PRINCESS NORA BINT ABDULRAHMAN UNIVERSITY

College of Computer and Information Sciences

Department of Information Systems

Ithra library Database system

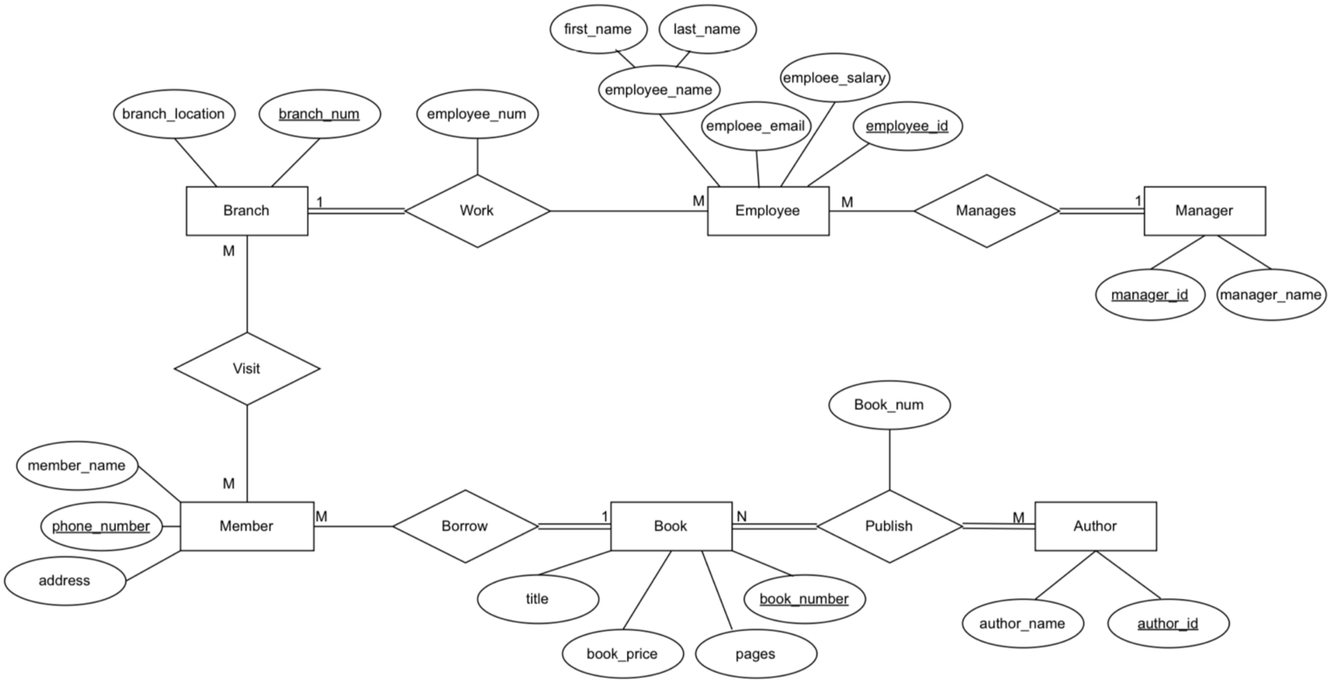
All Phases

Group#: 2

Project Description:

The king abdulaziz center for world culture, also known as ithra, has a library department. It is designed to host about 500,000 texts and it includes a variety of different digital resources.
In this Library, you can borrow Books as a Member, or publish Books as an Author. Each Branch must have many Employees. Each Member must be associated with one of the Branches, and each Member can borrow many Books. Each Book must be published by one or many Authors.

Entity Relationship Diagram (ERD):



Relational Schema:

Branch (branch num, branch_location)

Employee(employee_id,first_name,last_name,employee_salary,employee_email, branch_num,employee_num)

FK1:Branch_num references Branch(branch_num)

FK2:manger_id refrences Manger(manger_id)

Manger (manger_id, manger_name)

Manages (manger_id, employee_id)

FK1: manger_id references Manger(manger_id)

FK2: employee_id references Employee(employee_id)

Member (phone_number, address,member_name)

Book (book number, title, book_price, pages)

Visit (Branch_num ,Phone_number)

FK1:Branch_num references Branch(branch_num)

FK2:Phone_number references Member(phone_number)

Author (author_id, author_name)

Borrow (phone_number, book_number)

FK1:phone_number references Member (phone_number)

FK2:book_number references Book(book_number)

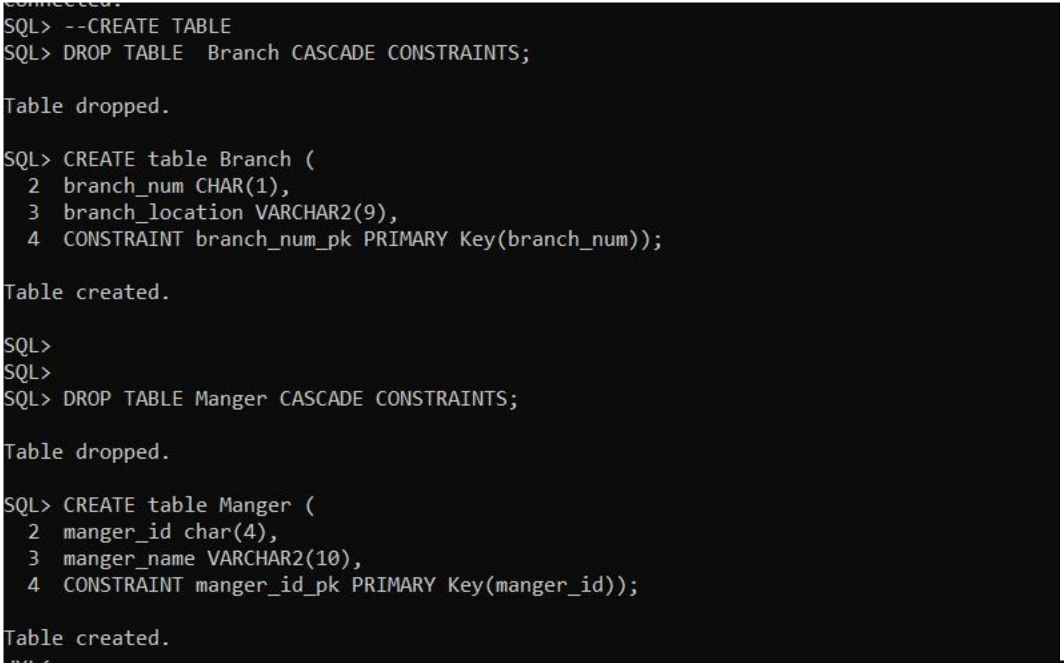
Publish (author_id, book_number)

FK1: author_id references Author(author_id)

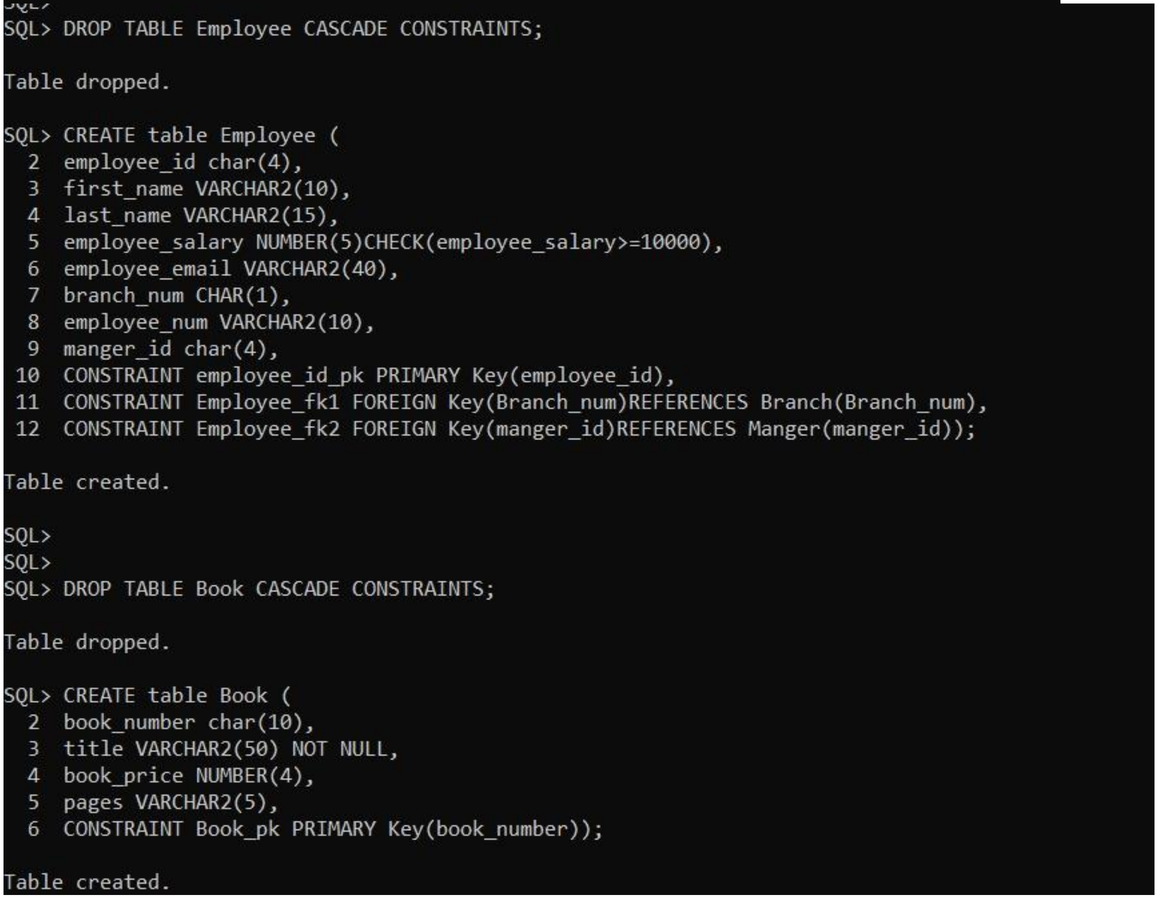
FK2:book_number references Book(book_number)

DDL Commands:

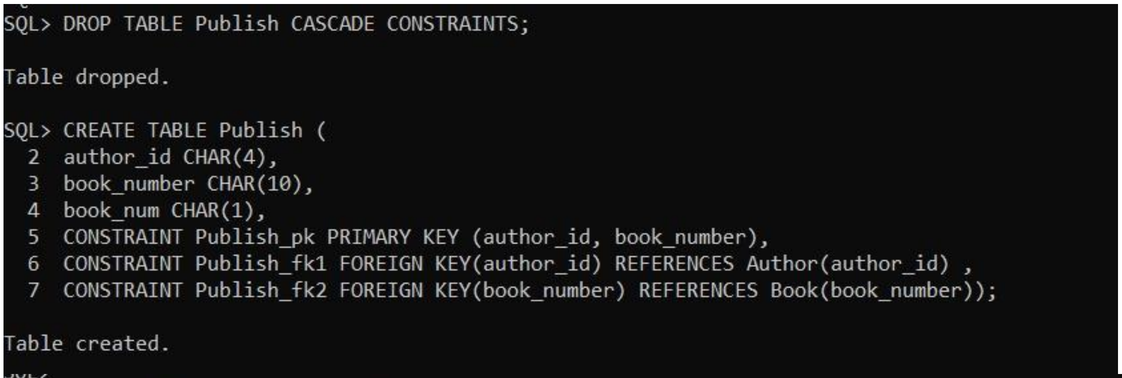
Create DB tables using DDL statements from the relational schema.
output for the creation **“from oracle”**:



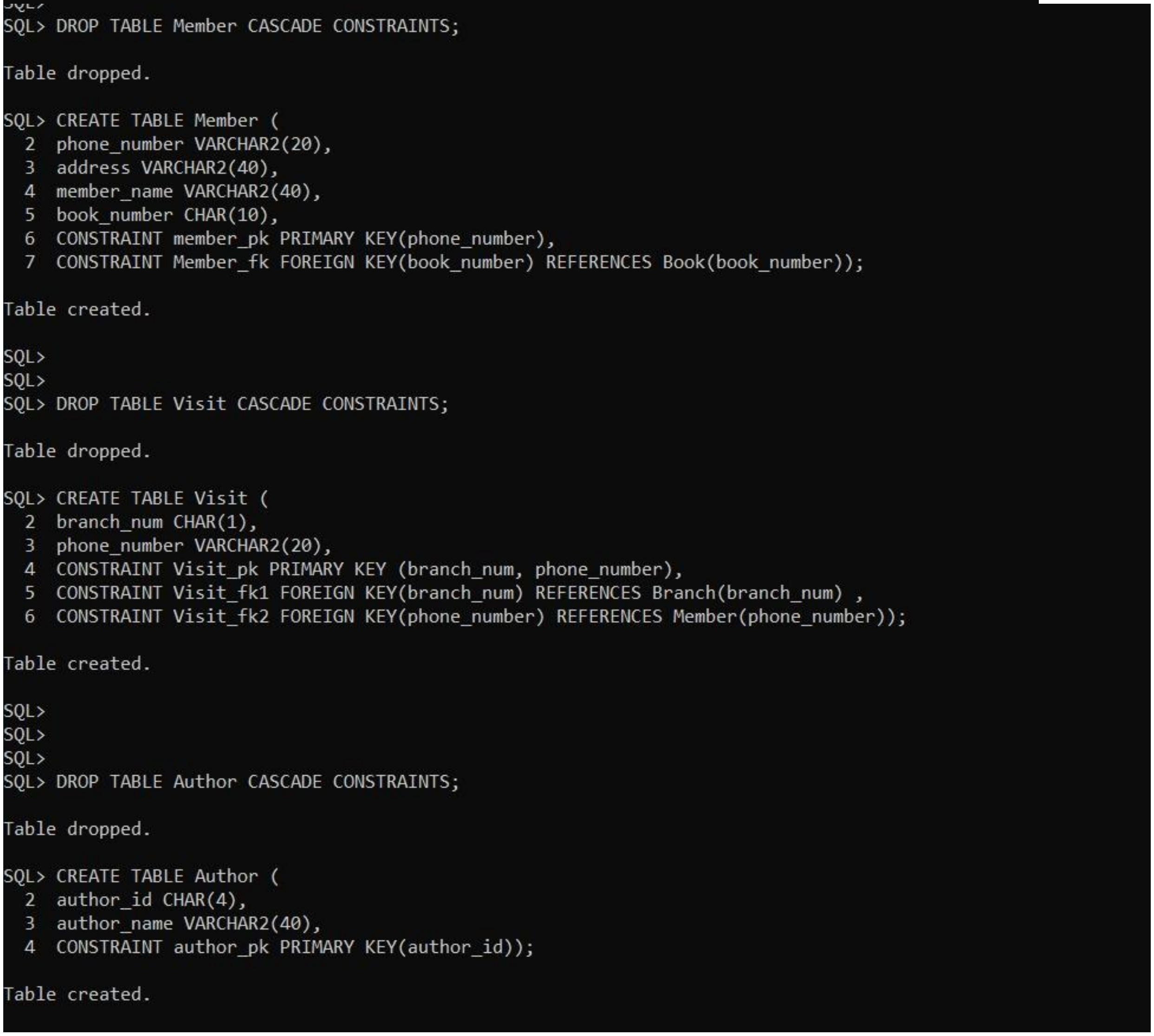
```
Connected.
SQL> --CREATE TABLE
SQL> DROP TABLE  Branch CASCADE CONSTRAINTS;

Table dropped.

SQL> CREATE table Branch (
     branch_num CHAR(1),
     branch_location VARCHAR2(9),
     CONSTRAINT branch_num_pk PRIMARY Key(branch_num));

Table created.

SQL>
SQL>
SQL> DROP TABLE Manger CASCADE CONSTRAINTS;

Table dropped.

SQL> CREATE table Manger (
     manger_id char(4),
     manger_name VARCHAR2(10),
     CONSTRAINT manger_id_pk PRIMARY Key(manger_id));

Table created.
```



```
SQL>
SQL> DROP TABLE Employee CASCADE CONSTRAINTS;

Table dropped.

SQL> CREATE table Employee (
     employee_id char(4),
     first_name VARCHAR2(10),
     last_name VARCHAR2(15),
     employee_salary NUMBER(5)CHECK(employee_salary>=10000),
     employee_email VARCHAR2(40),
     branch_num CHAR(1),
     employee_num VARCHAR2(10),
     manger_id char(4),
     CONSTRAINT employee_id_pk PRIMARY Key(employee_id),
     CONSTRAINT Employee_fk1 FOREIGN Key(Branch_num)REFERENCES Branch(Branch_num),
     CONSTRAINT Employee_fk2 FOREIGN Key(manger_id)REFERENCES Manger(manger_id));

Table created.

SQL>
SQL>
SQL> DROP TABLE Book CASCADE CONSTRAINTS;

Table dropped.

SQL> CREATE table Book (
     book_number char(10),
     title VARCHAR2(50) NOT NULL,
     book_price NUMBER(4),
     pages VARCHAR2(5),
     CONSTRAINT Book_pk PRIMARY Key(book_number));

Table created.
```



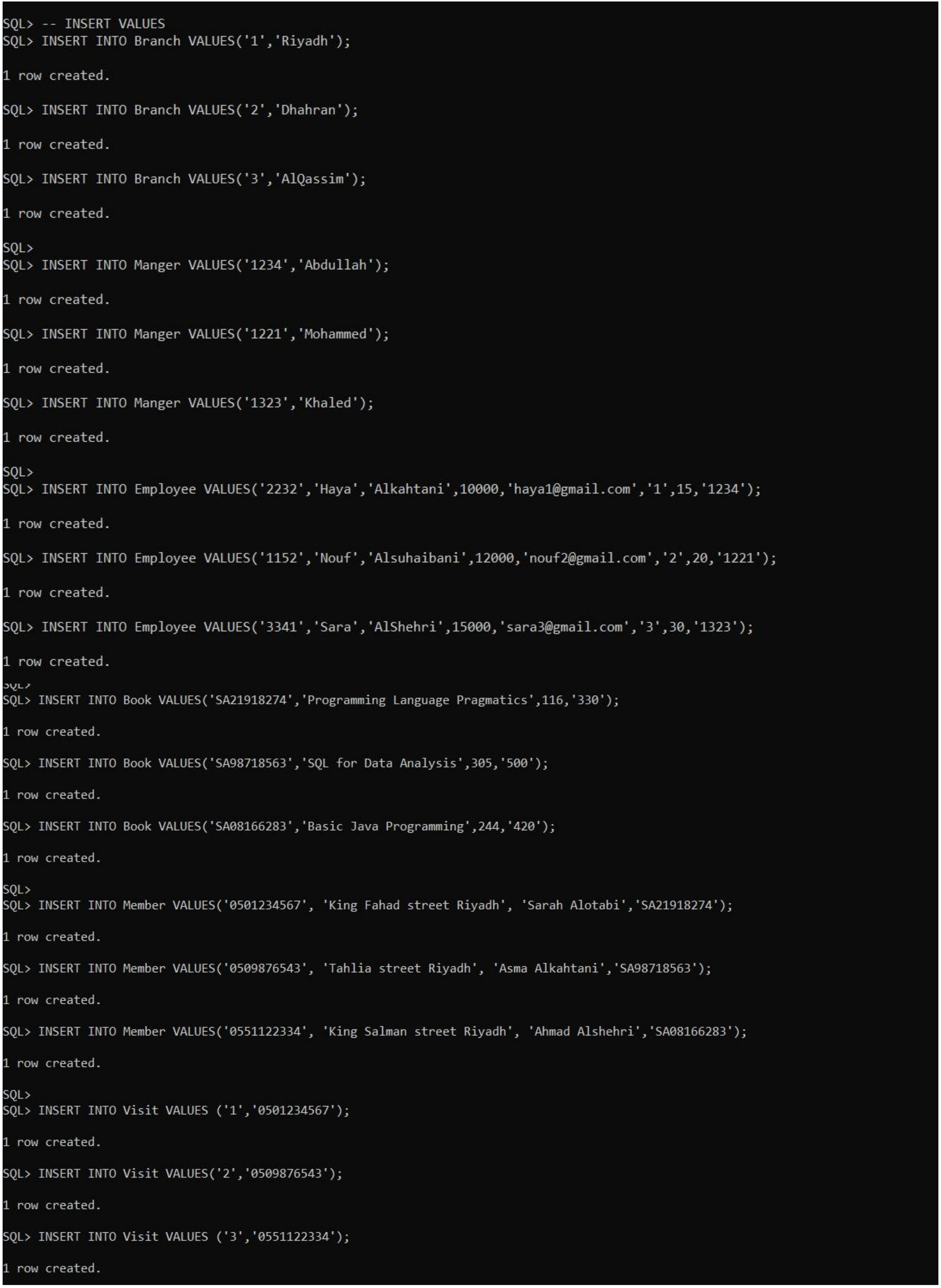
```
SQL> DROP TABLE Publish CASCADE CONSTRAINTS;

Table dropped.

SQL> CREATE TABLE Publish (
  2  author_id CHAR(4),
  3  book_number CHAR(10),
  4  book_num CHAR(1),
  5  CONSTRAINT Publish_pk PRIMARY KEY (author_id, book_number),
  6  CONSTRAINT Publish_fk1 FOREIGN KEY(author_id) REFERENCES Author(author_id) ,
  7  CONSTRAINT Publish_fk2 FOREIGN KEY(book_number) REFERENCES Book(book_number));

Table created.
SQL>
```



```
SQL> DROP TABLE Member CASCADE CONSTRAINTS;

Table dropped.

SQL> CREATE TABLE Member (
  2  phone_number VARCHAR2(20),
  3  address VARCHAR2(40),
  4  member_name VARCHAR2(40),
  5  book_number CHAR(10),
  6  CONSTRAINT member_pk PRIMARY KEY(phone_number),
  7  CONSTRAINT Member_fk FOREIGN KEY(book_number) REFERENCES Book(book_number));

Table created.

SQL>
SQL>
SQL> DROP TABLE Visit CASCADE CONSTRAINTS;

Table dropped.

SQL> CREATE TABLE Visit (
  2  branch_num CHAR(1),
  3  phone_number VARCHAR2(20),
  4  CONSTRAINT Visit_pk PRIMARY KEY (branch_num, phone_number),
  5  CONSTRAINT Visit_fk1 FOREIGN KEY(branch_num) REFERENCES Branch(branch_num) ,
  6  CONSTRAINT Visit_fk2 FOREIGN KEY(phone_number) REFERENCES Member(phone_number));

Table created.

SQL>
SQL>
SQL>
SQL> DROP TABLE Author CASCADE CONSTRAINTS;

Table dropped.

SQL> CREATE TABLE Author (
  2  author_id CHAR(4),
  3  author_name VARCHAR2(40),
  4  CONSTRAINT author_pk PRIMARY KEY(author_id));

Table created.
```

Insert 3 rows *AT LEAST INTO EACH TABLE*.

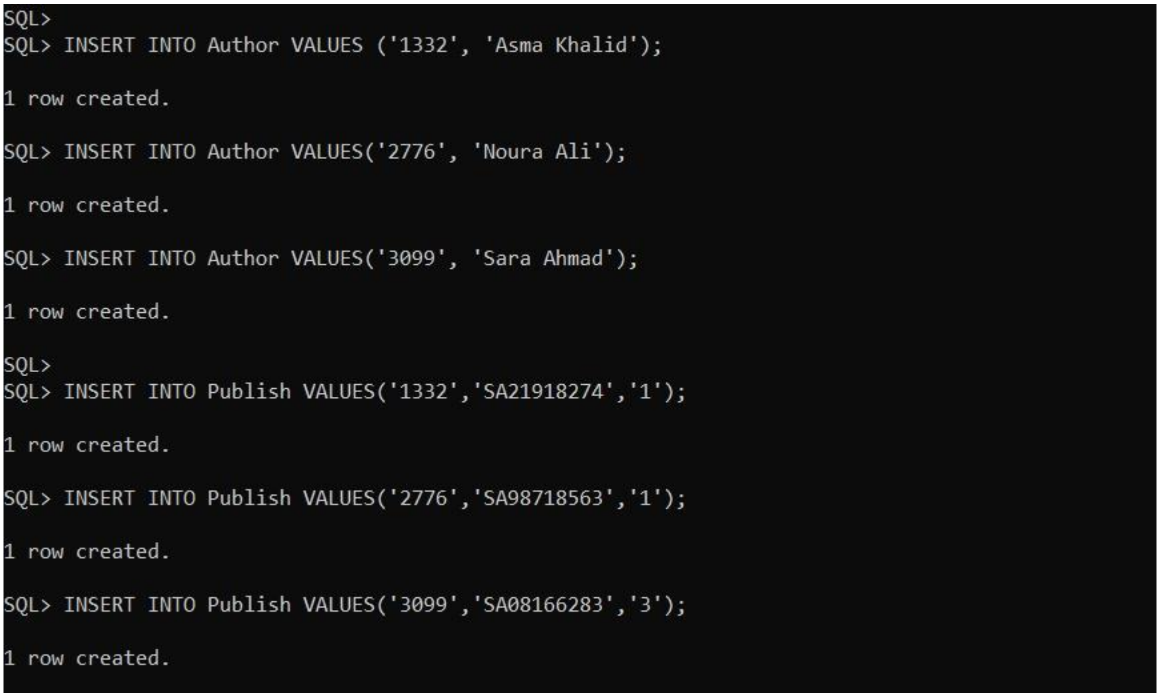
output for all the insertion **“from oracle”**:



```
SQL> -- INSERT VALUES
SQL> INSERT INTO Branch VALUES('1','Riyadh');

1 row created.

SQL> INSERT INTO Branch VALUES('2','Dhahran');

1 row created.

SQL> INSERT INTO Branch VALUES('3','AlQassim');

1 row created.

SQL>
SQL> INSERT INTO Manger VALUES('1234','Abdullah');

1 row created.

SQL> INSERT INTO Manger VALUES('1221','Mohammed');

1 row created.

SQL> INSERT INTO Manger VALUES('1323','Khaled');

1 row created.

SQL>
SQL> INSERT INTO Employee VALUES('2232','Haya','Alkahtani',10000,'haya1@gmail.com','1',15,'1234');

1 row created.

SQL> INSERT INTO Employee VALUES('1152','Nouf','Alsuhaibani',12000,'nouf2@gmail.com','2',20,'1221');

1 row created.

SQL> INSERT INTO Employee VALUES('3341','Sara','AlShehri',15000,'sara3@gmail.com','3',30,'1323');

1 row created.
SQL>
SQL> INSERT INTO Book VALUES('SA21918274','Programming Language Pragmatics',116,'330');

1 row created.

SQL> INSERT INTO Book VALUES('SA98718563','SQL for Data Analysis',305,'500');

1 row created.

SQL> INSERT INTO Book VALUES('SA08166283','Basic Java Programming',244,'420');

1 row created.

SQL>
SQL> INSERT INTO Member VALUES('0501234567', 'King Fahad street Riyadh', 'Sarah Alotabi','SA21918274');

1 row created.

SQL> INSERT INTO Member VALUES('0509876543', 'Tahlia street Riyadh', 'Asma Alkahtani','SA98718563');

1 row created.

SQL> INSERT INTO Member VALUES('0551122334', 'King Salman street Riyadh', 'Ahmad Alshehri','SA08166283');

1 row created.

SQL>
SQL> INSERT INTO Visit VALUES ('1','0501234567');

1 row created.

SQL> INSERT INTO Visit VALUES('2','0509876543');

1 row created.

SQL> INSERT INTO Visit VALUES ('3','0551122334');

1 row created.
```

Insert 3 rows *AT LEAST INTO EACH TABLE*.

- output for all the insertion **“from oracle”**:



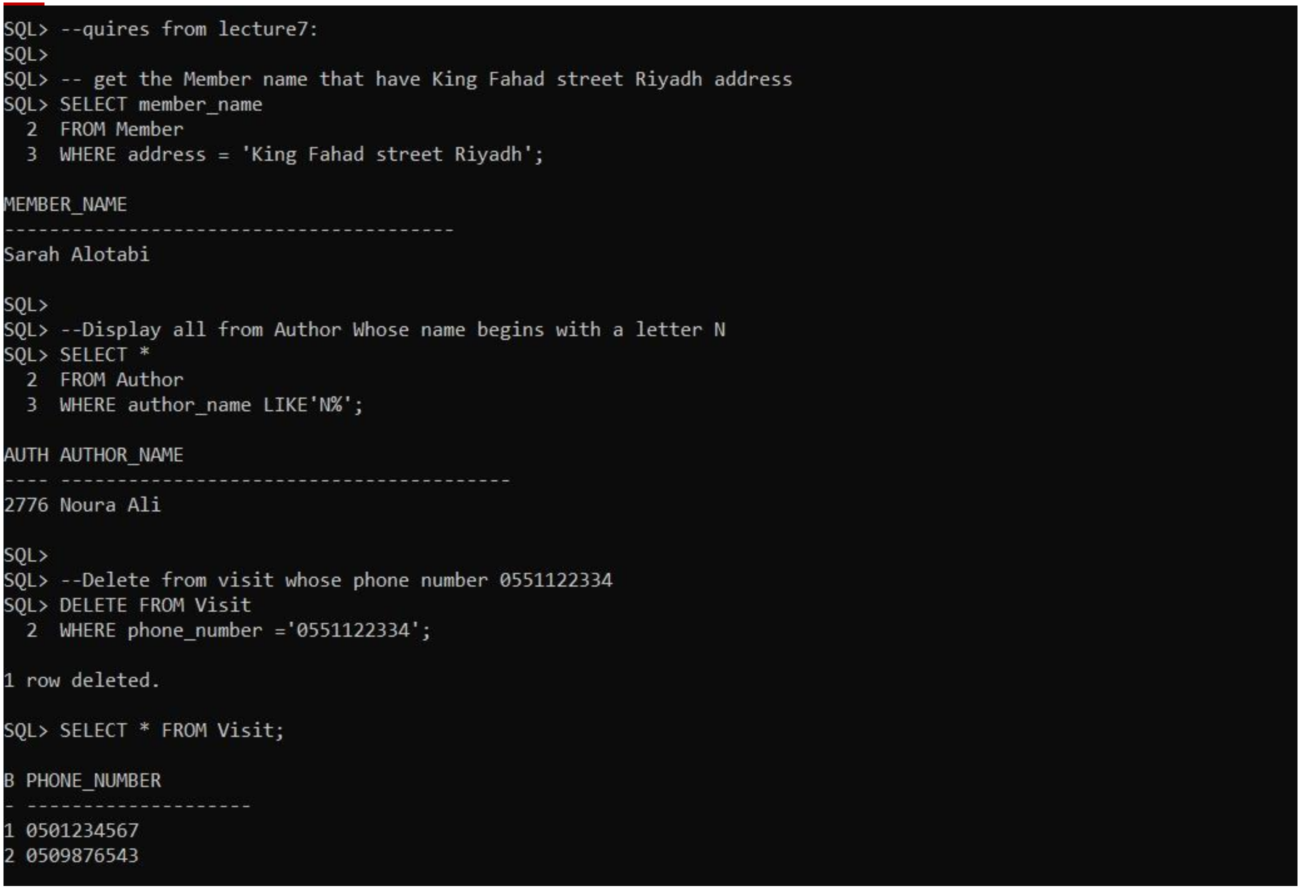
```
SQL>
SQL> INSERT INTO Author VALUES ('1332', 'Asma Khalid');

1 row created.

SQL> INSERT INTO Author VALUES('2776', 'Noura Ali');

1 row created.

SQL> INSERT INTO Author VALUES('3099', 'Sara Ahmad');

1 row created.

SQL>
SQL> INSERT INTO Publish VALUES('1332','SA21918274','1');

1 row created.

SQL> INSERT INTO Publish VALUES('2776','SA98718563','1');

1 row created.

SQL> INSERT INTO Publish VALUES('3099','SA08166283','3');

1 row created.
```

DML Commands:

***Write** and **execute six** data queries:*

Three quires from **lecture7**:

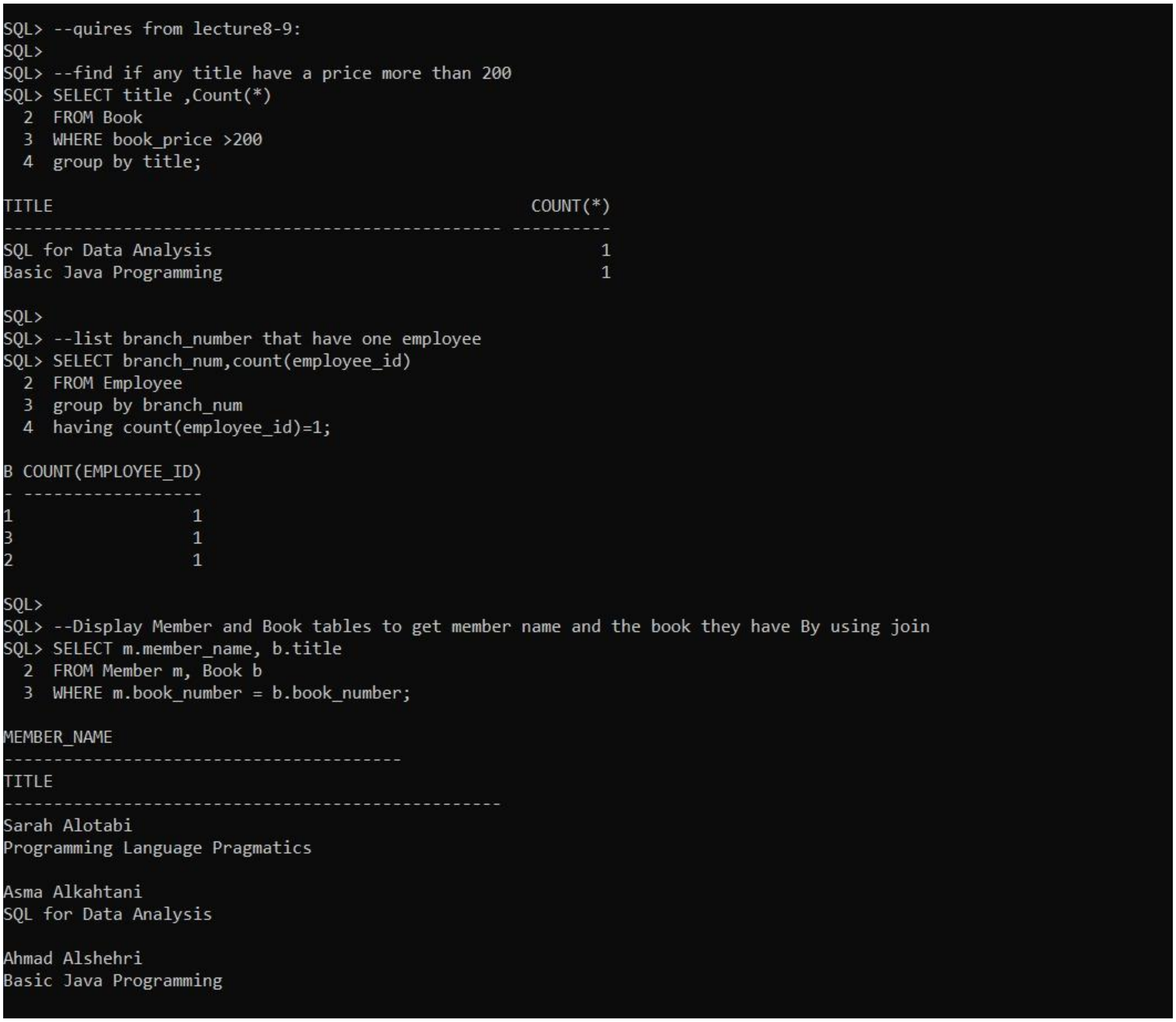
All of them should include ***where*** *clause*



```
SQL> --quires from lecture7:
SQL>
SQL> -- get the Member name that have King Fahad street Riyadh address
SQL> SELECT member_name
  2  FROM Member
  3  WHERE address = 'King Fahad street Riyadh';

MEMBER_NAME
----------------------------------------
Sarah Alotabi

SQL>
SQL> --Display all from Author Whose name begins with a letter N
SQL> SELECT *
  2  FROM Author
  3  WHERE author_name LIKE'N%';

AUTH AUTHOR_NAME
---- ----------------------------------------
2776 Noura Ali

SQL>
SQL> --Delete from visit whose phone number 0551122334
SQL> DELETE FROM Visit
  2  WHERE phone_number ='0551122334';

1 row deleted.

SQL> SELECT * FROM Visit;

B PHONE_NUMBER
- --------------------
1 0501234567
2 0509876543
```

Three quires from **lecture8-9**

- **At least one** of them should include ***group by clause***, and **one of them** should include ***group by and having clauses. And join or subquery***



```
SQL> --quires from lecture8-9:
SQL>
SQL> --find if any title have a price more than 200
SQL> SELECT title ,Count(*)
  2  FROM Book
  3  WHERE book_price >200
  4  group by title;

TITLE                                                COUNT(*)
-------------------------------------------------- ----------
SQL for Data Analysis                                       1
Basic Java Programming                                      1

SQL>
SQL> --list branch_number that have one employee
SQL> SELECT branch_num,count(employee_id)
  2  FROM Employee
  3  group by branch_num
  4  having count(employee_id)=1;

B COUNT(EMPLOYEE_ID)
- ------------------
1                  1
3                  1
2                  1

SQL>
SQL> --Display Member and Book tables to get member name and the book they have By using join
SQL> SELECT m.member_name, b.title
  2  FROM Member m, Book b
  3  WHERE m.book_number = b.book_number;

MEMBER_NAME
----------------------------------------
TITLE
--------------------------------------------------
Sarah Alotabi
Programming Language Pragmatics

Asma Alkahtani
SQL for Data Analysis

Ahmad Alshehri
Basic Java Programming
```