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**

Program - 1

Consider the following schema for a Library Database:

BOOK (Book_id, Title, Publisher_Name, Pub_Year)

BOOK_AUTHORS (Book_id, Author_Name)

PUBLISHER (Name, Address, Phone)

BOOK_COPIES (Book_id, Branch_id, No-of_Copies)

BOOK_LENDING (Book_id, Branch_id, Card_No, Date_Out, Due_Date)

LIBRARY_BRANCH (Branch_id, Branch_Name, Address)

Write SQL queries to:

1. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch, etc.

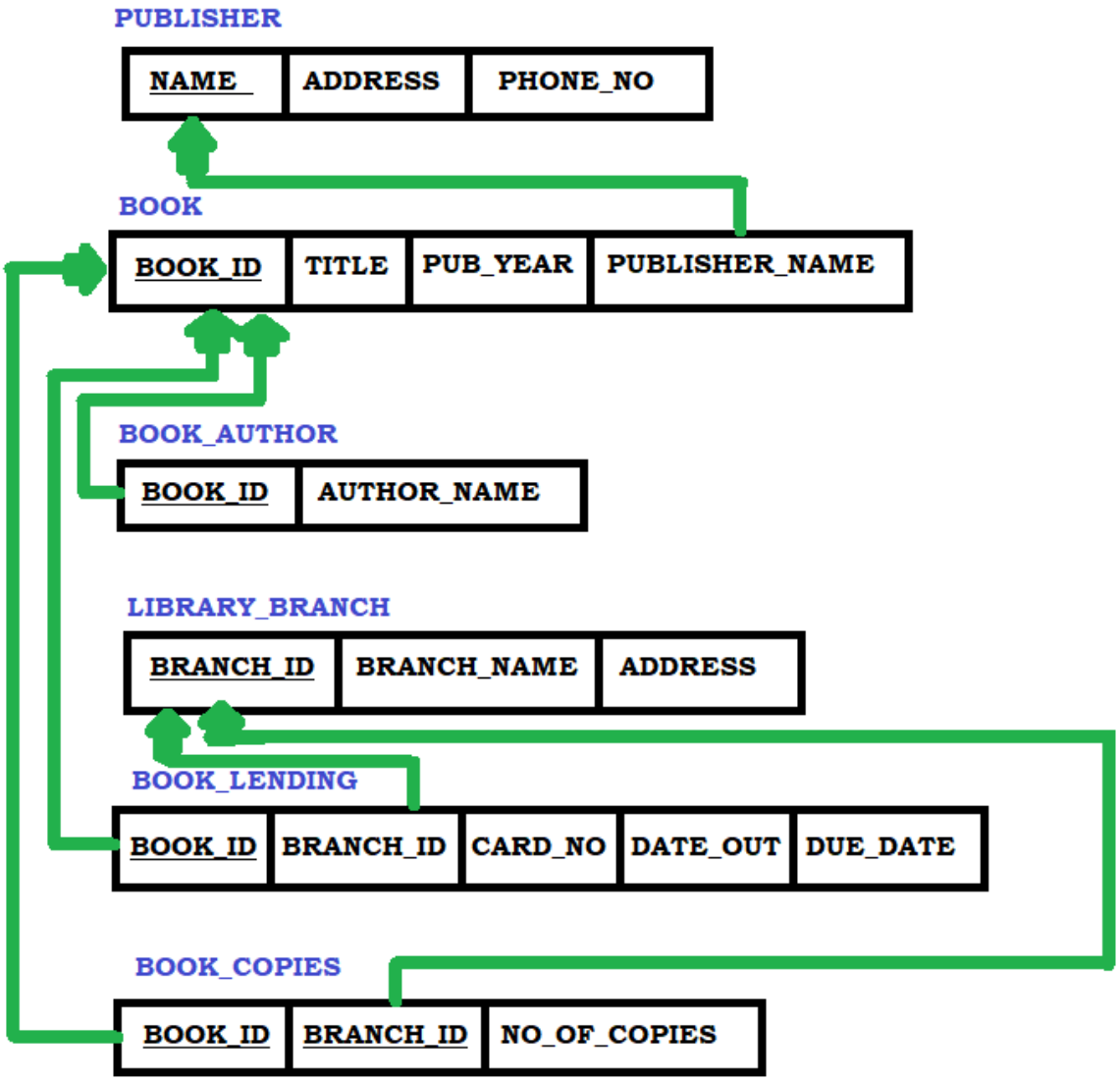
2. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017.

3. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.

4. Partition the BOOK table based on year of publication. Demonstrate its working with a simple query.

5. Create a view of all books and its number of copies that are currently available in the Library.

SCHEMA DIAGRAM:



STEPS TO OPEN THE ORACLE DATABASE – 10G EXPRESS EDITION

Step 1: Open the Browser (Preferred Chrome).

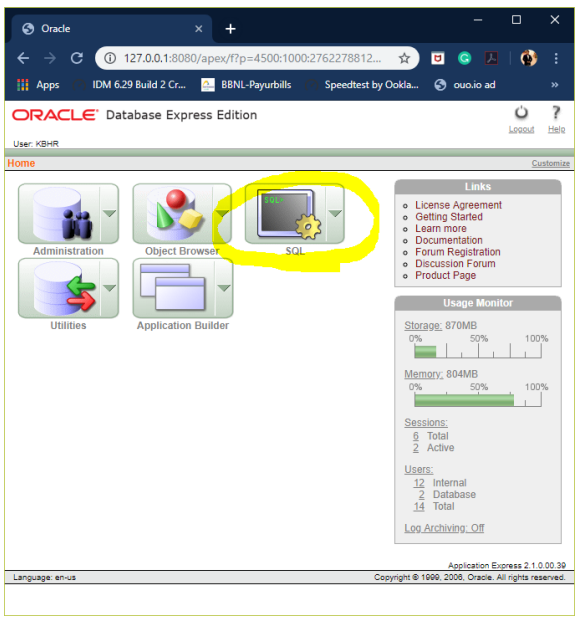
Step 2: http://127.0.0.1:8080/ Enter the link on the browser.

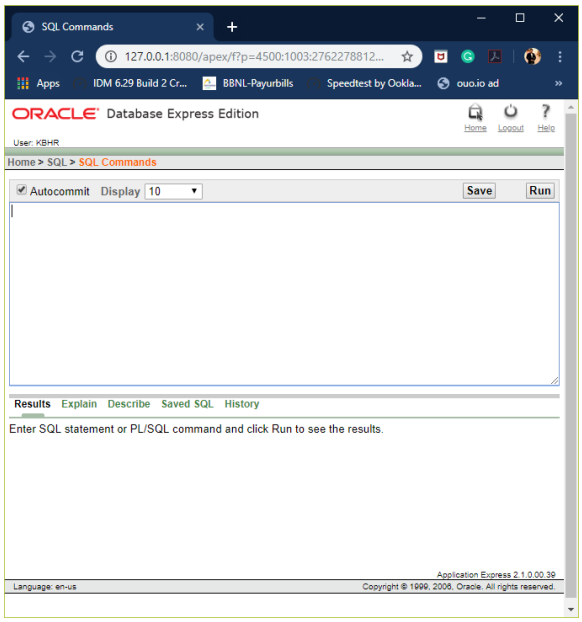
Step 3: login with your id and password (finding difficulty in login in go to the link to know in-depth details

https://hemanthrajhemu.github.io/FutureVisionBIE/WP/5CSE/DBMS_LAB_INFO.html

(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.

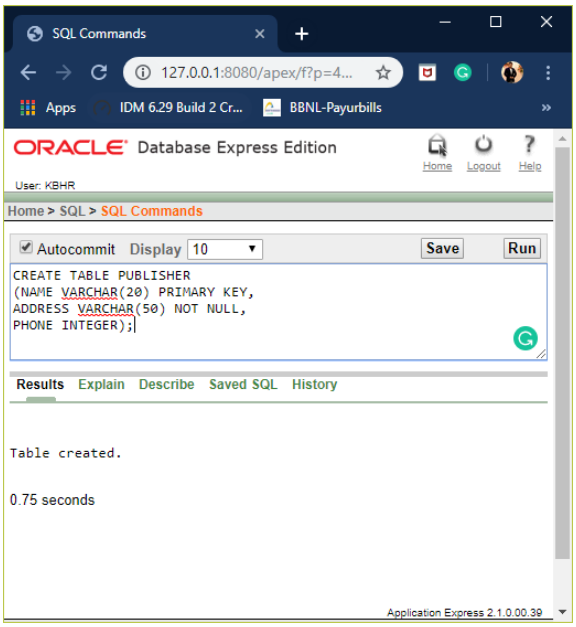
Create Table: (Follow the Schema Diagram in Creating the Data Base)

---

1. **Create Table for PUBLISHER**

```
CREATE TABLE PUBLISHER
(NAME VARCHAR(20) PRIMARY KEY,
ADDRESS VARCHAR(50) NOT NULL,
PHONE INTEGER);
```

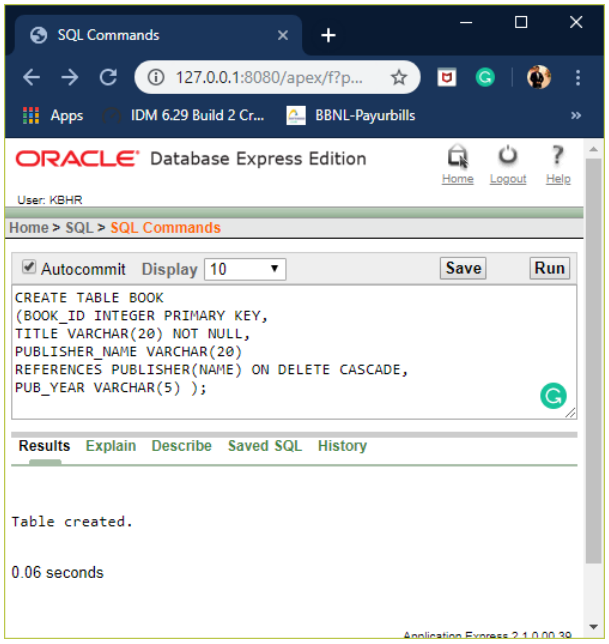
NOW RUN.



2. **Create Table for BOOK**

```
CREATE TABLE BOOK
(BOOK_ID INTEGER PRIMARY KEY,
TITLE VARCHAR(20) NOT NULL,
PUBLISHER_NAME VARCHAR(20)
REFERENCES PUBLISHER(NAME)
ON DELETE CASCADE,
PUB_YEAR VARCHAR(5));
```

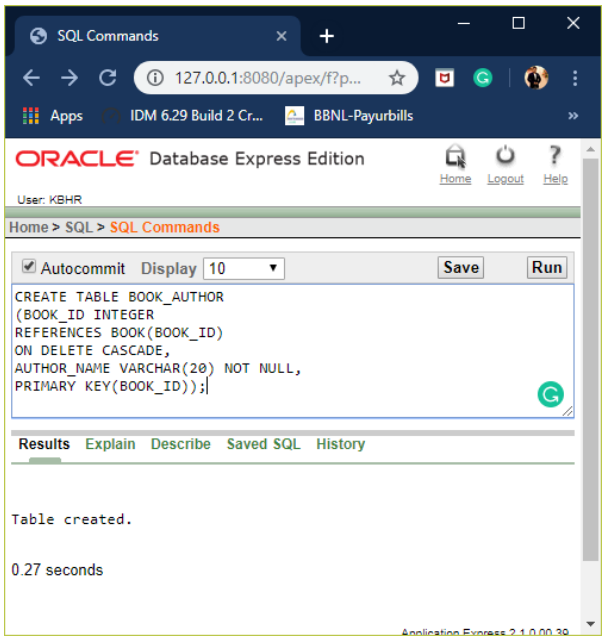
Now Click on Run.



3. **Create Table for BOOK_AUTHOR**

```
CREATE TABLE BOOK_AUTHOR
(BOOK_ID INTEGER
REFERENCES BOOK(BOOK_ID)
ON DELETE CASCADE,
AUTHOR_NAME VARCHAR(20) NOT NULL,
PRIMARY KEY(BOOK_ID));
```

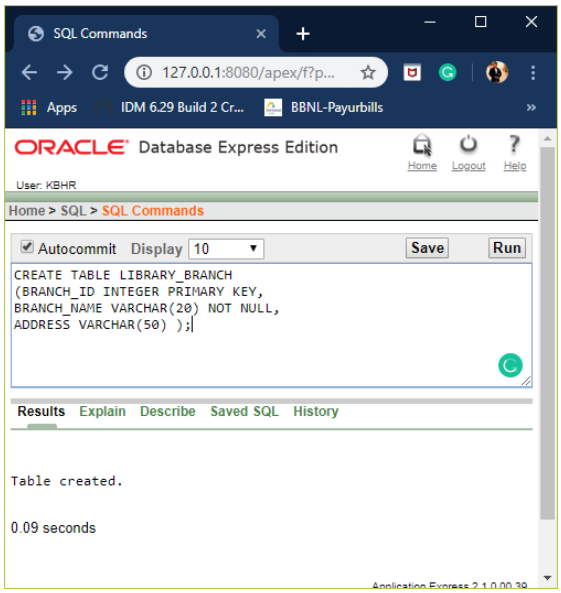
Click on Run.



4. **Create Table for LIBRARY_BRANCH**

```
CREATE TABLE LIBRARY_BRANCH
(BRANCH_ID INTEGER PRIMARY KEY,
BRANCH_NAME VARCHAR(20) NOT NULL,
ADDRESS VARCHAR(50) );
```

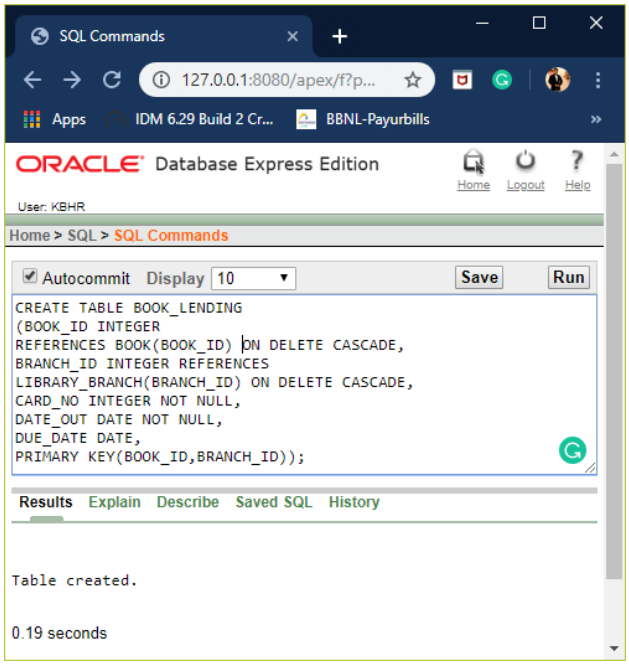
Click on Run.



5. **Create Table for BOOK_LENDING**

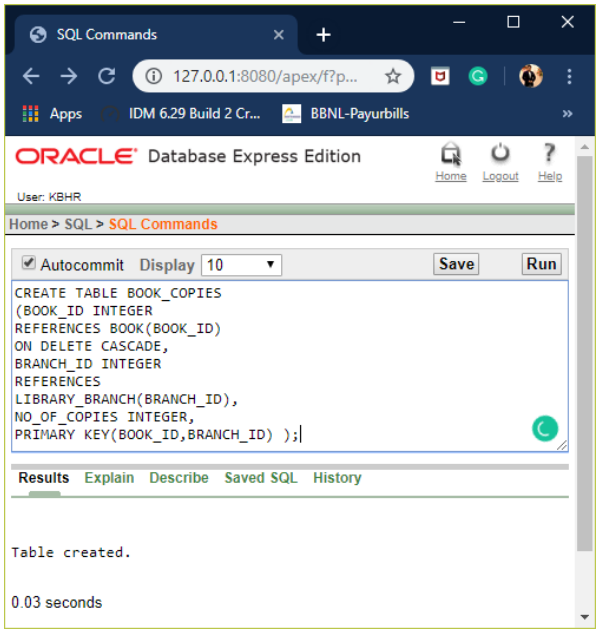
```
CREATE TABLE BOOK_LENDING
(BOOK_ID INTEGER
REFERENCES BOOK(BOOK_ID)
ON DELETE CASCADE,
BRANCH_ID INTEGER
REFERENCES
LIBRARY_BRANCH(BRANCH_ID)
ON DELETE CASCADE,
CARD_NO INTEGER NOT NULL,
DATE_OUT DATE NOT NULL,
DUE_DATE DATE,
PRIMARY KEY(BOOK_ID,BRANCH_ID));
```

Click on Run.



6. **Create Table for BOOK_COPIES**

```
CREATE TABLE BOOK_COPIES
(BOOK_ID INTEGER
REFERENCES BOOK(BOOK_ID)
ON DELETE CASCADE,
BRANCH_ID INTEGER
REFERENCES
LIBRARY_BRANCH(BRANCH_ID),
NO_OF_COPIES INTEGER,
PRIMARY KEY(BOOK_ID,BRANCH_ID) );
```

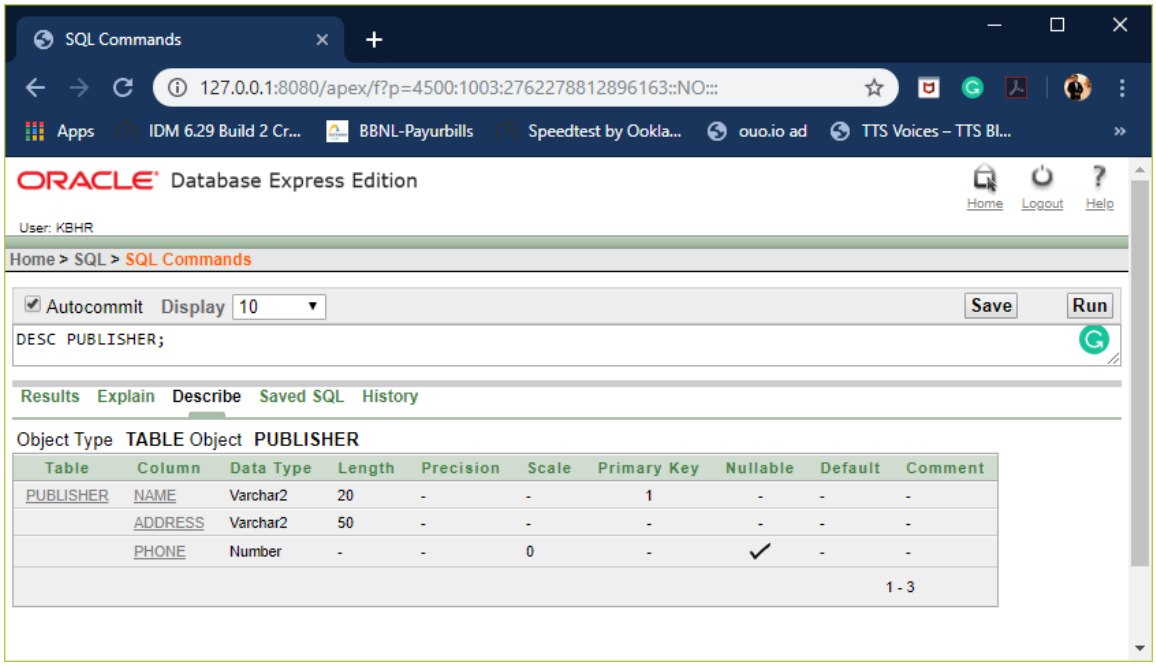


Click on Run.

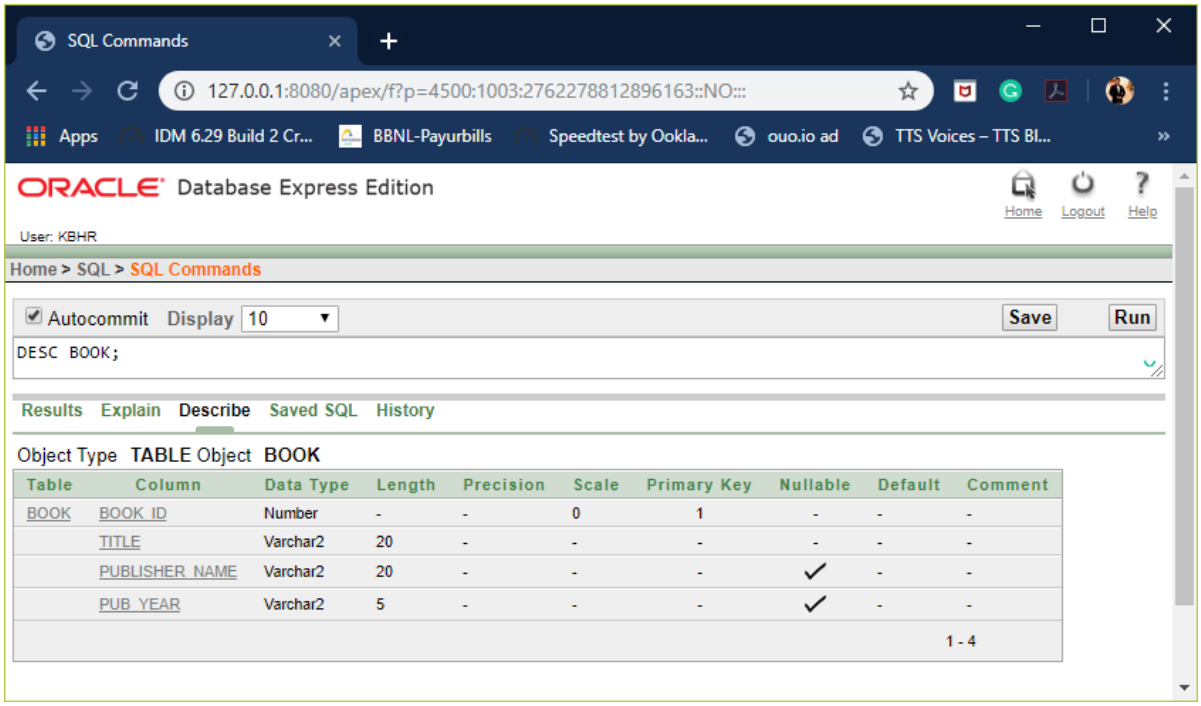
TABLE DESCRIPTION

---

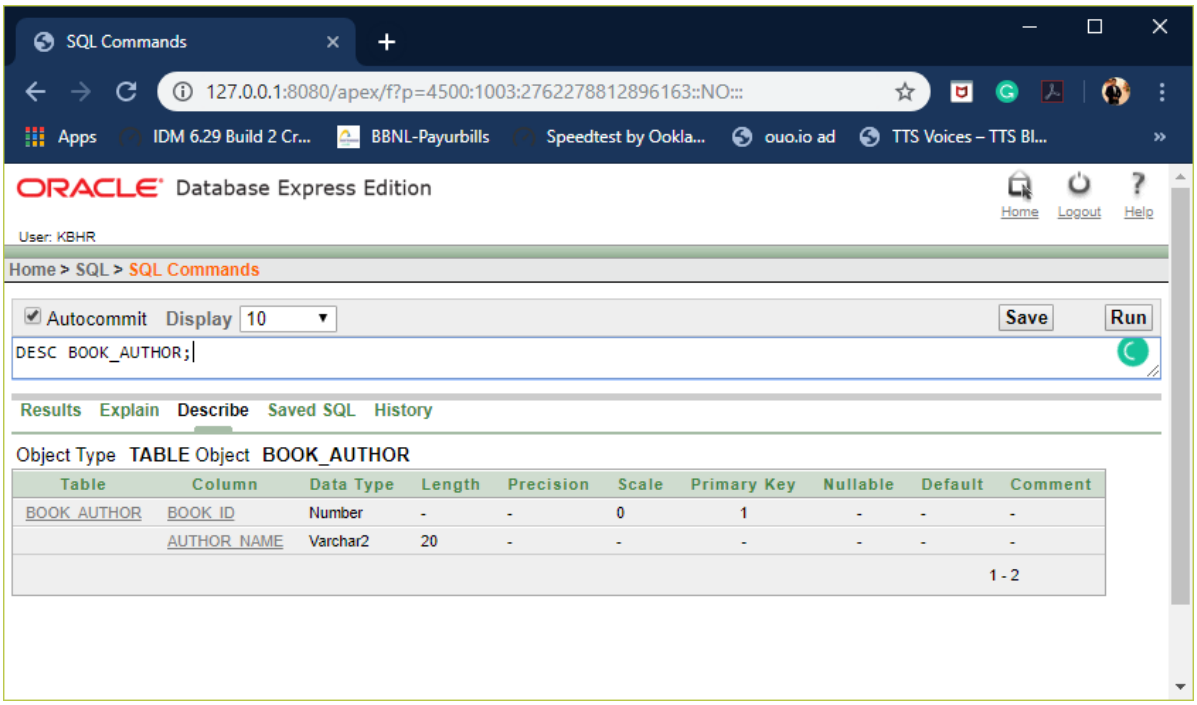
1. DESC PUBLISHER;



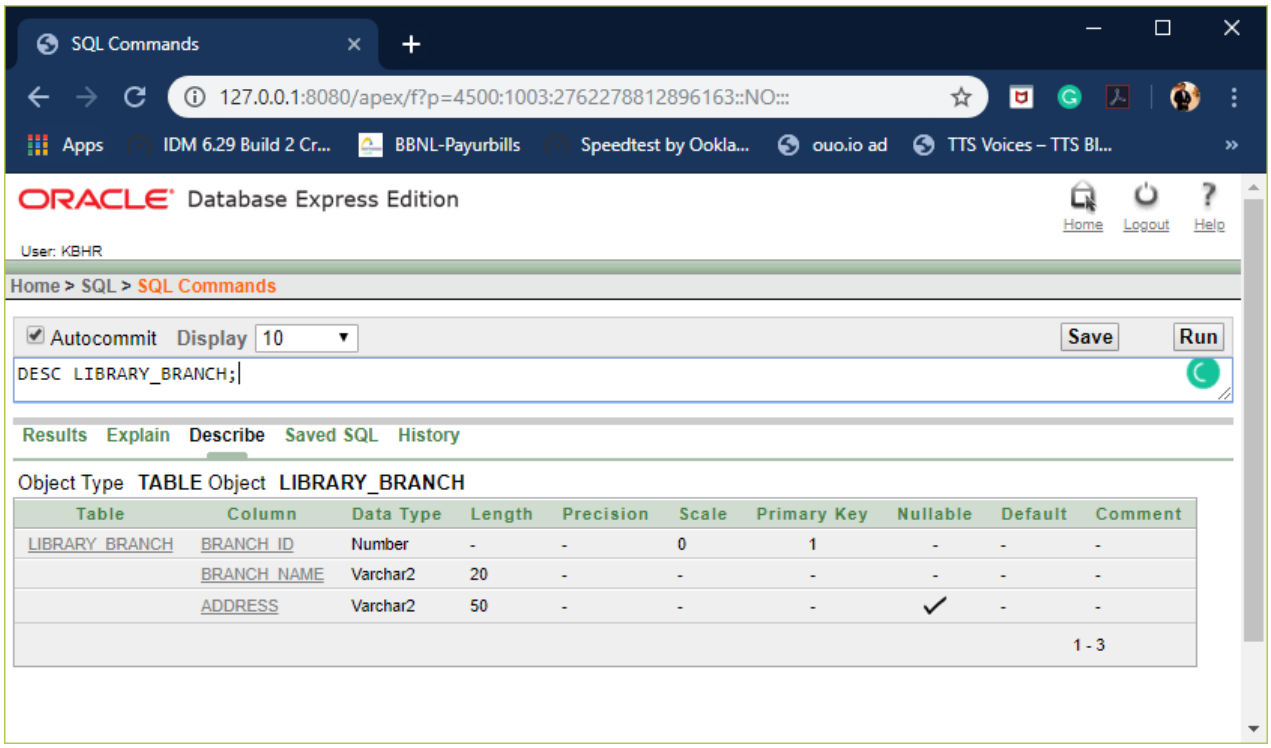
2. DESC BOOK;



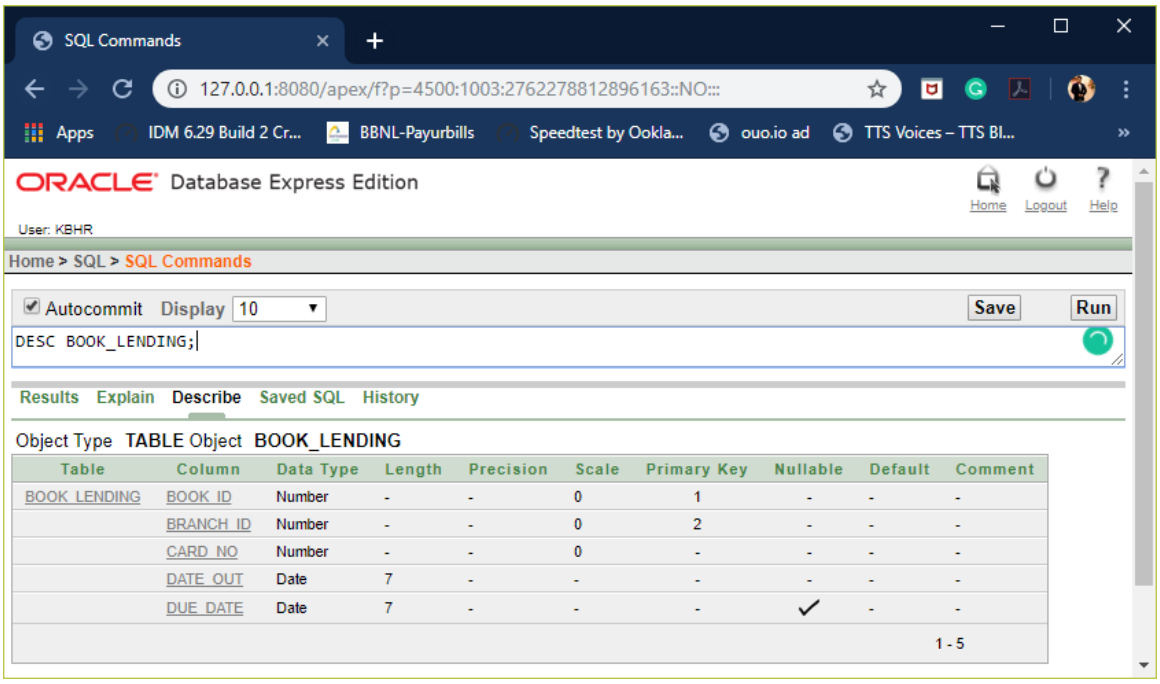
3. DESC BOOK_AUTHOR;



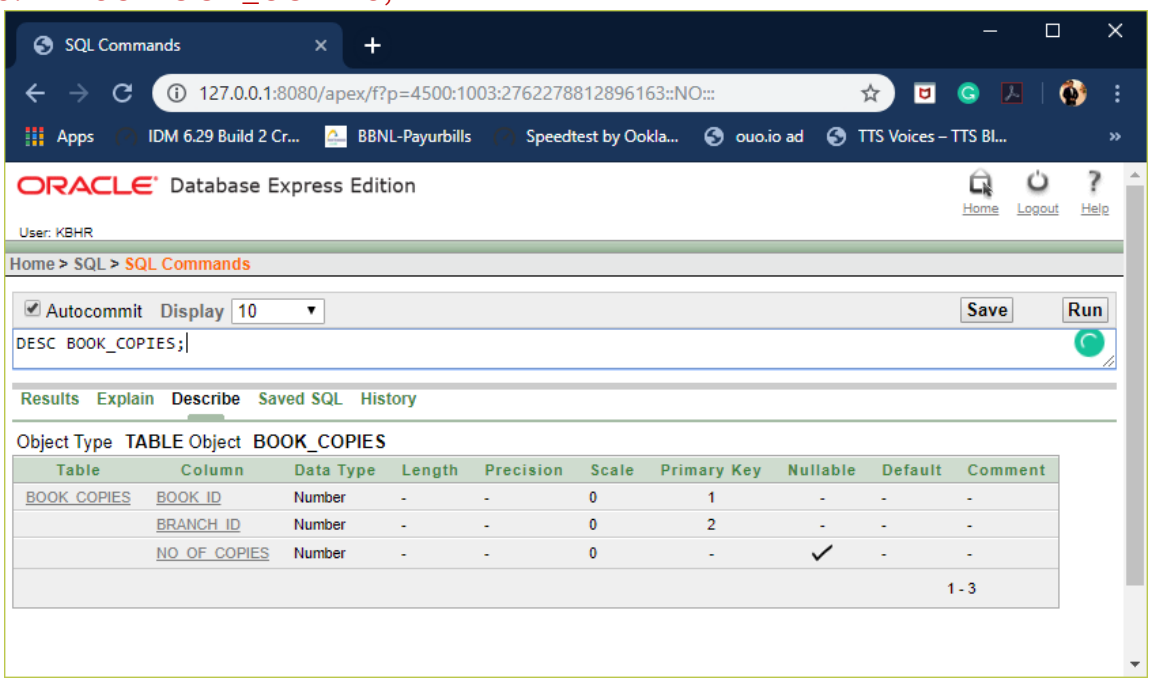
4. DESC LIBRARY_BRANCH;



5. DESC BOOK_LENDING;



6. DESC BOOK_COPIES;



INSERTION OF VALUES TO TABLE

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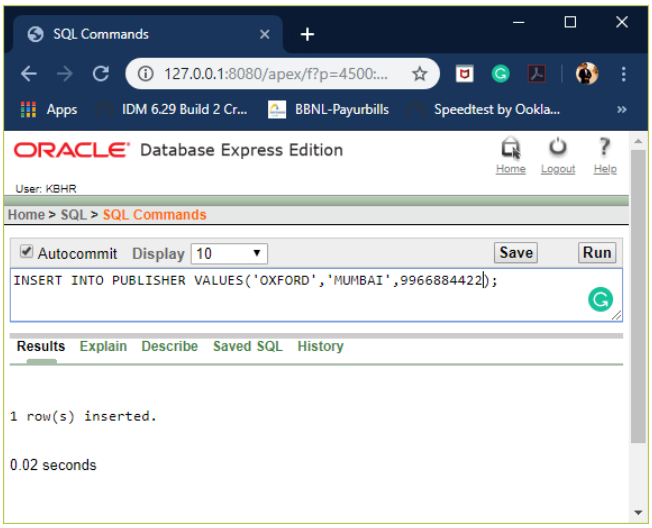
1. VALUES INTO PUBLISHER

INSERT INTO PUBLISHER VALUES(<NAME> , <ADDRESS>, <PHONE>);

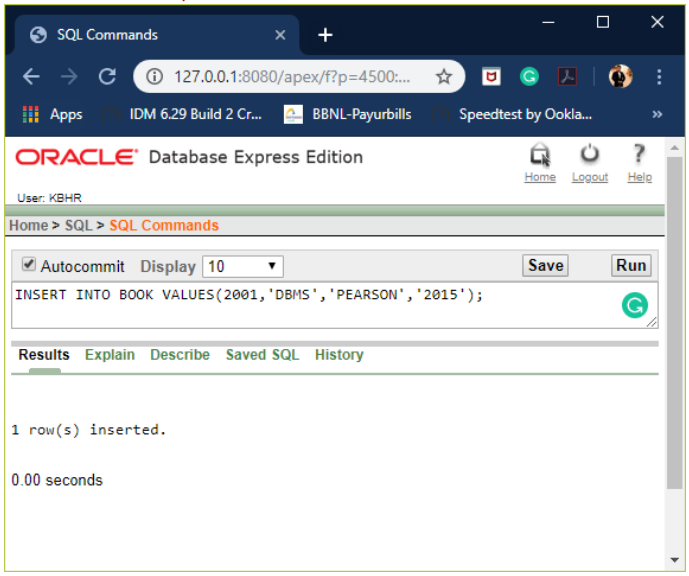
INSERT INTO PUBLISHER VALUES('PEARSON','NEW DELHI',9996621456);
INSERT INTO PUBLISHER VALUES('OXFORD','MUMBAI',9966884422);
INSERT INTO PUBLISHER VALUES('MC GRAW HILL','CHENNAI', 8866333444);
INSERT INTO PUBLISHER VALUES('O_REILLY','MANGLORE',9898989898);
INSERT INTO PUBLISHER VALUES('APRESS & DREAMTECH','MAHARASTRA', 9876549876);



2. VALUES INTO BOOK

INSERT INTO BOOK
VALUES(<BOOK_ID>,<TITLE>,<PUBLISHER_NAME>,<PUB_YEAR>);

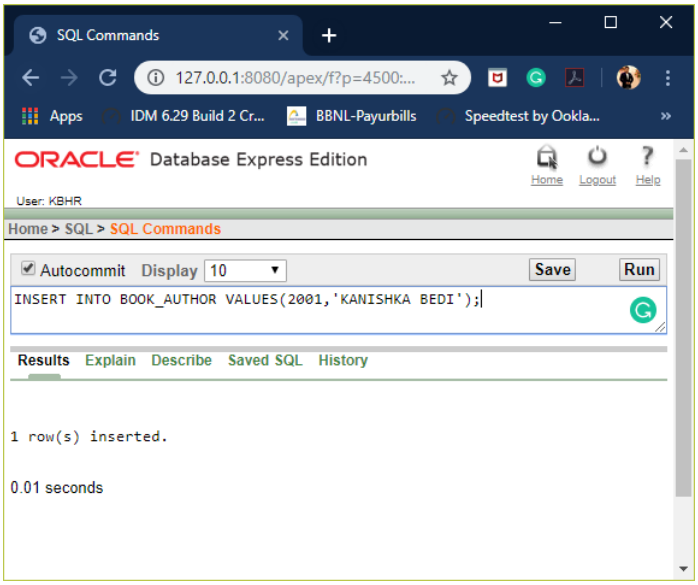
INSERT INTO BOOK VALUES(2001,'DBMS','PEARSON','2015');
INSERT INTO BOOK VALUES(2002,'COMPUTER NETWORKS','OXFORD','2019');
INSERT INTO BOOK VALUES(2003,'JAVA','MC GRAW HILL','2016');
INSERT INTO BOOK VALUES(2004,'C PROGRAMMING','O_REILLY','2014');
INSERT INTO BOOK VALUES(2005,'PHP','APRESS & DREAMTECH','2017');



3. VALUES INTO BOOK_AUTHOR

INSERT INTO BOOK_AUTHOR VALUES(<BOOK_ID>,<AUTHOR_NAME>);

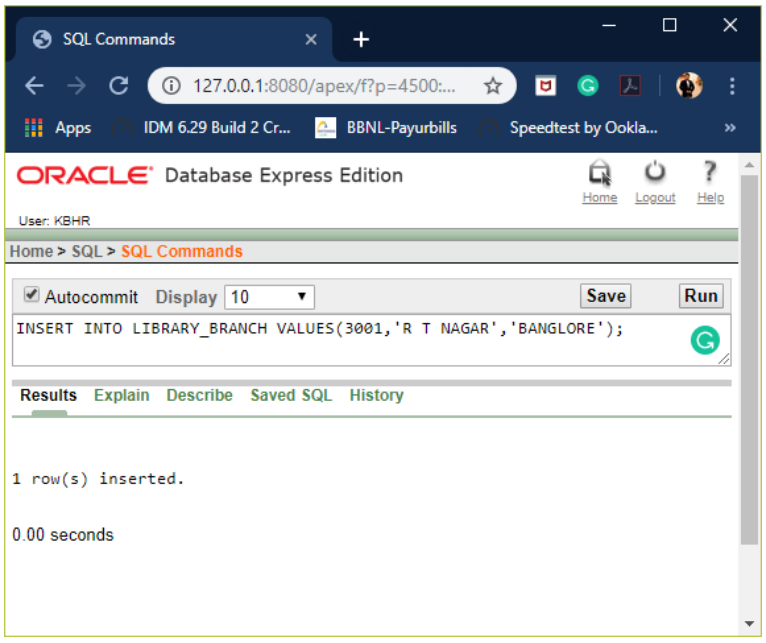
INSERT INTO BOOK_AUTHOR VALUES(2001,'KANISHKA BEDI');
INSERT INTO BOOK_AUTHOR VALUES(2002,'POORNIMA M');
INSERT INTO BOOK_AUTHOR VALUES(2003,'P C TRIPATHI');
INSERT INTO BOOK_AUTHOR VALUES(2004,'P N REDDY');
INSERT INTO BOOK_AUTHOR VALUES(2005,'VISHWA KIRAN');



4. VALUES INTO LIBRARY_BRANCH

INSERT INTO LIBRARY_BRANCH
VALUES(<BRANCH_ID>,<BRANCH_NAME>,<ADDRESS>);

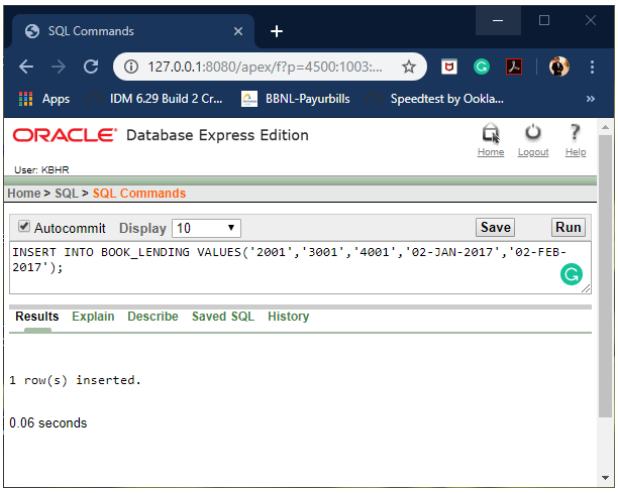
INSERT INTO LIBRARY_BRANCH VALUES(3001,'R T NAGAR','BANGLORE');
INSERT INTO LIBRARY_BRANCH
VALUES(3002,'MALESHWARAM','BANGLORE');
INSERT INTO LIBRARY_BRANCH VALUES(3003,'SECTOR 21','NODIA');
INSERT INTO LIBRARY_BRANCH VALUES(3004,'KLS INSTITUTE','BELGAUM');
INSERT INTO LIBRARY_BRANCH VALUES(3005,'YELAHANKA','BANGLORE');



5. VALUES INTO BOOK_LENDING

INSERT INTO BOOK_LENDING VALUES(<BOOK_ID>,<BRANCH_ID>,<CARD_NO>,<DATE_OUT>,<DUE_DATE>);

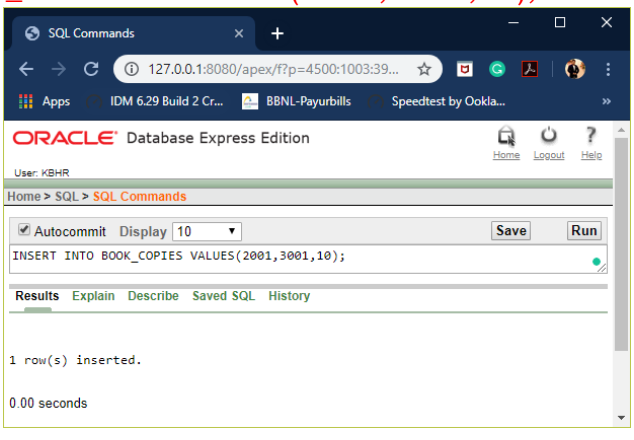
INSERT INTO BOOK_LENDING VALUES('2001','3001','4001','02-JAN-2017','02-FEB-2017');
INSERT INTO BOOK_LENDING VALUES('2002','3001','4001','07-JAN-2017','07-FEB-2017');
INSERT INTO BOOK_LENDING VALUES('2003','3001','4001','10-JAN-2017','10-FEB-2017');
INSERT INTO BOOK_LENDING VALUES('2004','3001','4001','20-JAN-2017','20-FEB-2017');
INSERT INTO BOOK_LENDING VALUES('2005','3002','4005','20-JAN-2017','20-FEB-2017');



6. VALUES INTO BOOK_COPIES

INSERT INTO BOOK_COPIES VALUES(<BOOK_ID>,<BRANCH_ID>,<NO_OF_COPIES>);

INSERT INTO BOOK_COPIES VALUES(2001,3001,10);
INSERT INTO BOOK_COPIES VALUES(2002,3001,10);
INSERT INTO BOOK_COPIES VALUES(2003,3001,10);
INSERT INTO BOOK_COPIES VALUES(2003,3002,10);
INSERT INTO BOOK_COPIES VALUES(2002,3002,10);
INSERT INTO BOOK_COPIES VALUES(2001,3005,10);



RETRIEVAL OF INSERTED VALUES

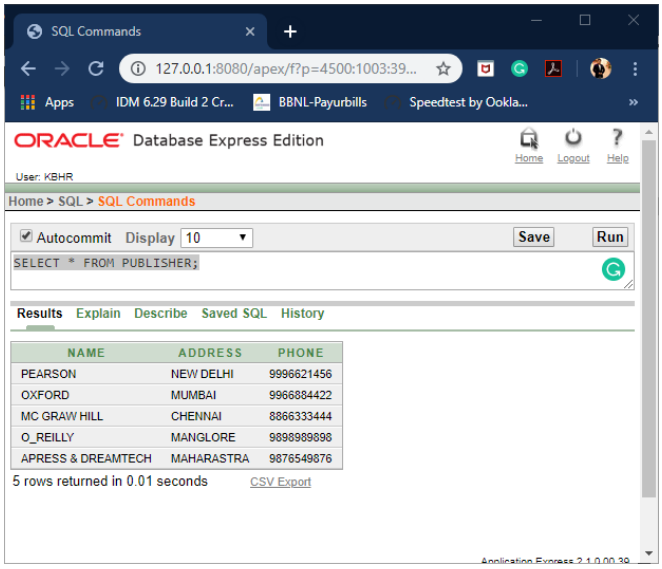
---

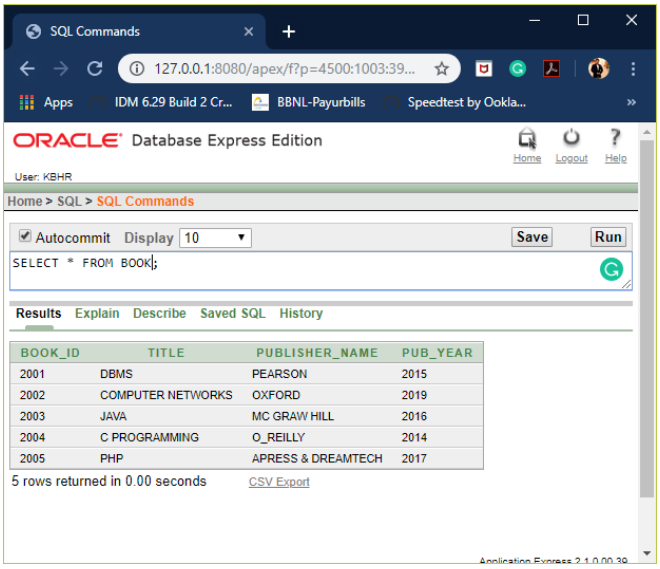
1. **PUBLISHER:**

SELECT * FROM PUBLISHER;

2. **BOOK:**

SELECT * FROM BOOK;



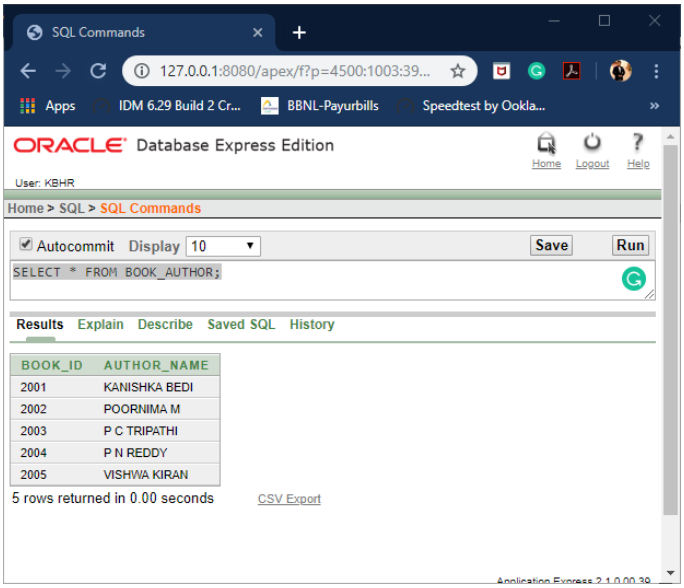


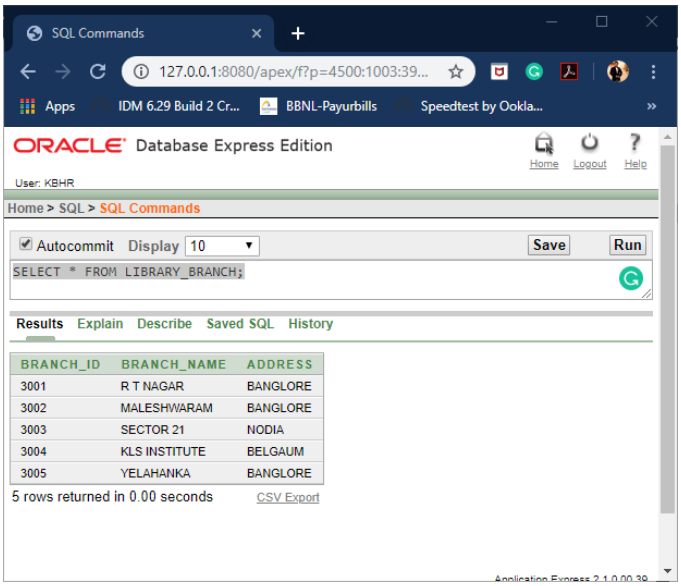
3. **BOOK_AUTHOR:**

SELECT * FROM BOOK_AUTHOR;

4. **LIBRARY_BRANCH**

SELECT * FROM LIBRARY_BRANCH;



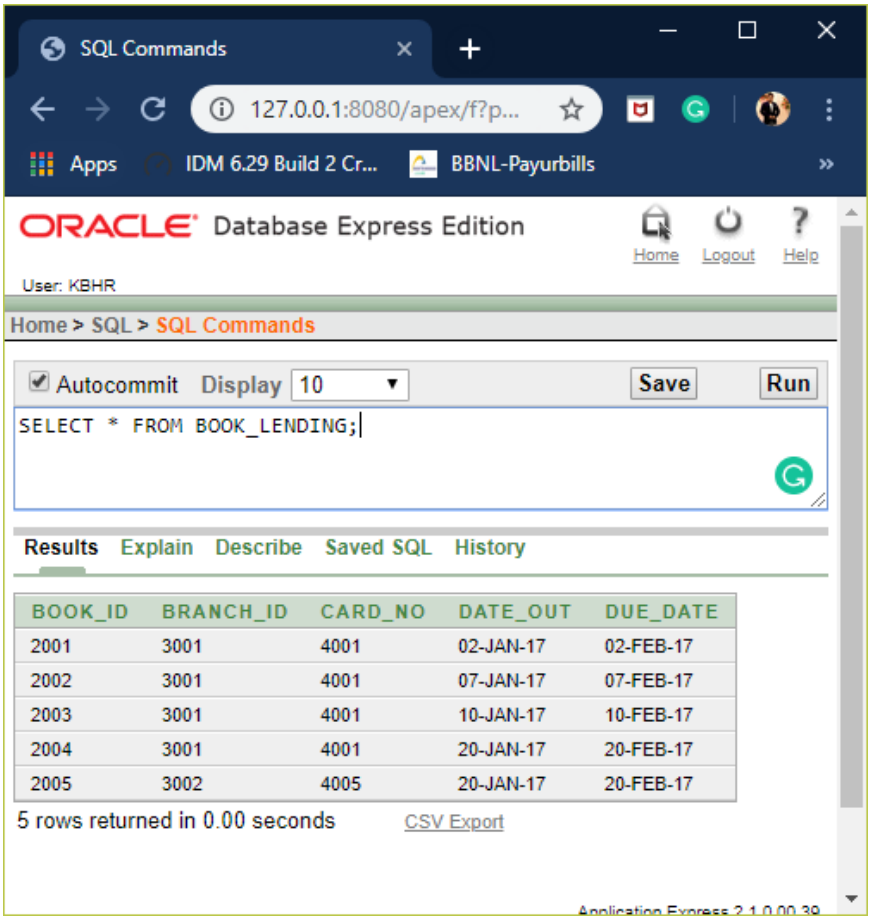


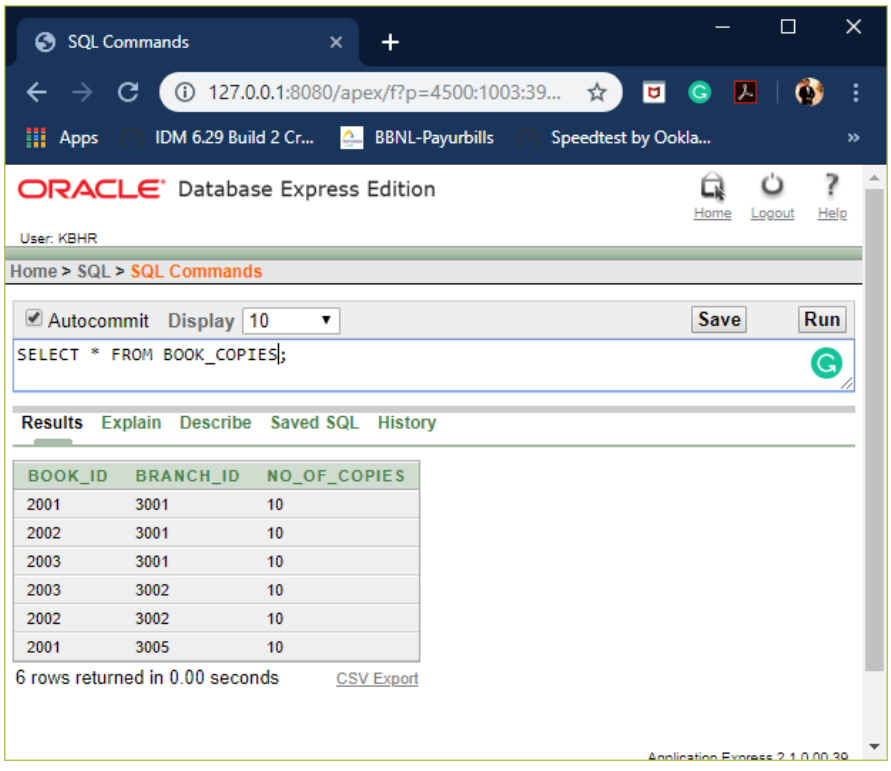
5. **BOOK_LENDING:**

```
SELECT * FROM BOOK_LENDING;
```

6. **BOOK_COPIES:**

```
SELECT * FROM BOOK_COPIES;
```



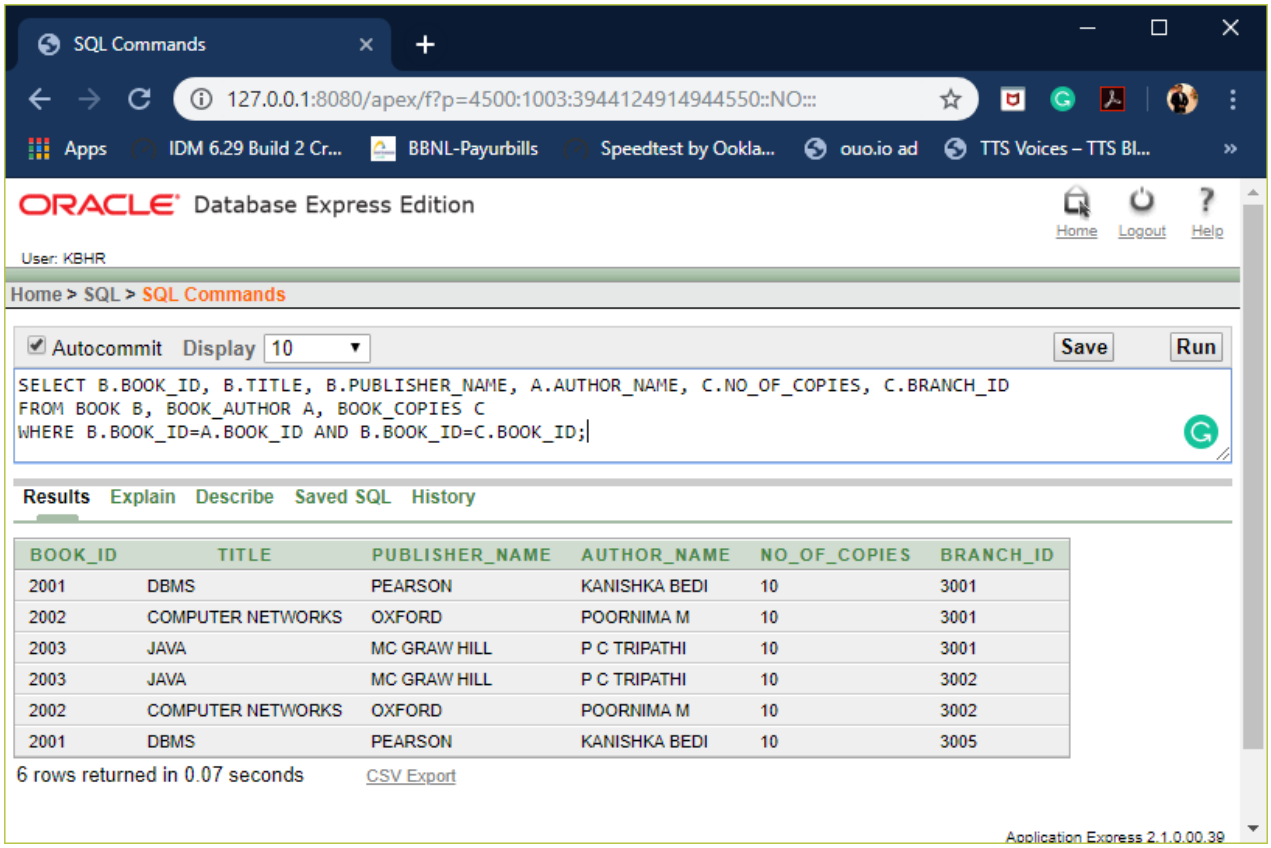


QUERIES

---

1. **Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch, etc.**

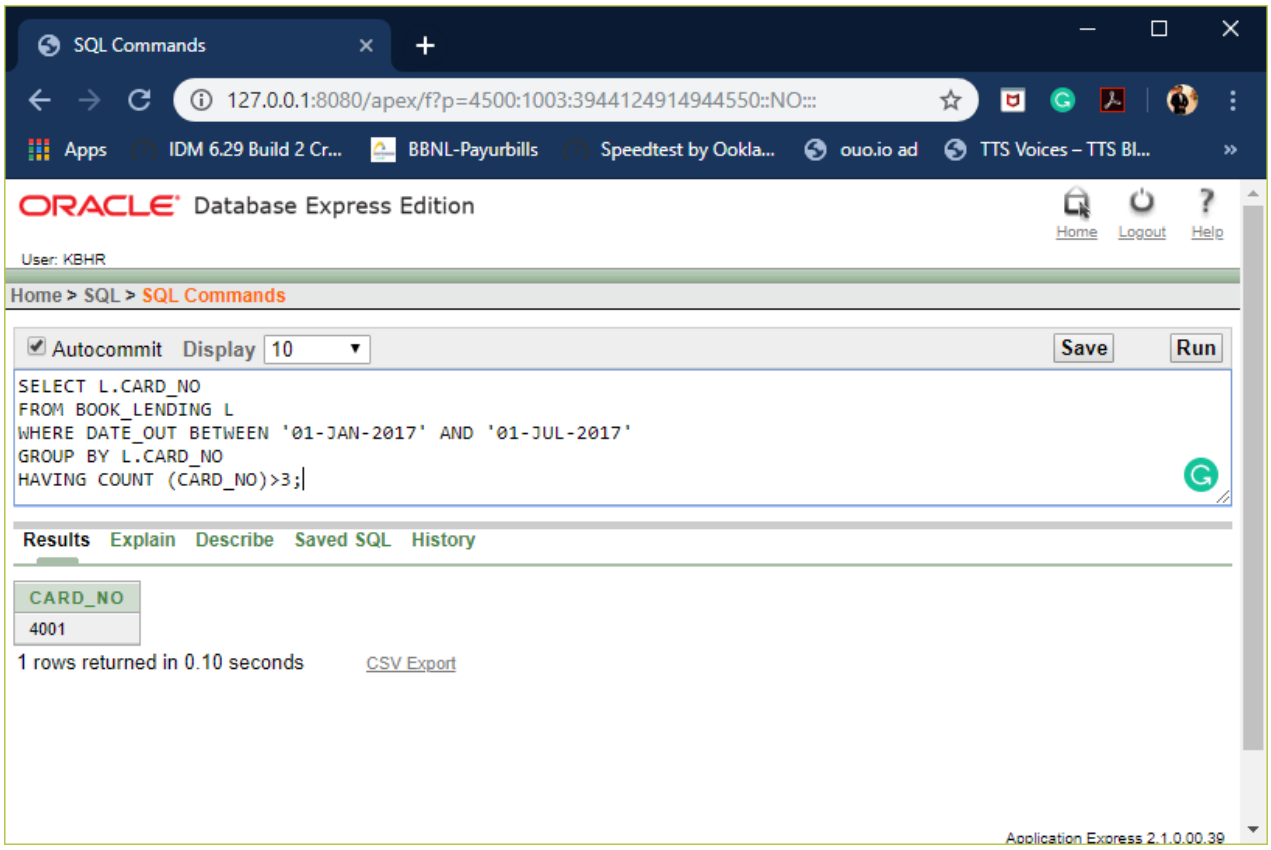
```
SELECT B.BOOK_ID, B.TITLE, B.PUBLISHER_NAME, A.AUTHOR_NAME,
C.NO_OF_COPIES, C.BRANCH_ID
FROM BOOK B, BOOK_AUTHOR A, BOOK_COPIES C
WHERE B.BOOK_ID=A.BOOK_ID AND B.BOOK_ID=C.BOOK_ID;
```



---

2. **Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017.**

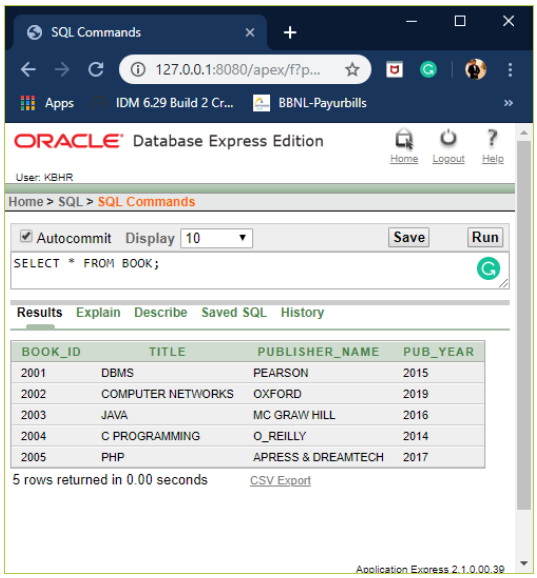
```
SELECT L.CARD_NO
FROM BOOK_LENDING L
WHERE DATE_OUT BETWEEN '01-JAN-2017' AND '01-JUL-2017'
GROUP BY L.CARD_NO
HAVING COUNT (CARD_NO)>3;
```



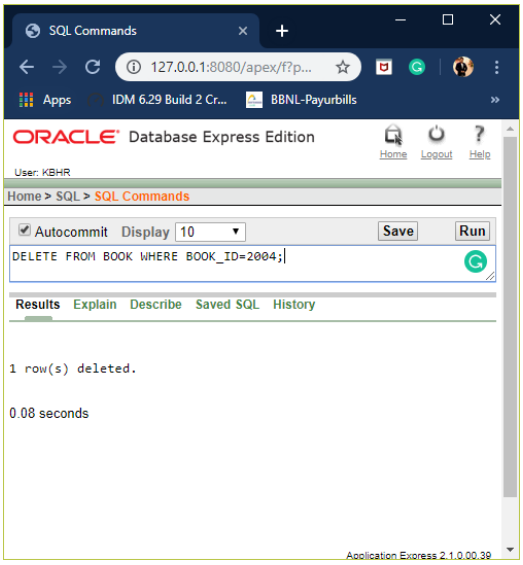
---

3. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.

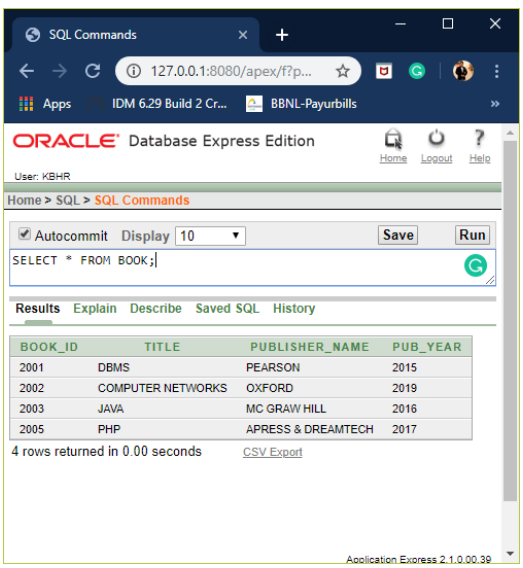
SELECT * FROM BOOK;



DELETE FROM BOOK WHERE BOOK_ID=2004;



SELECT * FROM BOOK;



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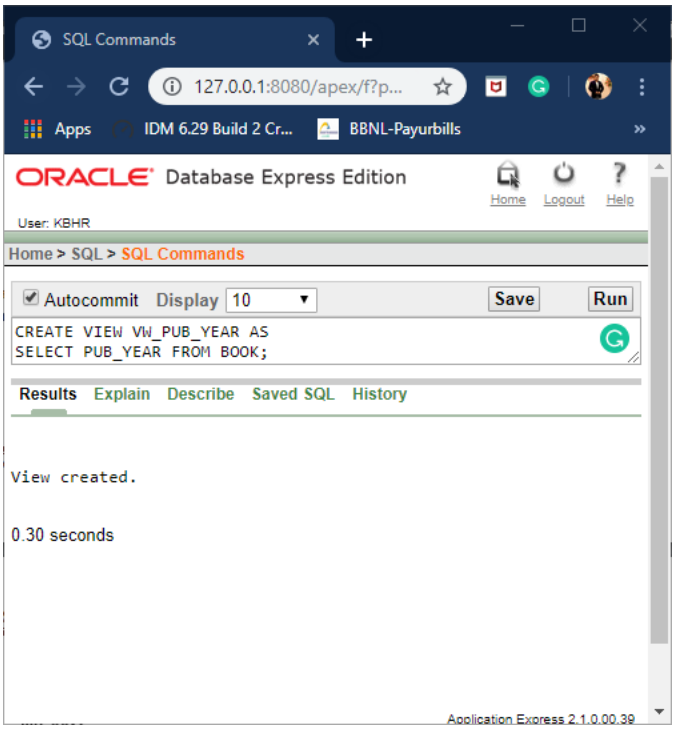
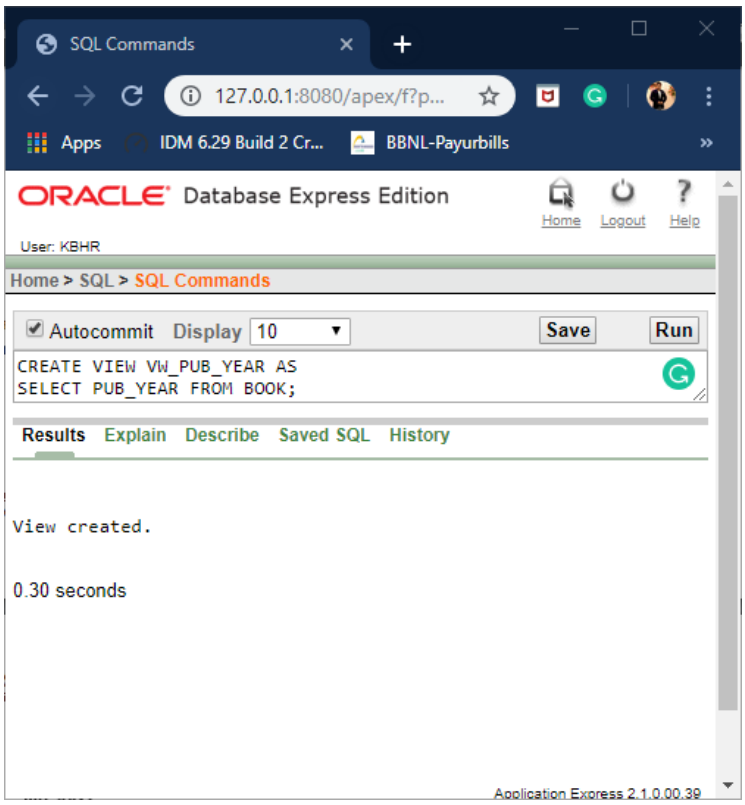
4. Partition the BOOK table based on year of publication. Demonstrate its working with a simple query.

```
CREATE VIEW VW_PUB_YEAR AS
SELECT PUB_YEAR FROM BOOK;
```



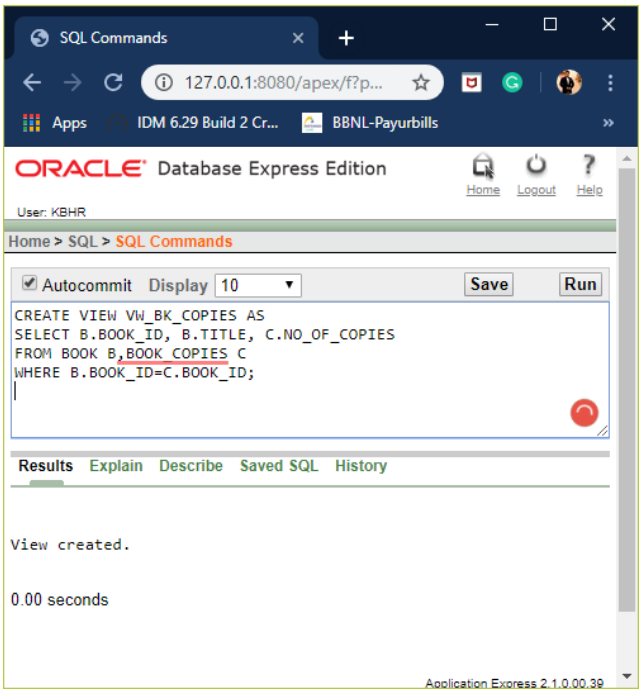

```
SELECT * FROM VW_PUB_YEAR;
```



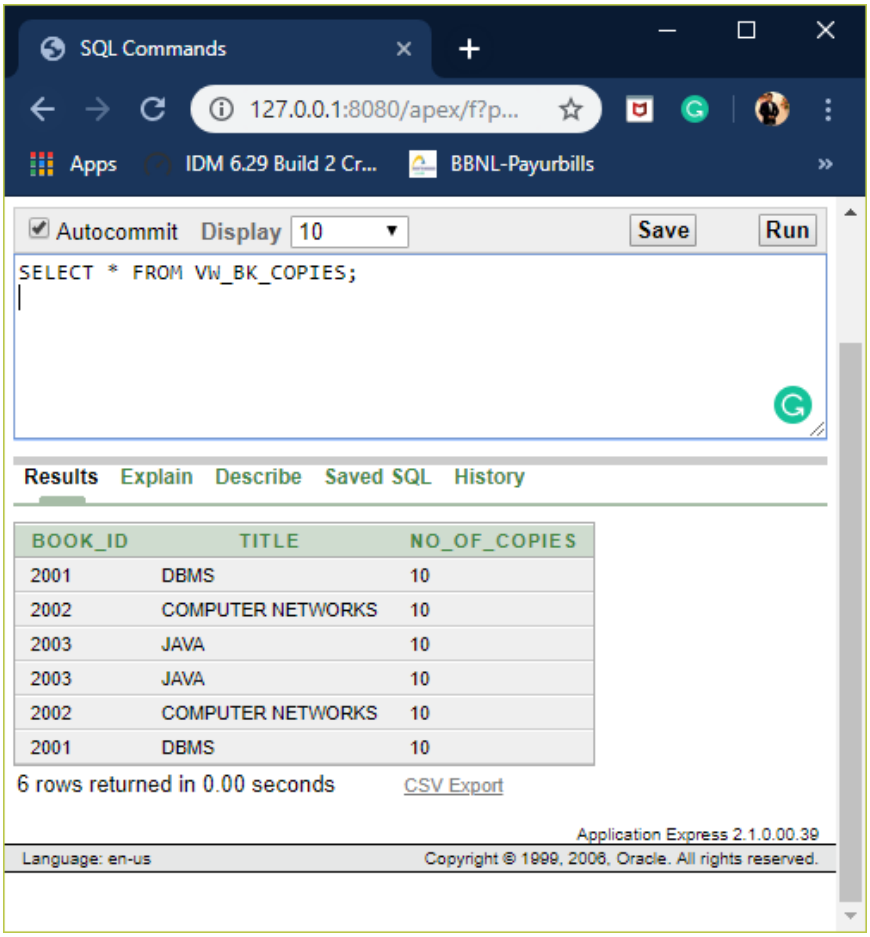
---

5. **Create a view of all books and its number of copies that are currently available in the Library.**

```
CREATE VIEW VW_BK_COPIES AS
SELECT B.BOOK_ID, B.TITLE,
 C.NO_OF_COPIES
FROM BOOK B,BOOK_COPIES C
WHERE B.BOOK_ID=C.BOOK_ID;
```




```
SELECT * FROM VW_BK_COPIES;
```



THE END
