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# DBMS LABORATORY WITH MINI PROJECT

[As per Choice Based Credit System (CBCS) scheme]

(Effective from the academic year 2017-2018)

## SEMESTER – V

Subject Code: **17CSL58**

IA Marks: **40**

Exam Marks: **60**

Exam Hours: **03**

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### Program - 2

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Consider the following schema for Order Database:

**SALESMAN(Salesman\_id, Name, City, Commission)**

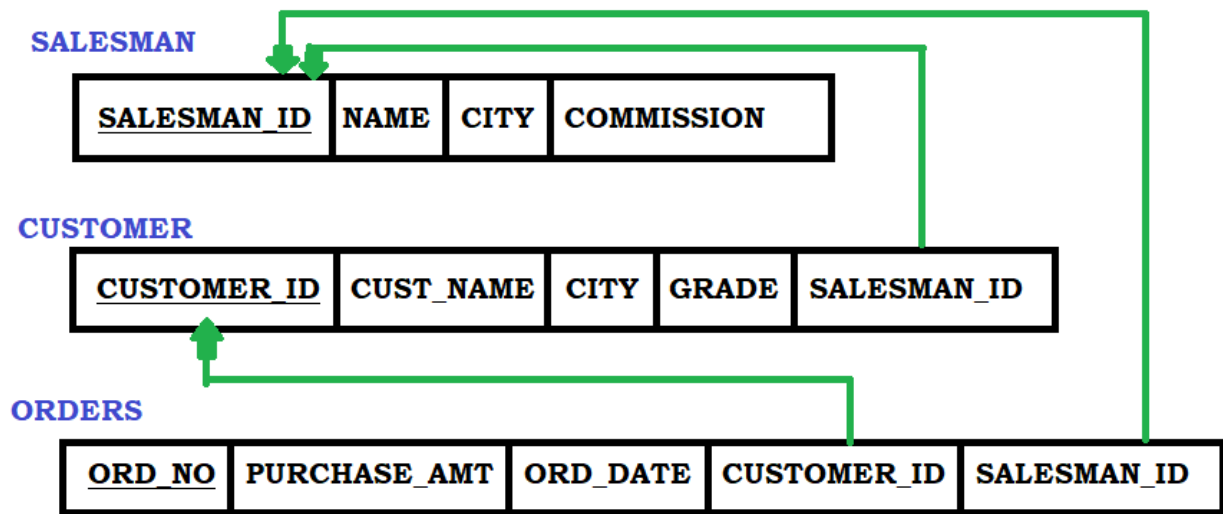
**CUSTOMER(Customer\_id, Cust\_Name, City, Grade, Salesman\_id)**

**ORDERS(Ord\_No, Purchase\_Amt, Ord\_Date, Customer\_id, Salesman\_id)**

Write SQL queries to

1. Count the customers with grades above Bangalore's average.
2. Find the name and numbers of all salesman who had more than one customer.
3. List all the salesman and indicate those who have and don't have customers in their cities (Use UNION operation.)
4. Create a view that finds the salesman who has the customer with the highest order of a day.
5. Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.

## SCHEMA DIAGRAM:



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## STEPS TO OPEN THE ORACLE DATABASE – 10G EXPRESS EDITION

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Step 1: Open the Browser (Preferred Chrome).

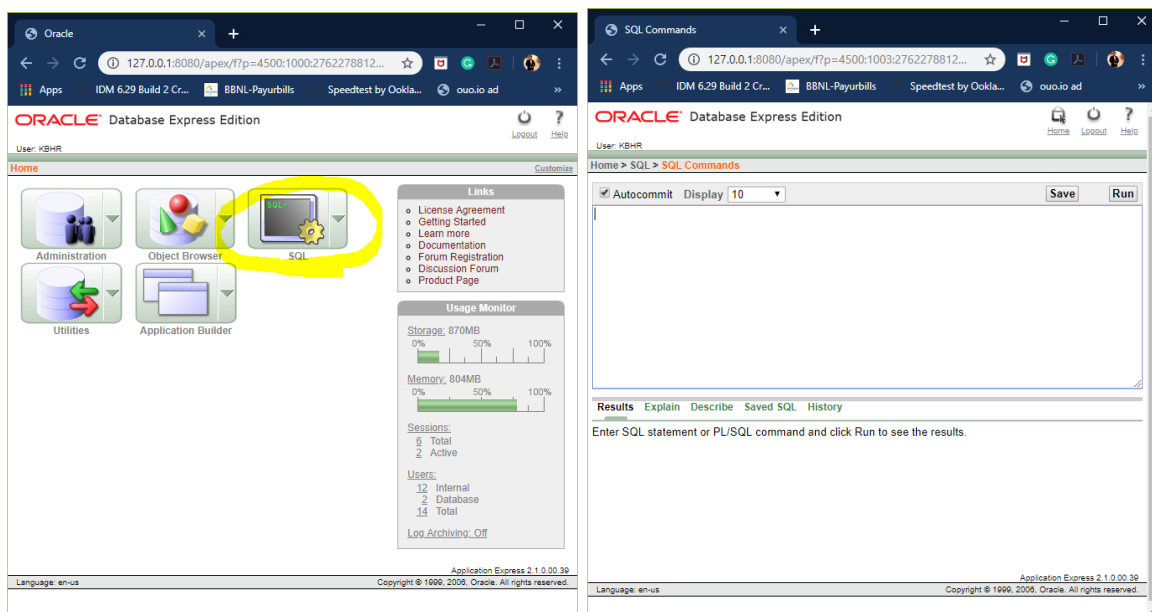
Step 2: <http://127.0.0.1:8080/> Enter the link on the browser.

Step 3: login with your id and password (finding difficulty in login in go to the link to know in-depth details

[https://hemanthrajhemu.github.io/FutureVisionBIE/WP/5CSE/DBMS\\_LAB\\_INFO.html](https://hemanthrajhemu.github.io/FutureVisionBIE/WP/5CSE/DBMS_LAB_INFO.html)

(Note Username is the system by default & Password is the passkey you entered in the installation)

Step 4: Now click on SQL->SQL Commands. This is the place where we execute the SQL Commands.



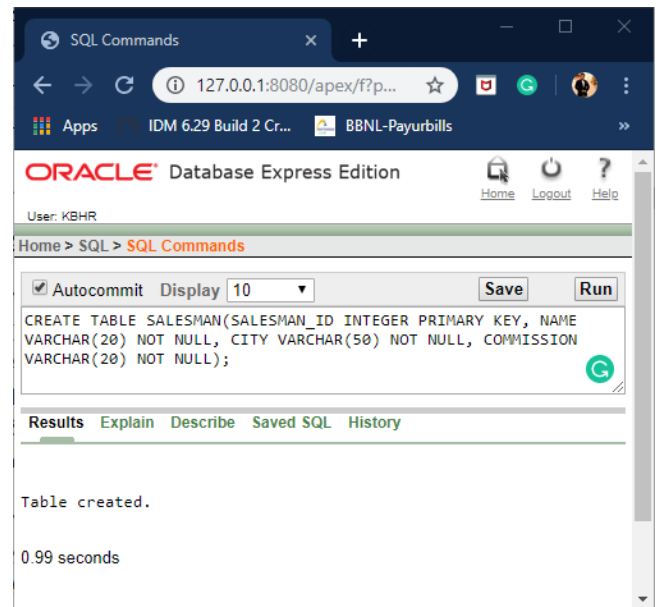
Step 5: you are in SQL Command Now you can Create table, create view, Run Queries here & lot more.

## Create Table: (Follow the Schema Diagram in Creating the Data Base)

### 1. Create Table for SALESMAN

```
CREATE TABLE SALESMAN
(SALESMAN_ID INTEGER PRIMARY KEY,
NAME VARCHAR(20) NOT NULL,
CITY VARCHAR(50) NOT NULL,
COMMISSION VARCHAR(20) NOT NULL);
```

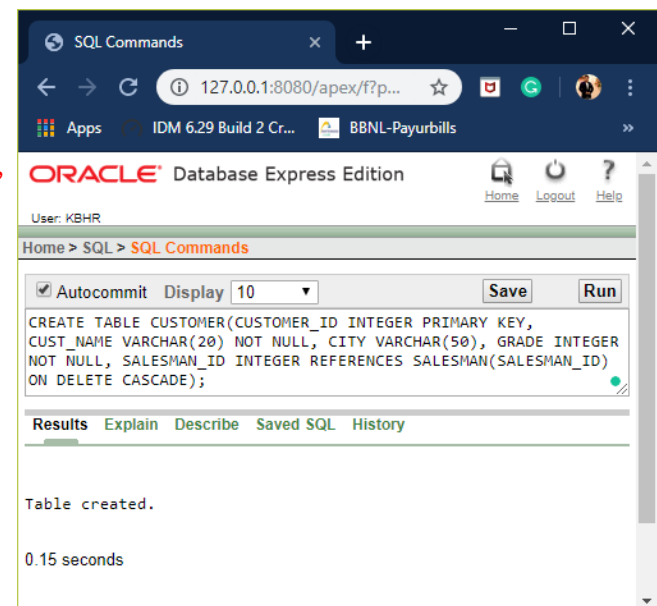
NOW RUN.



### 2. Create Table for CUSTOMER

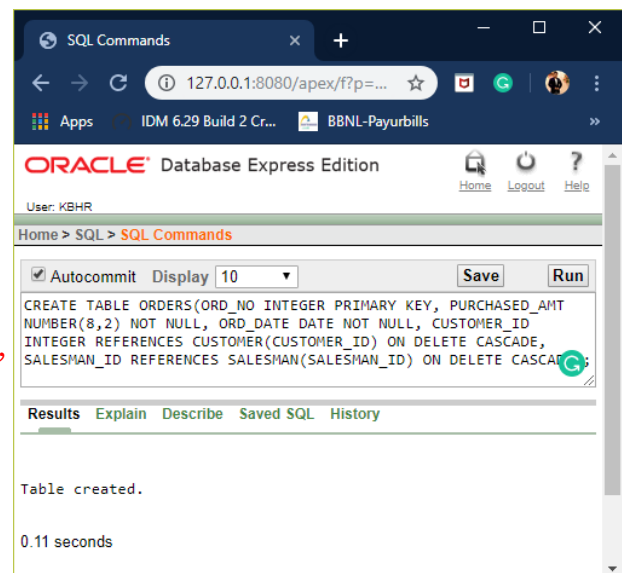
```
CREATE TABLE CUSTOMER
(CUSTOMER_ID INTEGER PRIMARY KEY,
CUST_NAME VARCHAR(20) NOT NULL,
CITY VARCHAR(50),
GRADE INTEGER NOT NULL,
SALESMAN_ID INTEGER REFERENCES
SALESMAN(SALESMAN_ID)
ON DELETE CASCADE);
```

NOW RUN.



### 3. Create Table for ORDERS

```
CREATE TABLE ORDERS
(ORD_NO INTEGER PRIMARY KEY,
PURCHASED_AMT NUMBER(8,2)
NOT NULL,
ORD_DATE DATE NOT NULL,
CUSTOMER_ID INTEGER
REFERENCES CUSTOMER
(CUSTOMER_ID) ON DELETE CASCADE,
SALESMAN_ID REFERENCES
SALESMAN(SALESMAN_ID)
ON DELETE CASCADE);
```



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## TABLE DESCRIPTION

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### 1. DESC SALESMAN;

The screenshot shows the Oracle Database Express Edition interface. The user is KBHR. The SQL Command entered is `DESC SALESMAN;`. The results show the table structure for the SALESMAN table.

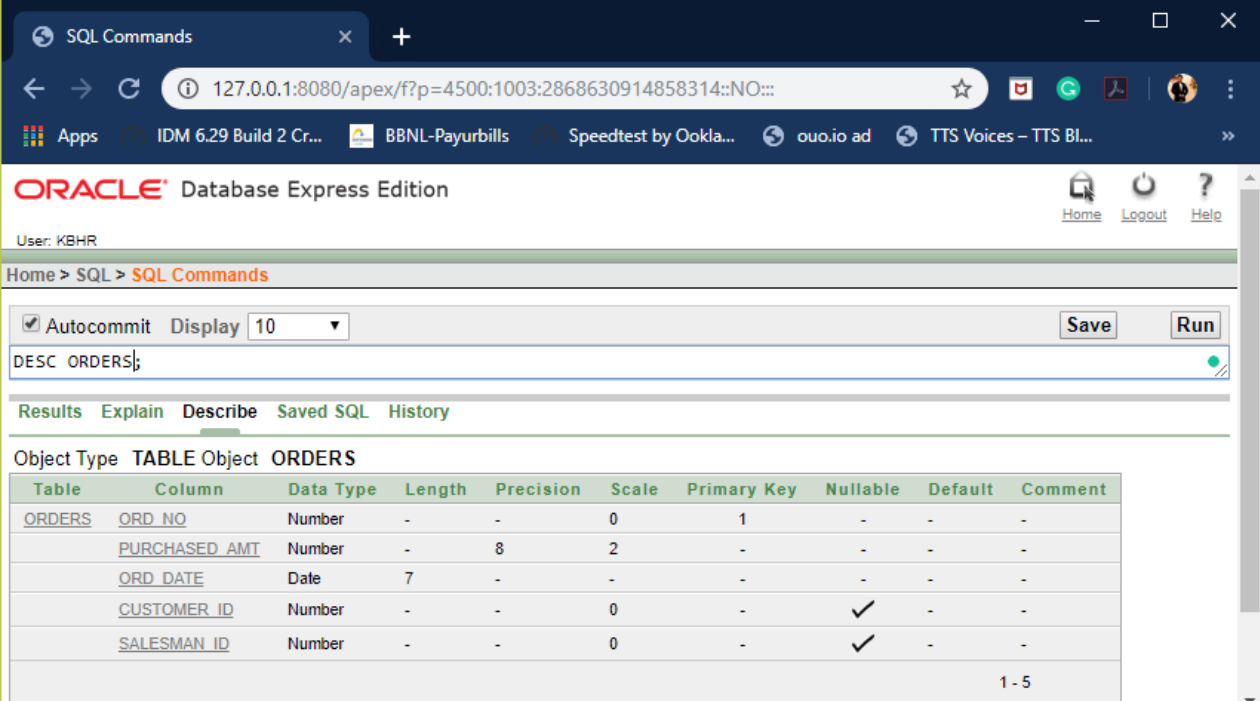
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
SALESMAN	SALESMAN_ID	Number	-	-	0	1	-	-	-
	NAME	Varchar2	20	-	-	-	-	-	-
	CITY	Varchar2	50	-	-	-	-	-	-
	COMMISSION	Varchar2	20	-	-	-	-	-	-
									1 - 4

### 2. DESC CUSTOMER;

The screenshot shows the Oracle Database Express Edition interface. The user is KBHR. The SQL Command entered is `DESC CUSTOMER;`. The results show the table structure for the CUSTOMER table.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMER	CUSTOMER_ID	Number	-	-	0	1	-	-	-
	CUST_NAME	Varchar2	20	-	-	-	-	-	-
	CITY	Varchar2	50	-	-	-	✓	-	-
	GRADE	Number	-	-	0	-	-	-	-
	SALESMAN_ID	Number	-	-	0	-	✓	-	-
									1 - 5

### 3. DESC ORDERS;



The screenshot shows the Oracle Database Express Edition interface. The user is logged in as KBHR. The SQL command 'DESC ORDERS;' has been entered and executed. The results show the structure of the 'ORDERS' table, including columns like ORD\_NO, PURCHASED\_AMT, ORD\_DATE, CUSTOMER\_ID, and SALESMAN\_ID.

Autocommit  Display 10

DESC ORDERS;

Results Explain Describe Saved SQL History

Object Type TABLE Object ORDERS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ORDERS	ORD_NO	Number	-	-	0	1	-	-	-
	PURCHASED_AMT	Number	-	8	2	-	-	-	-
	ORD_DATE	Date	7	-	-	-	-	-	-
	CUSTOMER_ID	Number	-	-	0	-	✓	-	-
	SALESMAN_ID	Number	-	-	0	-	✓	-	-

1 - 5

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## INSERTION OF VALUES TO TABLE

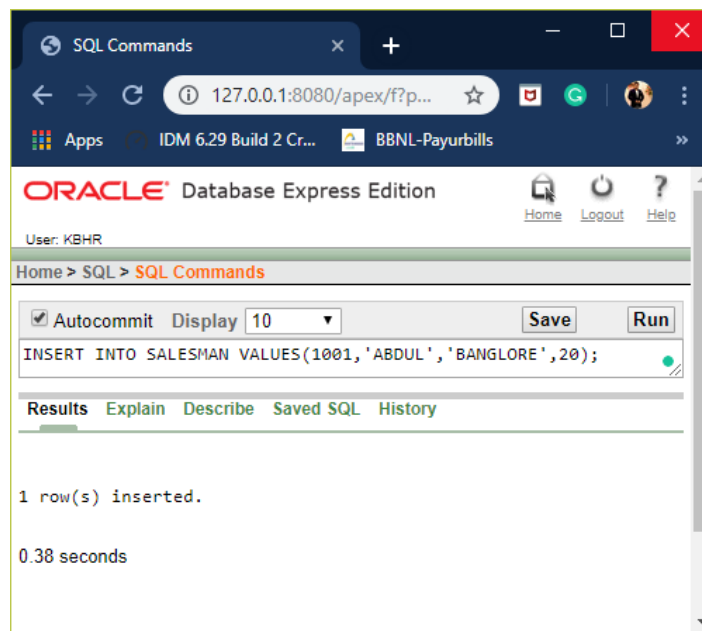
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### 1. VALUES INTO SALESMAN;

#### INSERT INTO SALESMAN

**VALUES(<SALESMAN\_ID>,<NAME>,<CITY>,<COMMISSION>);**

```
INSERT INTO SALESMAN VALUES(1001,'ABDUL','BANGLORE',20);
INSERT INTO SALESMAN VALUES(1002,'PUNITH','BANGLORE',12);
INSERT INTO SALESMAN VALUES(1003,'HARSH','MANGLORE',07);
INSERT INTO SALESMAN VALUES(1004,'HARSHITH','DELHI',26);
INSERT INTO SALESMAN VALUES(1005,'LEELA','BANGLORE',18);
```



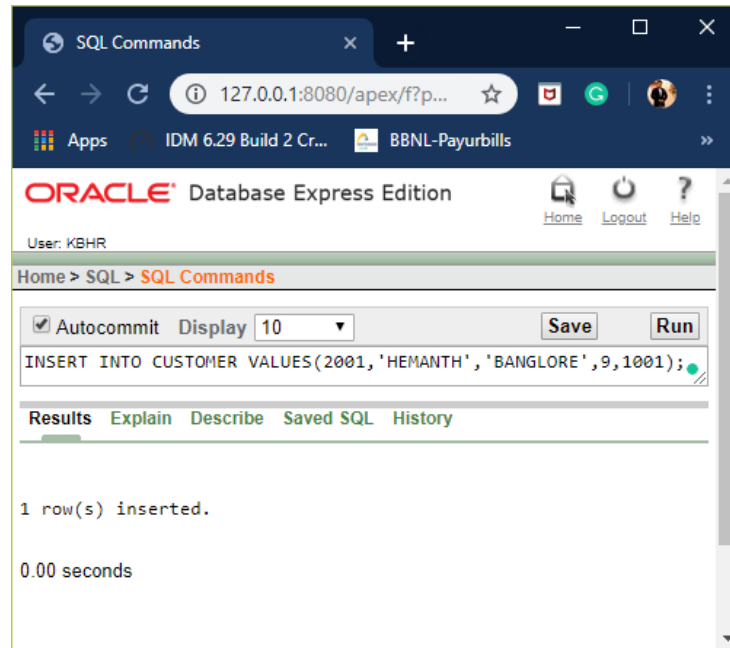
### 2. VALUES INTO CUSTOMER;

#### INSERT INTO

**VALUES(<CUSTOMER\_ID>,<CUST\_NAME>,<CITY>,<GRADE>,<SALESMAN\_ID >);**

```
INSERT INTO CUSTOMER VALUES(2001,'HEMANTH','BANGLORE',9,1001);
INSERT INTO CUSTOMER VALUES(2002,'RAJ','BANGLORE',7,1001);
INSERT INTO CUSTOMER VALUES(2003,'RAVI','BANGLORE',3,1002);
INSERT INTO CUSTOMER VALUES(2004,'KUMAR','BANGLORE',5,1002);
INSERT INTO CUSTOMER VALUES(2005,'GANESH','MANGLORE',7,1003);
INSERT INTO CUSTOMER VALUES(2006,'VISHNU','MANGLORE',3,1003);
INSERT INTO CUSTOMER VALUES(2007,'SHAH','DELHI',3,1004);
INSERT INTO CUSTOMER VALUES(2008,'KUMAR','DELHI',7,1004);
INSERT INTO CUSTOMER VALUES(2009,'LIRAN','BANGLORE',7,1005);
INSERT INTO CUSTOMER VALUES(2010,'KAVITHA','BANGLORE',8,1005);
```



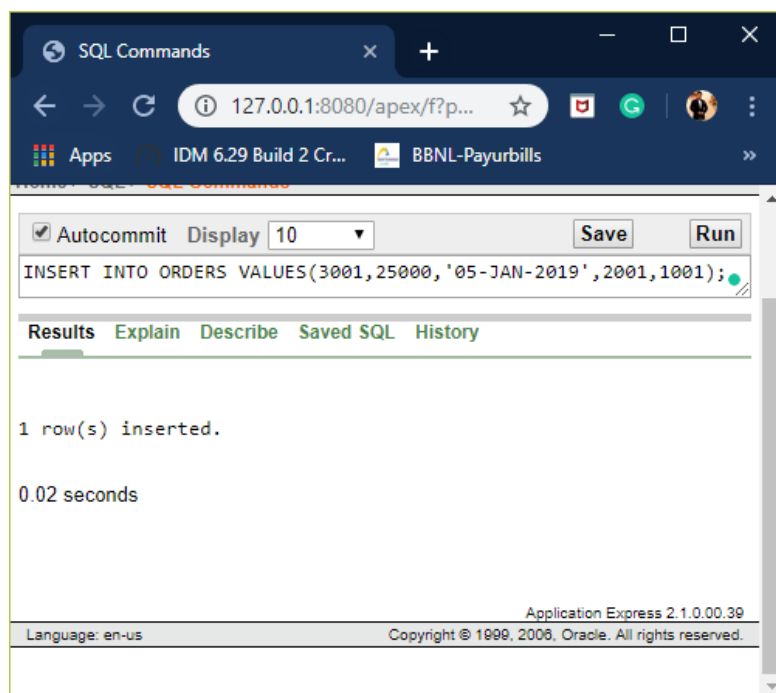


### 3. VALUES INTO ORDERS;

#### INSERT INTO ORDERS

**VALUES(<ORD\_NO>,<PURCHASED\_AMT>,<ORD\_DATE>,<CUSTOMER\_ID>,<SALESMAN\_ID>);**

```
INSERT INTO ORDERS VALUES(3001,25000,'05-JAN-2019',2001,1001);  
INSERT INTO ORDERS VALUES(3002,5000,'14-FEB-2019',2002,1001);  
INSERT INTO ORDERS VALUES(3003,18000,'24-FEB-2019',2003,1002);  
INSERT INTO ORDERS VALUES(3004,12000,'26-FEB-2019',2004,1004);  
INSERT INTO ORDERS VALUES(3005,7000,'14-MAR-2019',2004,1005);
```



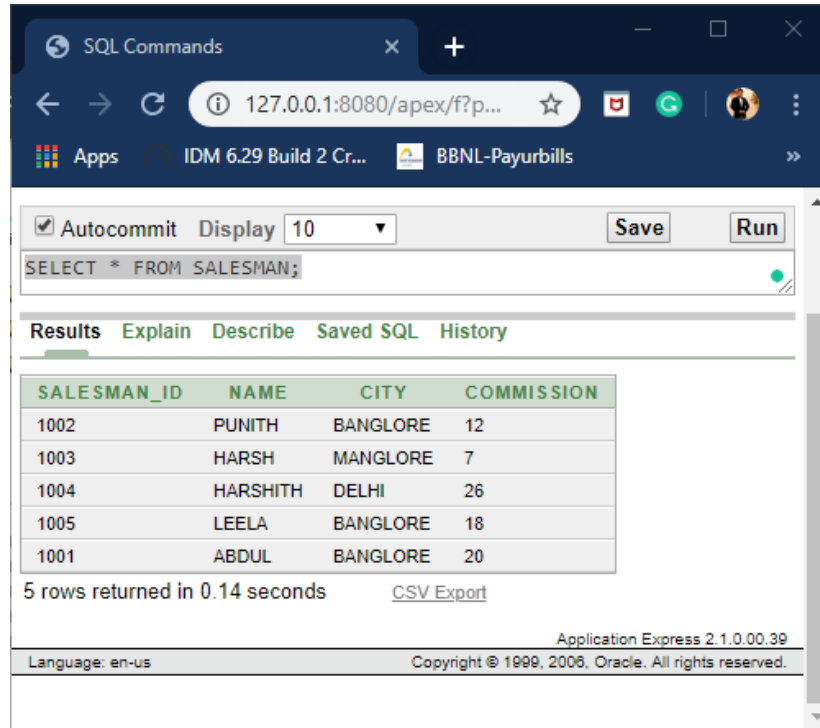
---

## RETRIEVAL OF INSERTED VALUES

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### 1. SALESMAN:

**SELECT \* FROM SALESMAN;**



The screenshot shows the SQL Developer interface with the query `SELECT * FROM SALESMAN;` executed. The results are displayed in a table with 5 rows and 4 columns: SALESMAN\_ID, NAME, CITY, and COMMISSION.

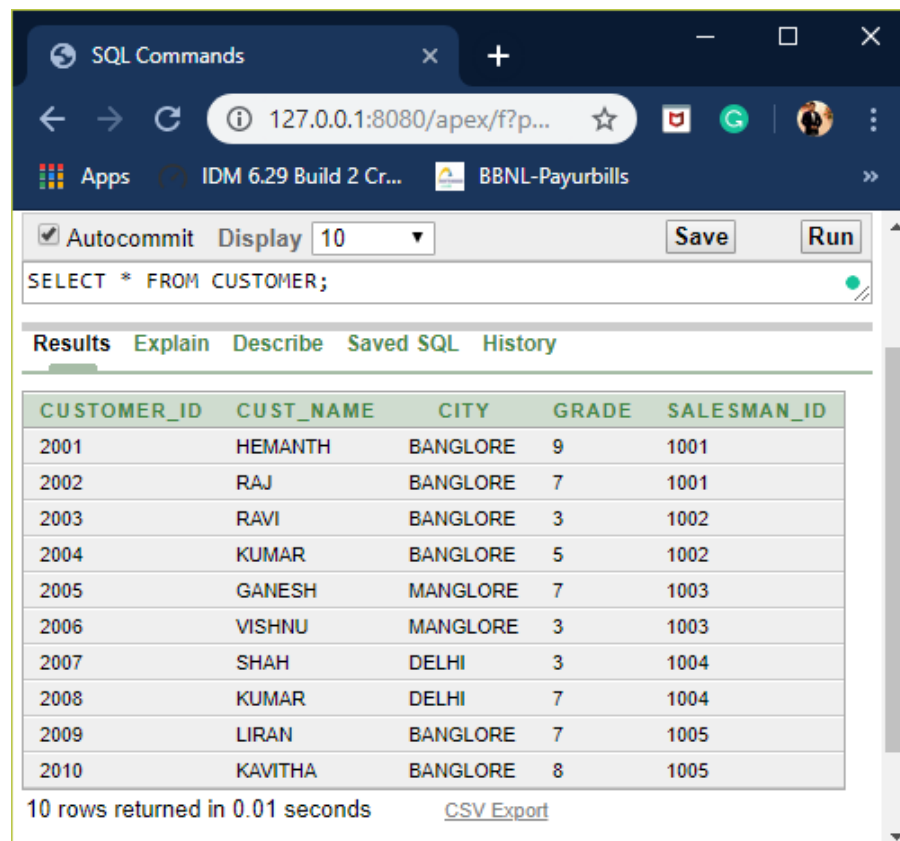
SALESMAN_ID	NAME	CITY	COMMISSION
1002	PUNITH	BANGLORE	12
1003	HARSH	MANGLORE	7
1004	HARSHITH	DELHI	26
1005	LEELA	BANGLORE	18
1001	ABDUL	BANGLORE	20

5 rows returned in 0.14 seconds [CSV Export](#)

Application Express 2.1.0.00.39  
Language: en-us Copyright © 1999, 2008, Oracle. All rights reserved.

### 2. CUSTOMER:

**SELECT \* FROM CUSTOMER;**



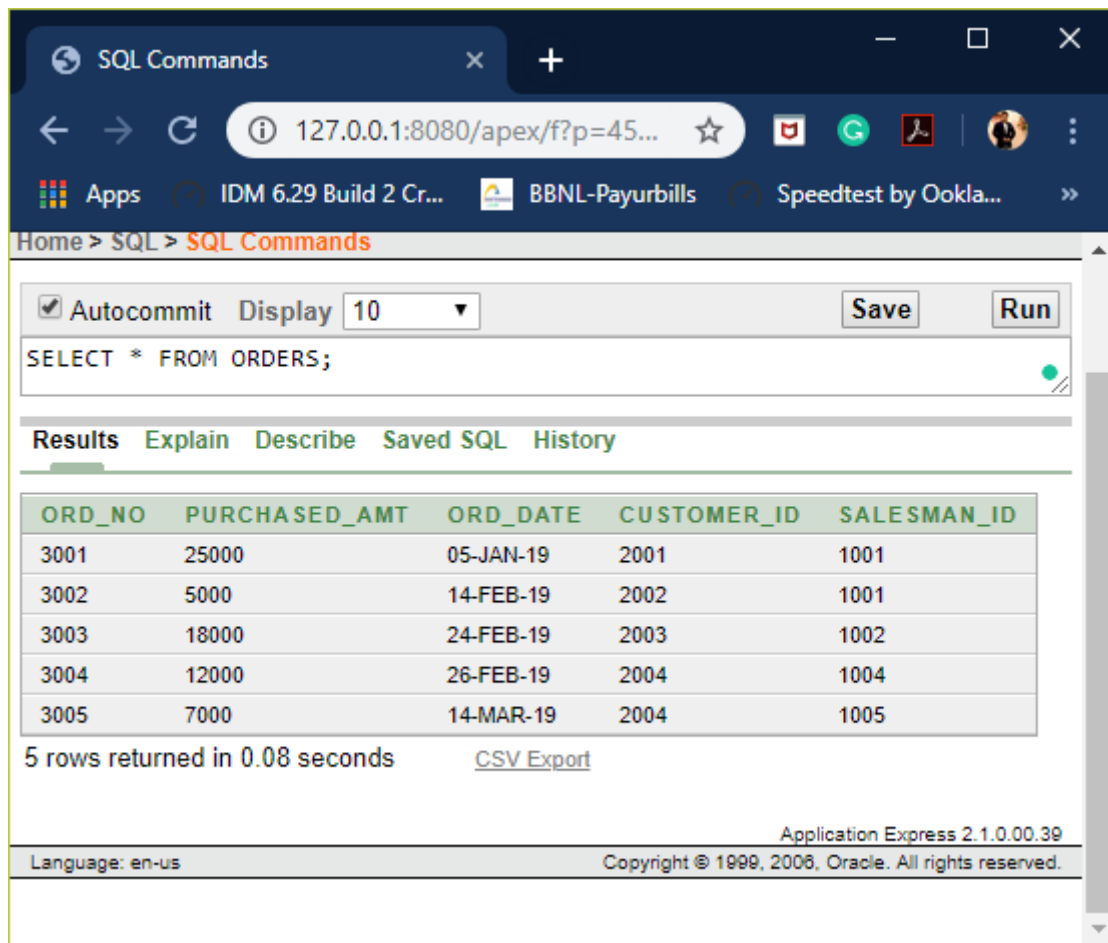
The screenshot shows the SQL Developer interface with the query `SELECT * FROM CUSTOMER;` executed. The results are displayed in a table with 10 rows and 5 columns: CUSTOMER\_ID, CUST\_NAME, CITY, GRADE, and SALESMAN\_ID.

CUSTOMER_ID	CUST_NAME	CITY	GRADE	SALESMAN_ID
2001	HEMANTH	BANGLORE	9	1001
2002	RAJ	BANGLORE	7	1001
2003	RAVI	BANGLORE	3	1002
2004	KUMAR	BANGLORE	5	1002
2005	GANESH	MANGLORE	7	1003
2006	VISHNU	MANGLORE	3	1003
2007	SHAH	DELHI	3	1004
2008	KUMAR	DELHI	7	1004
2009	LIRAN	BANGLORE	7	1005
2010	KAVITHA	BANGLORE	8	1005

10 rows returned in 0.01 seconds [CSV Export](#)

### 3. ORDERS:

`SELECT * FROM ORDERS;`



The screenshot shows a web browser window titled "SQL Commands" with the URL `127.0.0.1:8080/apex/f?p=45...`. The interface includes a "Save" button, a "Run" button, and a "Display" dropdown set to "10". The SQL command `SELECT * FROM ORDERS;` is entered in the text area. Below the command, there are tabs for "Results", "Explain", "Describe", "Saved SQL", and "History". The "Results" tab is active, displaying a table with 5 rows and 5 columns: `ORD_NO`, `PURCHASED_AMT`, `ORD_DATE`, `CUSTOMER_ID`, and `SALESMAN_ID`. The table data is as follows:

ORD_NO	PURCHASED_AMT	ORD_DATE	CUSTOMER_ID	SALESMAN_ID
3001	25000	05-JAN-19	2001	1001
3002	5000	14-FEB-19	2002	1001
3003	18000	24-FEB-19	2003	1002
3004	12000	26-FEB-19	2004	1004
3005	7000	14-MAR-19	2004	1005

Below the table, it states "5 rows returned in 0.08 seconds" and provides a "CSV Export" link. At the bottom, the footer includes "Application Express 2.1.0.00.39", "Language: en-us", and "Copyright © 1999, 2008, Oracle. All rights reserved."

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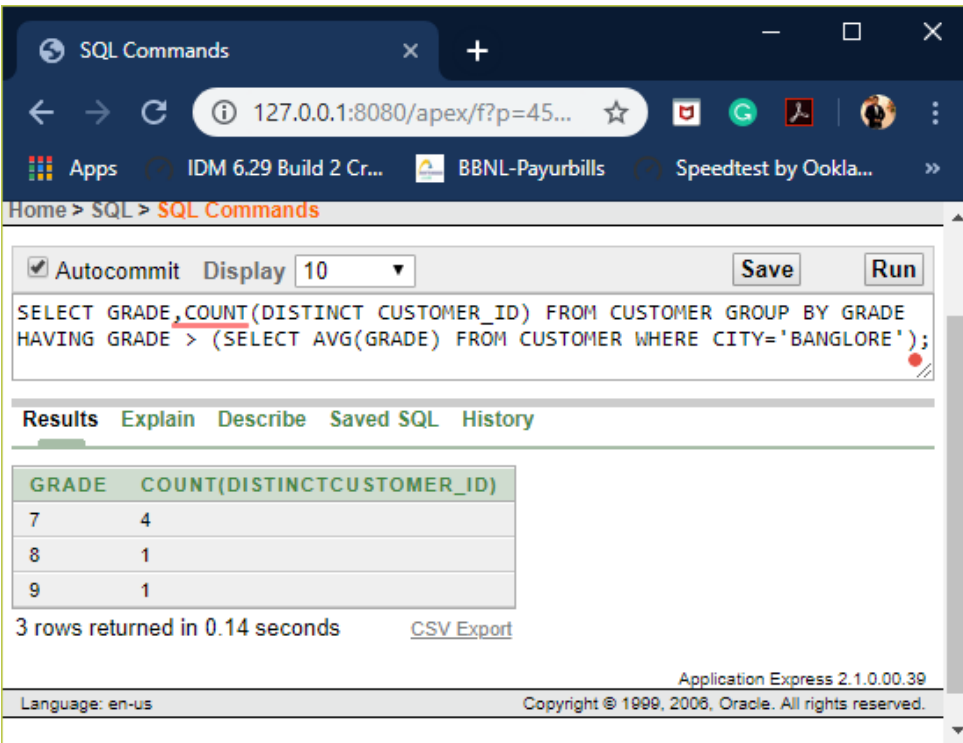
---

## QUERIES

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### 1. Count the customers with grades above Bangalore's average.

```
SELECT GRADE,COUNT(DISTINCT CUSTOMER_ID) FROM CUSTOMER GROUP BY GRADE HAVING GRADE > (SELECT AVG(GRADE) FROM CUSTOMER WHERE CITY='BANGLORE');
```



The screenshot shows a web browser window with the URL `127.0.0.1:8080/apex/f?p=45...`. The page title is "SQL Commands". The query entered is:

```
SELECT GRADE,COUNT(DISTINCT CUSTOMER_ID) FROM CUSTOMER GROUP BY GRADE HAVING GRADE > (SELECT AVG(GRADE) FROM CUSTOMER WHERE CITY='BANGLORE');
```

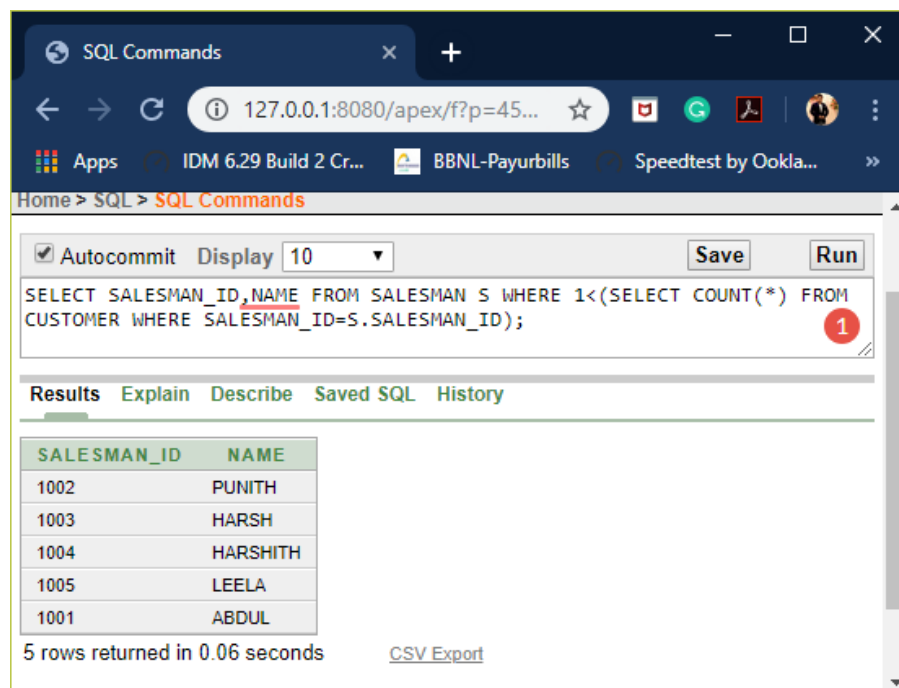
The results are displayed in a table:

GRADE	COUNT(DISTINCTCUSTOMER_ID)
7	4
8	1
9	1

3 rows returned in 0.14 seconds. CSV Export

### 2. Find the name and numbers of all salesman who had more than one customer

```
SELECT SALESMAN_ID, NAME FROM SALESMAN S WHERE 1<(SELECT COUNT(*) FROM CUSTOMER WHERE SALESMAN_ID=S.SALESMAN_ID);
```



The screenshot shows a web browser window with the URL `127.0.0.1:8080/apex/f?p=45...`. The page title is "SQL Commands". The query entered is:

```
SELECT SALESMAN_ID,NAME FROM SALESMAN S WHERE 1<(SELECT COUNT(*) FROM CUSTOMER WHERE SALESMAN_ID=S.SALESMAN_ID);
```

The results are displayed in a table:

SALESMAN_ID	NAME
1002	PUNITH
1003	HARSH
1004	HARSHITH
1005	LEELA
1001	ABDUL

5 rows returned in 0.06 seconds. CSV Export

3. List all the salesman and indicate those who have and don't have customers in their cities (Use UNION operation.)

```
SELECT S.SALESMAN_ID, S.NAME, C.CUST_NAME, S.COMMISSION FROM
SALESMAN S, CUSTOMER C WHERE S.CITY=C.CITY AND
S.SALESMAN_ID=C.SALESMAN_ID
```

UNION

```
SELECT SALESMAN_ID, NAME, 'NO MATCH', COMMISSION FROM SALESMAN
WHERE NOT CITY = ANY (SELECT CITY FROM CUSTOMER) ORDER BY 2
DESC;
```

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
SELECT S.SALESMAN_ID, S.NAME, C.CUST_NAME, S.COMMISSION FROM SALESMAN
S, CUSTOMER C WHERE S.CITY=C.CITY AND S.SALESMAN_ID=C.SALESMAN_ID
UNION
SELECT SALESMAN_ID, NAME, 'NO MATCH', COMMISSION FROM SALESMAN WHERE NOT
CITY = ANY (SELECT CITY FROM CUSTOMER) ORDER BY 2 DESC;
```

The results are displayed in a table with the following columns: SALESMAN\_ID, NAME, CUST\_NAME, and COMMISSION. The table contains 10 rows of data.

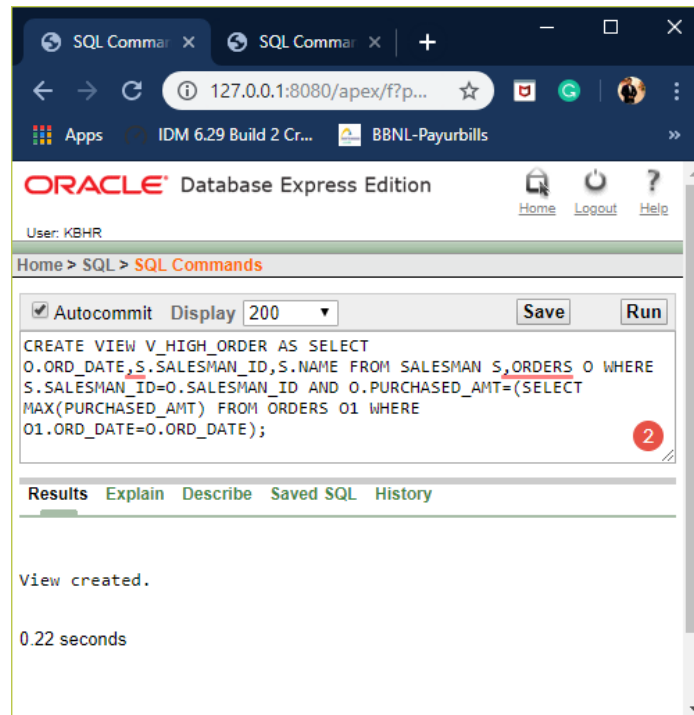
SALESMAN_ID	NAME	CUST_NAME	COMMISSION
1002	PUNITH	KUMAR	12
1002	PUNITH	RAVI	12
1005	LEELA	KAVITHA	18
1005	LEELA	LIRAN	18
1004	HARSHITH	KUMAR	26
1004	HARSHITH	SHAH	26
1003	HARSH	GANESH	7
1003	HARSH	VISHNU	7
1001	ABDUL	HEMANTH	20
1001	ABDUL	RAJ	20

10 rows returned in 0.09 seconds [CSV Export](#)

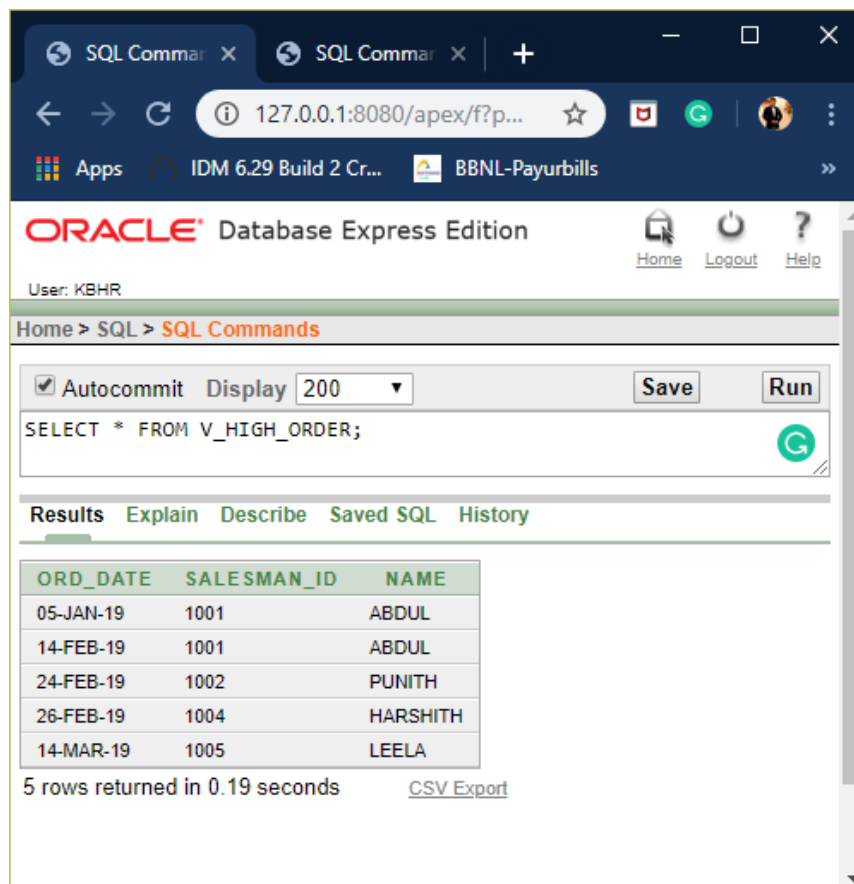
Application Express 2.1.0.00.39

4. Create a view that finds the salesman who has the customer with the highest order of a day.

```
CREATE VIEW V_HIGH_ORDER AS SELECT O.ORD_DATE, S.SALESMAN_ID, S.NAME FROM SALESMAN S, ORDERS O WHERE S.SALESMAN_ID=O.SALESMAN_ID AND O.PURCHASED_AMT=(SELECT MAX(PURCHASED_AMT) FROM ORDERS O1 WHERE O1.ORD_DATE=O.ORD_DATE);
```

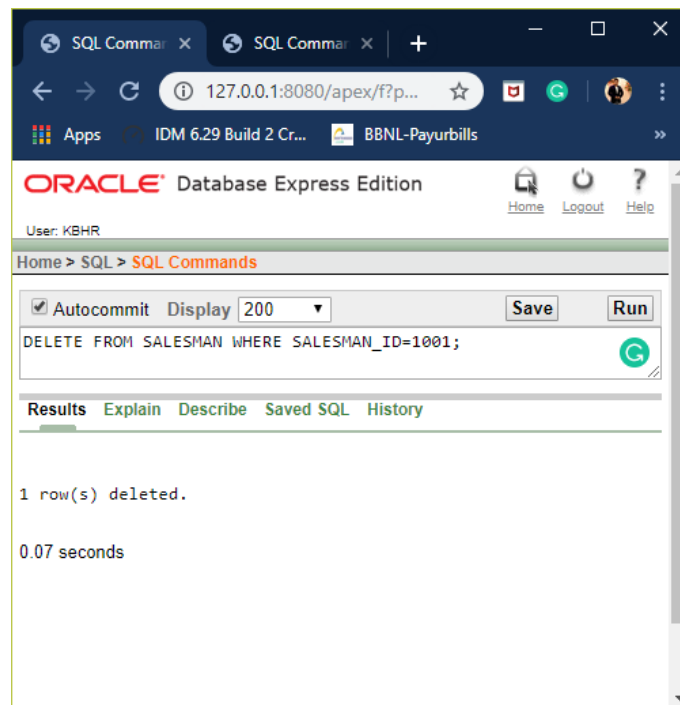


```
SELECT * FROM V_HIGH_ORDER;
```

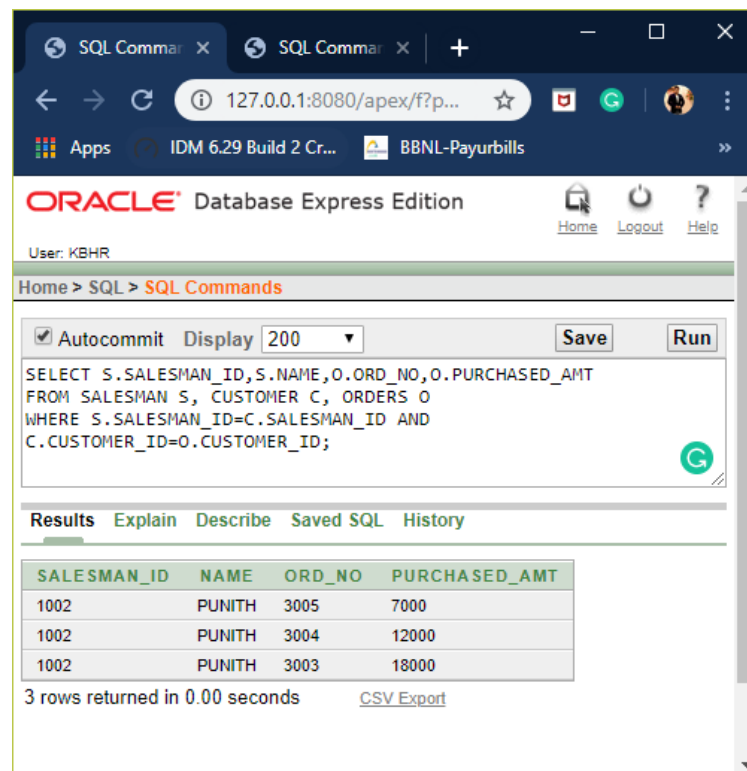


5. Demonstrate the DELETE operation by removing salesman with id 1001. All his orders must also be deleted.

**DELETE FROM SALESMAN WHERE SALESMAN\_ID=1001;**



**SELECT S.SALESMAN\_ID,S.NAME,O.ORD\_NO,O.PURCHASED\_AMT  
FROM SALESMAN S, CUSTOMER C, ORDERS O  
WHERE S.SALESMAN\_ID=C.SALESMAN\_ID AND  
C.CUSTOMER\_ID=O.CUSTOMER\_ID;**



-----  
**THE END**  
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