

# National University of Computer and Emerging Sciences



## In Lab 3

“Introduction to Set Operations and Joins”

### Database Systems Lab

Course Instructor	
Lab Instructor (s)	
Section	
Date	
Semester	

Department of Computer Science  
FAST-NU, Lahore, Pakistan

## Exercise

Consider the project like Netflix where users can purchase/rent online movies

>>User has to Signup to use netflix, following information of account holder is save

UserID  
Name  
EmailAddress  
SignupDate

>>A user can rent movies from the available list of movies, following information of movies is maintained

MovieID  
MovieTitle  
MovieCategoryID (this can be null a movie might not have nay category)  
RentalRatePerDay

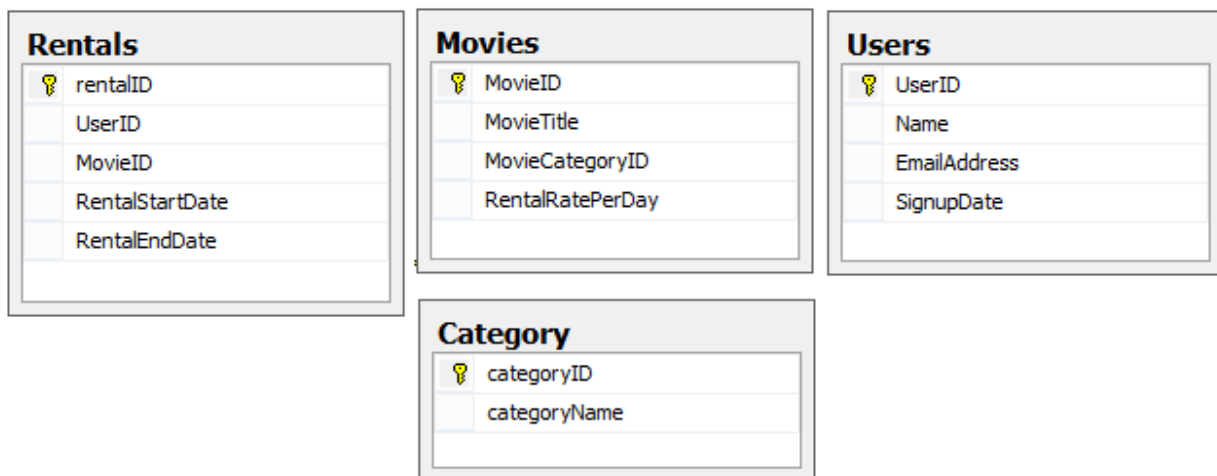
>>List of categories/ Genre of movie will be kept in this separate table

categoryID  
categoryName

>>Following information of rentals is mantained

RentalID  
UserID (who rented the movie)  
MovieID  
RentalStartDate  
RentalEndDate

Following diagram shows schema



### **Task-I**

Create the tables for given schema, Also identify and apply FK relationships. Insert the data as given in Appendix A

### **Task-II**

Write the queries for following statements

- 1) Display the user ID and name of users from table Users. The names of users should be in uppercase.
- 2) Show the movie titles and their Rental Rate Per Week.
- 3) Display the movie Ids that user Id 3 has rented.
- 4) Display all the users who have rented any movie but no user Id should be repeated in the result. (Hint: 'Distinct' keyword).
- 5) Display the users who have signed up in the year 2017.
- 6) Display the names and the rental rate of the movies whose rental rate is less than 5.
- 7) Show the users who have never rented any movie. (Hint: Set Operations).
- 8) Display the user Ids of those who have rented movies with id 1 and 5.
- 9) Display the category IDs with no movie listings.
- 10) Find the Category IDs that have character 'c' in category name. Display the index number of character 'c' in the name.
- 11) Display the users who have account on gmail.
- 12) Display All the category IDs from Movies' record and their titles. In case a category Id is null, show zero instead.
- 13) Find the number of days UserId 1 rented movie Id 2.

### **Task-III**

For this exercise use the following schema, the script to create this schema and populate data is given in ATM.SQL file

	userId	name	phoneNum	city	
1	1	Ali	03036067000	Narowal	User
2	2	Ahmed	03036047000	Lahore	
3	3	Aqeel	03036063000	Karachi	
4	4	Usman	03036062000	Sialkot	
5	5	Hafeez	03036061000	Lahore	

	userId	cardNum	
1	1	1234	UserCard
2	1	1235	
3	2	1236	
4	3	1238	

	cardNum	cardTypeID	PIN	expireDate	balance	
1	1234	1	1770	2022-07-01	43025.31	Card
2	1235	1	9234	2020-03-02	14425.62	
3	1236	1	1234	2019-02-06	34325.52	
4	1237	2	1200	2021-02-05	24325.3	
5	1238	2	9004	2020-09-02	34025.12	

	cardTypeID	name	description	
1	1	Debit	Spend Now, Pay Now	CardType
2	2	Credit	Spend Now, Pay later	

	transId	transDate	cardNum	amount	
1	1	2017-02-02	1234	500	Transaction
2	2	2018-02-03	1235	3000	
3	3	2017-05-06	1236	2500	
4	4	2016-09-09	1238	2000	
5	5	2015-02-10	1234	6000	

#### **Task-IV (Using Joins)**

- 1- Show the User names and their Card Numbers.
- 2- Display the balance of all the card numbers. Also show the card Types(Credit/Debit).
- 3- Display the card numbers and the transactions. If a card has not done any transaction, show Null.
- 4- Display all the users, their cards numbers and respective transactions. If a user has not done any transaction, show Null; if a user has no cards, Show Null.
- 5- Show the name of those users who do not possess any card.
- 6- Show the number of that card with user name whose balance is in the range (Min: 2000, Max: 4000)
- 7- List the user id, name, phone number, city of those users whose card is expiring within the next 3 months. Also show the card number along with card type name. (Do not hardcode months)

## Appendix A

### Data for Exercise Questions

insert into Users values

```
(1,'bob','bob@gmail.com','1-1-2016'),  
(2,'Tom','tom@yahoo.com','1-2-2017'),  
(3,'Alice','alice@gmail.com','1-6-2014'),  
(4,'Jim','Jim@ymail.com','1-6-2017')
```

insert into Category values

```
(1,'Horror'),(2,'Comedy')  
,(3,'Animated')  
,(4,'Action')
```

Insert into Movies

values

```
(1,'MI-I',4,3.3),  
(2,'MI-II',4,4.3),  
(3,'MI-III',4,5),  
(4,'horton hears a who',3,5.0),  
(5,'sherk-2',3,5.0)
```

Insert into Movies values (6,'xyz',null,10)

Insert into rentals values (1,1,1,'1-6-2019','1-10-2019')

Insert into rentals values (2,1,1,'2-7-2018','2-10-2018')

Insert into rentals values (3,1,2,'3-8-2018','2-13-2019')

Insert into rentals values (4,2,3,'4-9-2019','4-15-2019')

Insert into rentals values (5,3,1,'1-7-2018','1-30-2018')

Insert into rentals values (6,3,5,'2-8-2018','2-21-2018')

Insert into rentals values (7,3,6,'2-8-2019','2-21-2019')