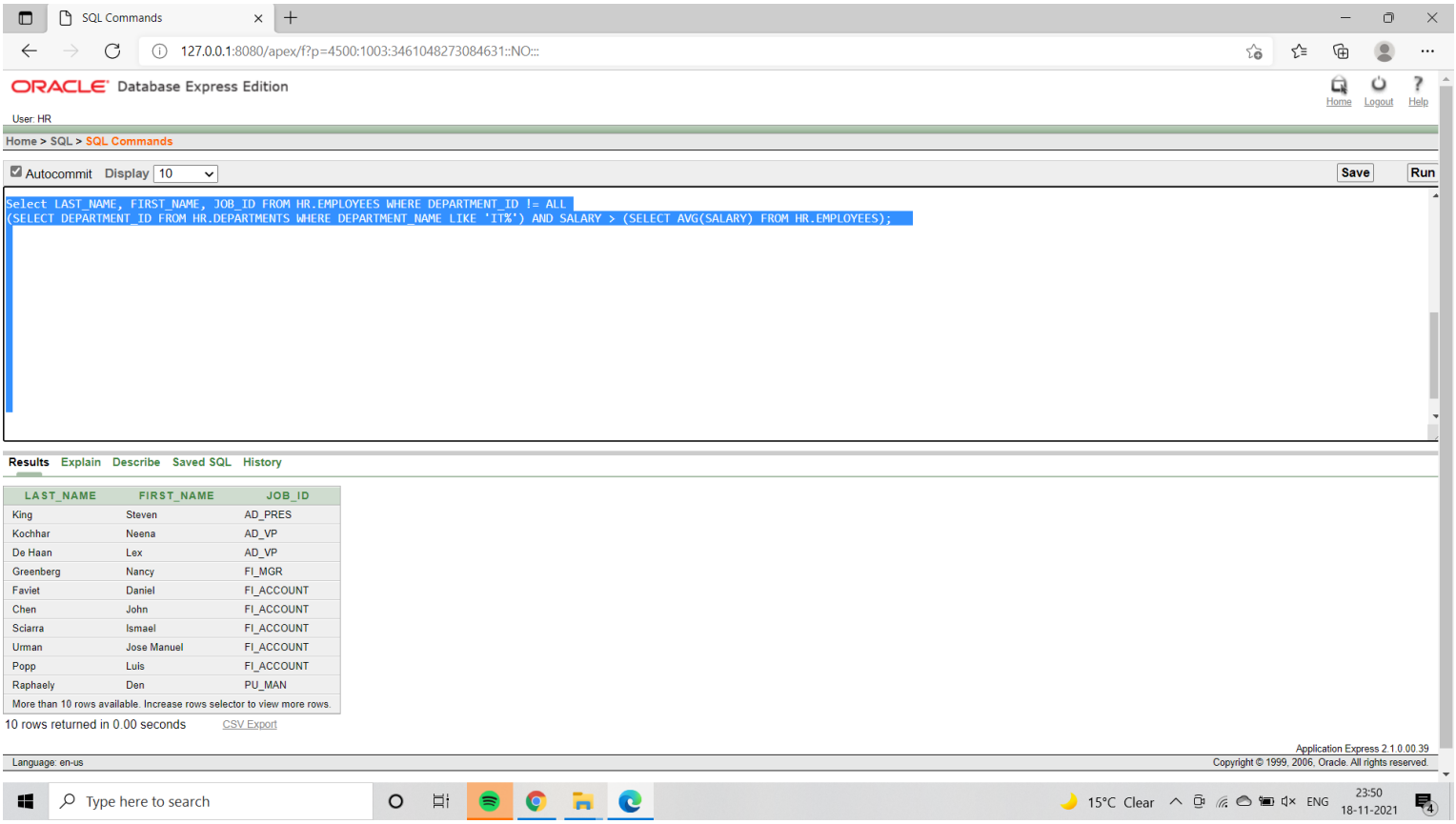
Select LAST_NAME, FIRST_NAME, JOB_ID FROM

HR.EMPLOYEES WHERE DEPARTMENT_ID != ALL

(SELECT DEPARTMENT_ID FROM HR.DEPARTMENTS WHERE DEPARTMENT_NAME

LIKE 'IT%') AND SALARY > (SELECT AVG(SALARY) FROM HR.EMPLOYEES);

Output:



6.(<= ALL) LESS THAN EQUAL TO ALL

Example:

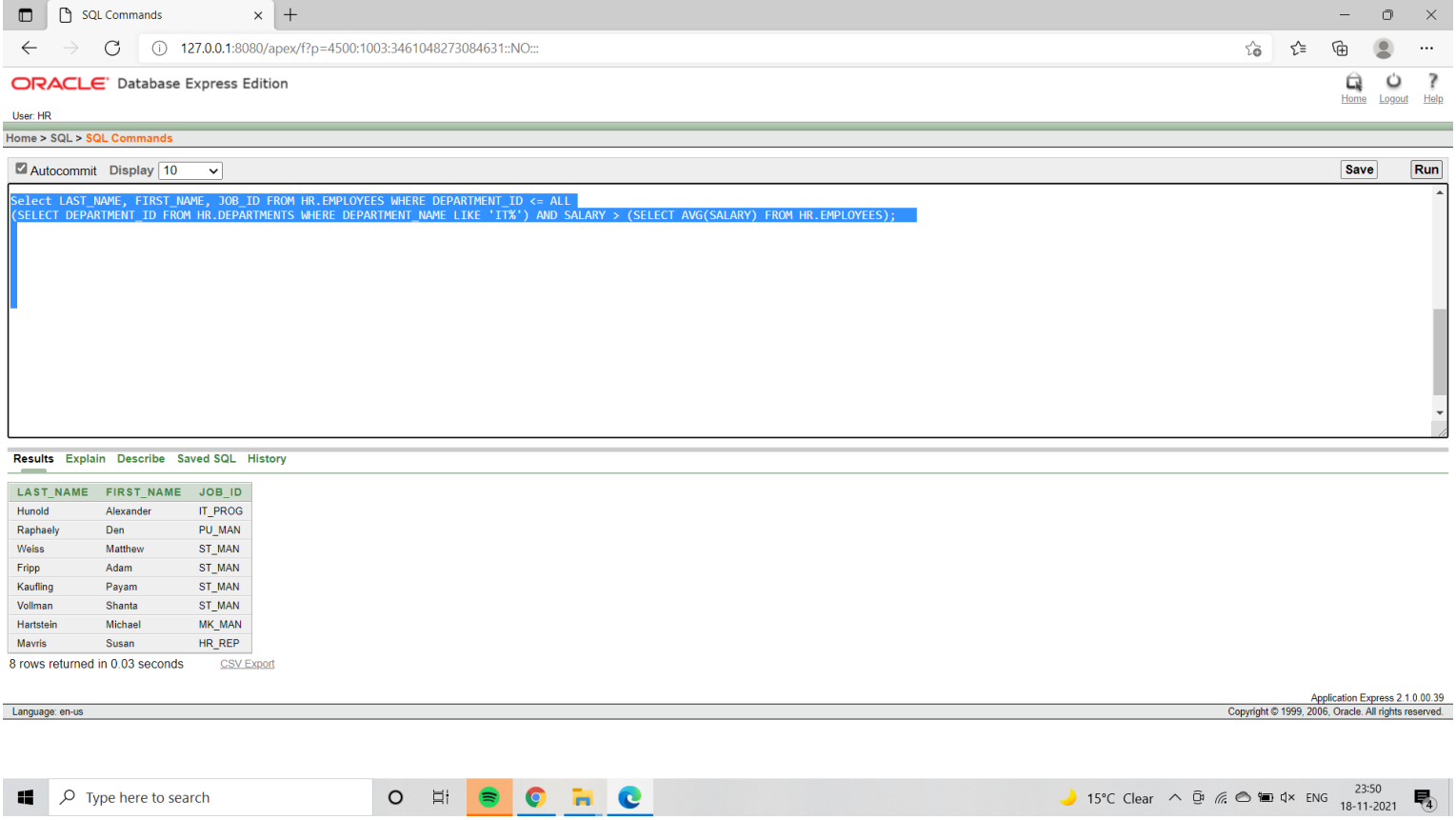
Select LAST_NAME, FIRST_NAME, JOB_ID FROM

HR.EMPLOYEES WHERE DEPARTMENT_ID <= ALL

(SELECT DEPARTMENT_ID FROM HR.DEPARTMENTS WHERE DEPARTMENT_NAME

LIKE 'IT%') AND SALARY > (SELECT AVG(SALARY) FROM HR.EMPLOYEES);

Output:

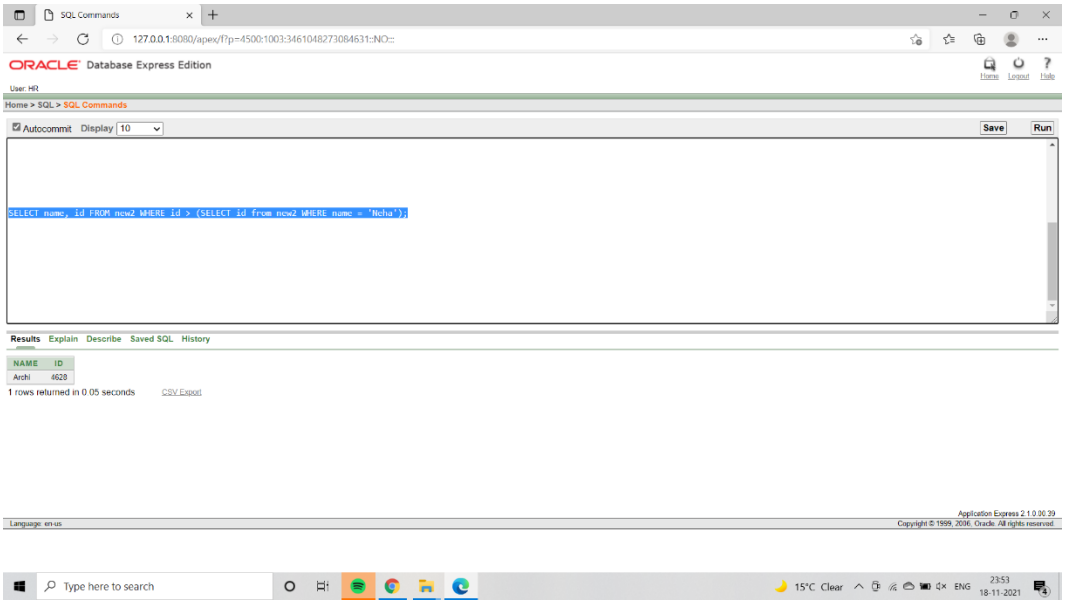


5. Single-Row Subqueries

Example:

SELECT name, branch, rollno FROM student101 WHERE id > (SELECT id from dept101 WHERE name = 'A');

Output:

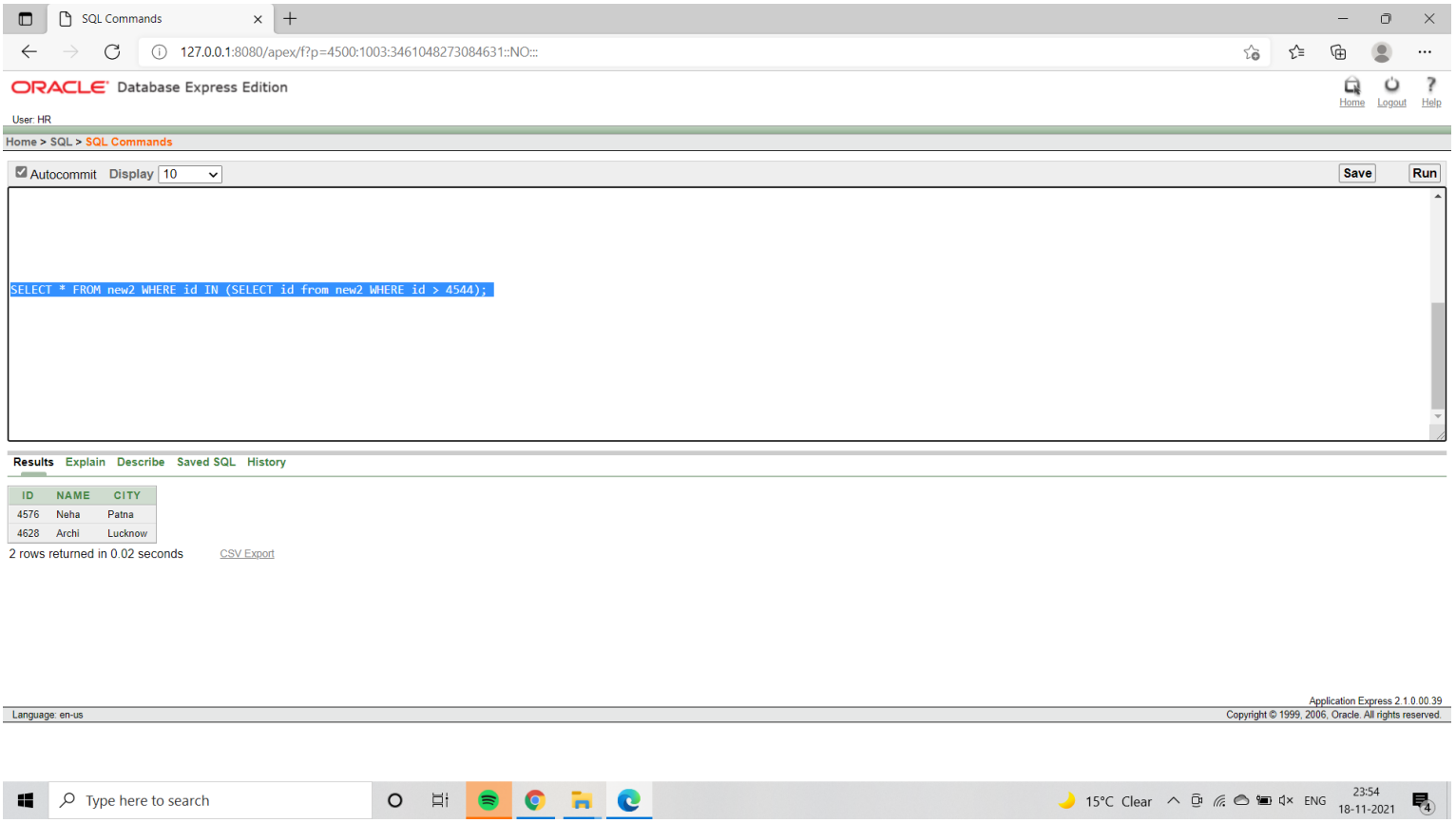


6. Multiple row subquery

Example:

SELECT * FROM student101 WHERE id IN (SELECT id FROM dept101 Where id > 5);

Output:



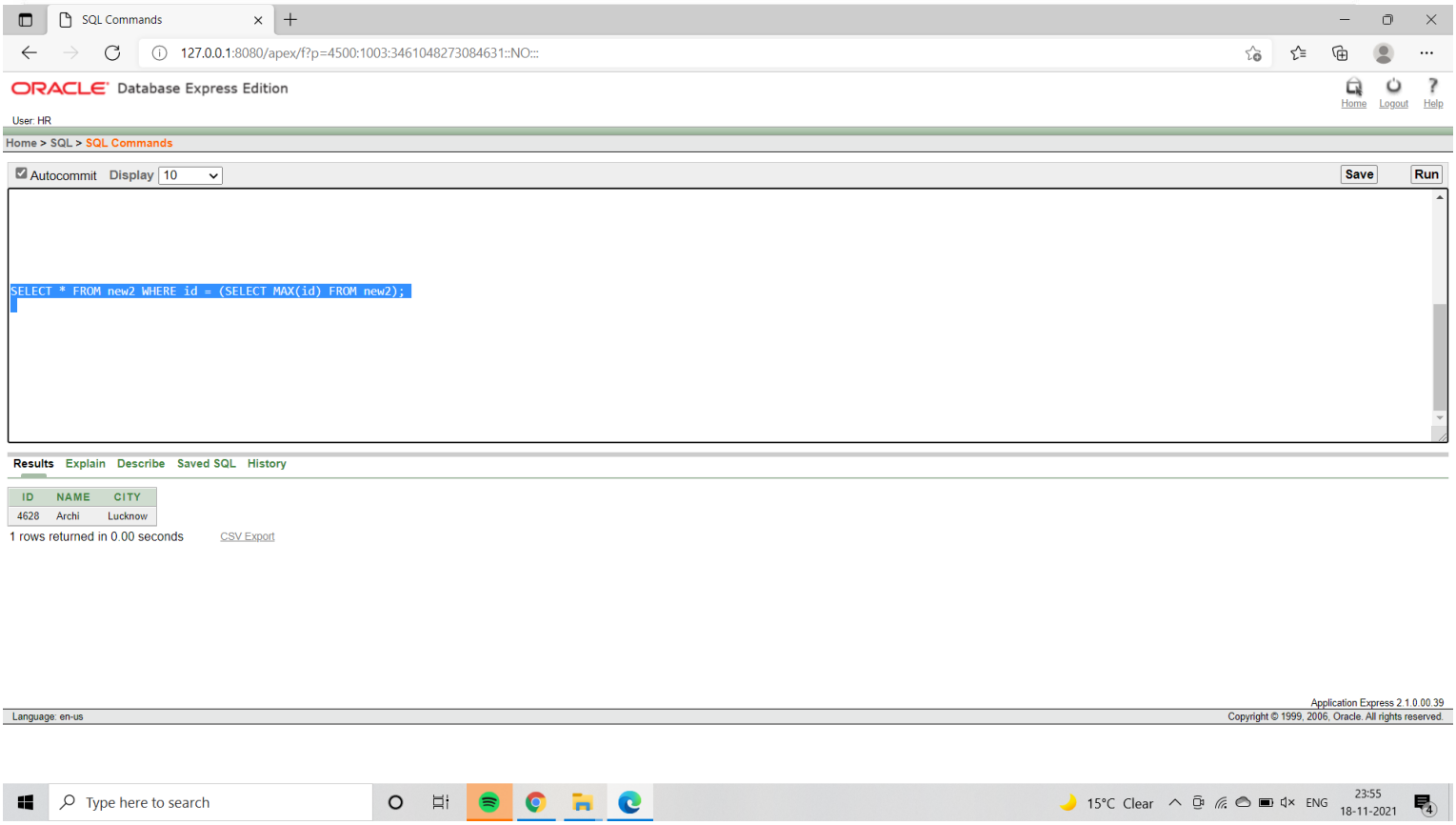
7. Group Functions in a Subquery

max()

Example:

SELECT * FROM student101 WHERE id = (SELECT MAX(id) FROM student101);

Output:

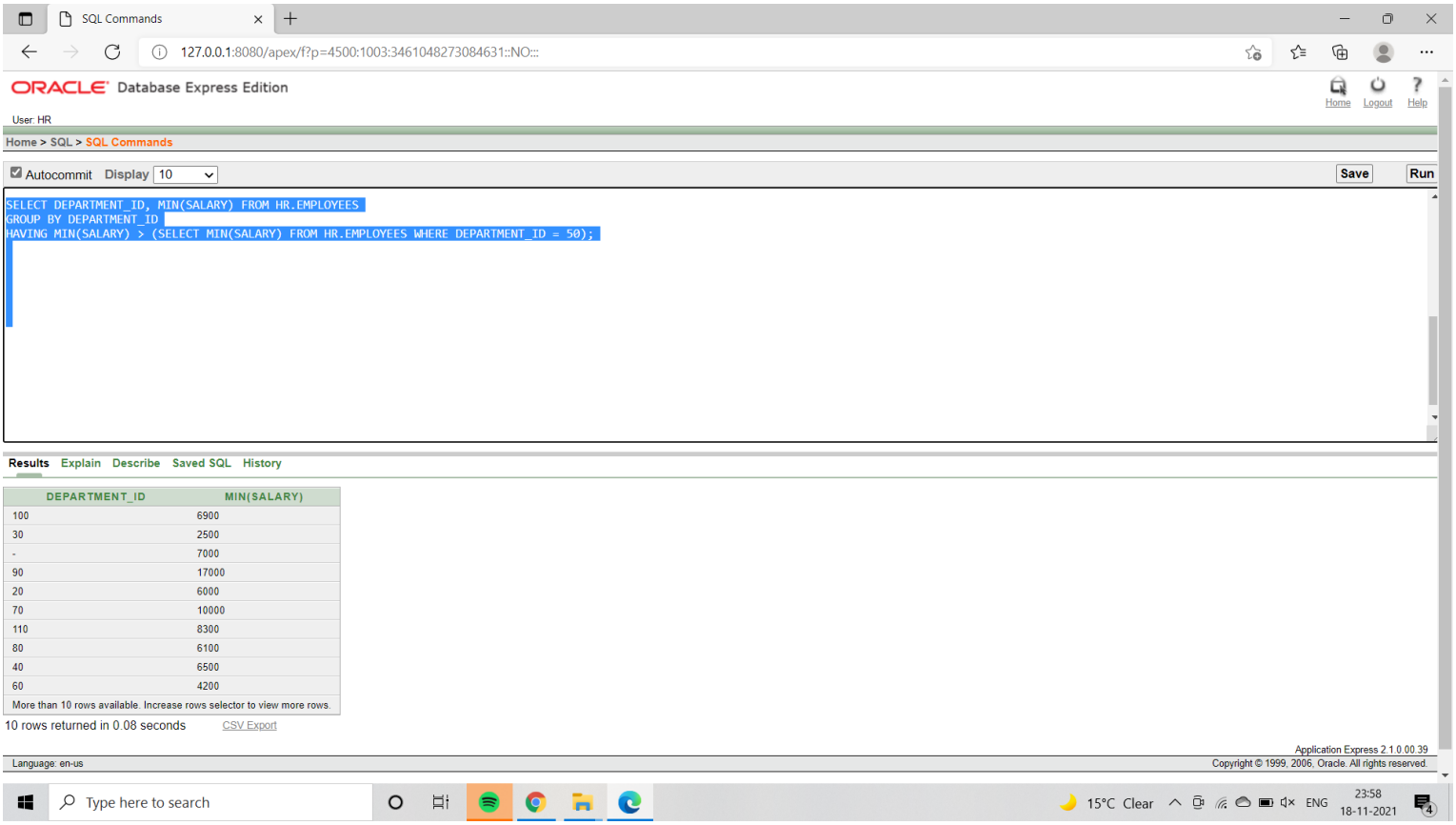


8. The HAVING Clause with Subqueries

Example:

```
SELECT DEPARTMENT_ID,
MIN(SALARY) FROM
HR.EMPLOYEES
GROUP BY DEPARTMENT_ID
HAVING MIN(SALARY) > (SELECT MIN(SALARY) FROM HR.EMPLOYEES WHERE DEPARTMENT_ID =
50);
```

Output:



Learning outcomes (What I have learnt):

1. Learned about different SQL commands.

2. Learned about the implementation of the concept of subquery with single row, multiple row and group by functions.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			