Middle East Technical University

CENG 302

Introduction to Database Management Systems

Spring 2021-2022

Homework 2

Due Date: 14 December 2021, Tuesday

In this assignment, you are required to write SQL queries and relational algebra statements.
Please answer the questions according to the relations below and refer to the case study provided in the first assignment for the explanations of the tables below.

Registered (e-mail, Title, Name, Surname, Birth, Nation, Address, Phone, JobNotification, ActivityNotification)

Registered_Preferred_Disciplines (e-mail, MainCategory, SubCategory)

Authorised_Country (e-mail, Country)

Resume (e-mail, Rname, Profile, Qualification, CurTitle, Experience, Salary, JobSought, Relocation, NumOfView)

JobAd (Id, Title, Description, JobType, City, Country, PostDate, CloseDate, RecruiterName, Fee, RegNo, TotalFee)

JobAd_Category (Id, MainCategory, SubCategory)

PremiumAd (Id, Logo, Visit)

Recruiter (RegNo, Name, City, Country, Address, Cname, Csurname, Ctitle, Cphone, C_e-mail)

Research_Institute (RegNo)

University (RegNo)

Activity (RegNo, Aname, Description, Category, RegDeadline, Venue, Cost, StartDate, EndDate, Web)

Conference (RegNo, Aname, SbmDeadline, NtfDeadline, EarlyReg)

Workshop (RegNo, Aname)

Summer_School (RegNo, Aname, Organizer, Program, e-mail)

Training (Reg No, Title, Description, Program, Category, Sdate, Edate, University, Fee, Trainer Name, Trainer Surname, Trainer e-mail)

Apply_For (e-mail, JobId, Letter)

Enrol (e-mail, RegNo, Title)

A. Give an expression in SQL for each of the following queries.

1. Find the e-mail and salary of all registered users whose preferred sub-discipline is "Computer Engineering" and who have been authorised to work in Germany.

2. Find the name of the universities which organized conference under category A.

3. Find the recruiter names of all premium job ads which is not visited by any users.

B. Give an expression in relational algebra for each of the following queries.

4. Find the name of the research institutes which organized only workshops.

5. Find the name of the registered users who applied for all the lecturer positions under the subcategory "Biology" posted by METU.

C. Give expressions in SQL and relational algebra for each of the following queries.

6. Find the second maximum value of the average salary per main category in which registered users prefer to work.

7. Find the name of the trainer, title and the number of trainees for each training program with over 30 enrolled users.

8. Find the name and surname of all registered users who have not uploaded any resume yet.

9. Find the name and surname of all registered users who have been authorised to work in at least one country other than his/her home country.

2. **Submission**

- Please send your solutions as a single pdf document.
- Submit it to Odtuclass by giving a name of your id. For example,

    hw2_1234567.pdf

3. **Regulations for HW2**

- The assignment must be completed individually; copying from others is strictly forbidden.
- You have to submit your homework as a soft copy through Odtuclass.
- As stated in the syllabus, the following lateness policy will be applied for assignment submissions.
  - Late assignments are penalized up to 20% per day.