IŞIK UNIVERSITY
COMPUTER SCIENCE AND ENGINEERING

Conceptual and Logical Design

Steps:

a. Draw an ER/EER diagram according to the list of requirements given below.
b. Convert your ER/EER diagram to a relational database schema.

Deliverables: <u>EER diagram and relational schema</u>. Hand-written scanned documents will NOT be accepted, please use the drawing tools. (creately.com is recommended since it offers the toolbox for the notation we have used)

Design a database for a job postings application (e.g., kariyer.net, yenibiris.com, etc.) based on the following requirements:

- An end-user is someone looking for a job. Every end-user has a first name, last name, username, password, and multiple e-mail addresses.
- For male end-users, there is an additional piece of information that is of interest: military service status. Military service status is one of (a) completed, (b) delayed, or (c) exempt.
- A company has a name, a company identifier (in short, CID), a phone number and an address.
- End-users are not necessarily unemployed. Some are interested in finding a better position. For these, the system keeps the employer's information (which is a company) and the date employment began.
- End-users may have never worked.
- If an end-user has previous work experience, the system stores the company's information, period of employment (begin and end date, and the duration of employment) and the position. The end date field cannot be NULL.
- An end-user may have been hired-by/fired-from a company many times. Similarly, an employee may have worked at different positions in the same company.
- Job postings have a unique identifier (in short JID). Every posting specifies the company information, a contact phone number for the applicants to call, salary information, contract type (i.e. full time, part time, internship), a textual description of the job, and the duration the posting will be kept open.
- Some job postings announce multiple openings (e.g., "we are looking for 3 cooks"). This number is specified when the announcement is made and the database keeps this information in a separate field of the job posting.
- For manager jobs, the name of the department to be managed and its size(number of people working in that department) is also stored. Note that, manager jobs cannot be part time contracted.

"No one in the brief history of the computing has ever written a piece of perfect software. It is unlikely that you'll be the first." Andy Hunt

- Every job posting is posted by a Human Resources representative (in short, an HRR). An HRR has a unique username, password, first name, last name and e-mail address.

- An HRR might have an end-user profile within the system. However, the login (username/password) for this profile is different.

- If an HRR also has an end-user account, the system can link these two accounts. In other words, the database keeps information explaining which HRR profile corresponds to which end-user profile (if any).

- Some HRRs work for multiple companies. Every HRR works for at least one company.

- The system does not keep a separate table indicating "which HRR works for which company". This information is rather inferred from "which HRRs posted a job listing for a company".

- End-users can apply to job postings. An end-user can apply to a job posting only once. An end-user can apply to multiple different job postings. For each application, the date and a textual field that stores the resume submitted by the end-user are stored in the system.

- If an end user is applying for internship position, in addition to the general application procedure described above, the applicant's education info is also asked to enter; the university and the program s/he is studying, GPA, standing, number of days, and some particular courses (optional).

- **Do not assign auto-increment type of keys to any of the entities described above.**