Lab 03	CSE 206 Database Management System
Winter'2015, PM Jat, DA-IICT	

This week also continue working on "Operations on Relations" in Algebra and SQL. Important Note: Do it in Relational Algebra first, try to convert algebra expressions into SQL.

1. Considering acad scenario, write down queries in relational algebra and SQL for following queries-
   a. List IDs of students who have taken courses in 'MT101' or have taken 'MT104'
   b. List IDs of students who have taken courses in 'MT101' and also have taken 'MT104'
   c. List IDs of students who have taken courses in 'MT101' but have not taken 'MT104'
   d. List IDs of students who have taken courses in 'MT104' but have not taken 'MT101'
   e. List ID, and Name of students who have taken courses in 'MT101' and also have taken 'MT104' of 2007 batch
   f. List name and dname of employee who does not work on any project
   g. List student have scored AA in all courses in Semester Autumn 2008
   h. List student have scored AA or AB in all courses in Semester Autumn 2008
   i. List all courses offered by Prof 'P. M. Jat' from Autumn 2007 to Summer 2011
   j. List prog-ids and batches of students who have taken all courses offered by Prof 'P. M. Jat' from Autumn 2007 to Summer 2011 *
   k. List IDs of students of B.Tech.(CS) batch 2007 having SPI >= 6 in all semesters
   l. List IDs of students of B.Tech.(CS) batch 2007 not having any F grade

   An instance of acad schema has been created on your postgresql server (Database name: public and schema name acad). We are in the process of adding more data

2. Considering following set of relations from database of MyFaceBook -

user(uid:int, name:varchar, email:varchar, joindate:date, city:varchar)

-- represents all users/members registered with MyFaceBook

city(cityname: varchar, country: varchar)

-- based on assumption that city name is unique !

friend(id:int, fid:int, since:date, messages_in:int, messages_out:int)

-- Semantics of attributes: **id** has a set of friends identified by **fid** since **since**, **message_in** and **message_out** are counts of incoming and outgoing communications respectively, between **id** and **fid**.

--FKs: **id** and **fid** of friend refers to **user(uid)**, and **city** of user refers to **city(cityname)**

   a. List friends (name, email) of uid 12345, that are older than one year
   b. List common friends (name, email) of uid 12345 and uid 23456
   c. Lids users (name, email) of user having all friends of uid 12345

d. Lids users (name, email) of friends of uid 12345 with whom 12345 had no communication either way)
e. List friends (name, email) of friends of uid 12345, that are from same country as of uid 12345
f. List friends (name, email) of friends of uid 12345, that are not from same country as of uid 12345
g. List users (name, email) that have no friends from outside of their own country