Operating system used: Mac

Short description of each table:

Applicant_details

- This table includes information of applicants, including aid(applicant id), their first name surname, address and phone number

Job_description_details

- This table includes information of jobs, including uid(which university offer this job), jtype(the type of that job) and jid(the unique identifier for each type of job provided by a particular university)

Job_required_skills

- This table includes information of what skills each job require, represented by jid(job id) and sid(skill id) respectively.

Skills

- This table includes information of all skills available, represented by sid(skill id) and skills (skill type). These skills might be required for jobs, or own by applicants.

University_details

- This table includes information of universities, represented by uid(university id), their name, address and phone number

Applicant_Skills

- This table includes information of what skills each applicant have, represented by aid(applicant id) and sid(skill id) respectively.

Applicant_applied_job

- This table includes information of which applicant apply for which job, represented by aid(applicant id) and jid(job id) respectively.

Interview_Details

- This table includes information of interviews, each interview is unique and identified by jid(the particular job), aid (the applicant id) and i_Round(the interview round). This indicates that only one applicant are interviewed in each of them, i.e., they are all individual interview. Additional information in this table includes date ,time, venue and language of the interview.

Hire

- This table includes information of whether applicants got an offer from the job that they applied and invited to interviews, which means if they are not invited to interview at all, result of that application will not be shown in this table at all.

General assumptions made:

1. The same person can have more than one job offer for the same school

2. Every applicant will participate an interview if he/she receive an invitation to that interview.

3. Applicants have to go through all the interview round (if any) in order to get a job offer.

4. University will only invite those who meet all the requirements(have all the skills) of the job to attend the corresponding interview, but there is no guarantee that the university will invite applicants who meet requirements to attend all interview rounds of a job, it depends on the performance of that applicant in interview, i.e., applicant cannot be guarantee to have a job offer even though they have all the required skills of that job.

5. Applicants who are invited to an interview must apply the corresponding job first, but applying for the job does not necessarily mean that there is an interview opportunity, see (4). In other words, the number of application must be >=invitation(round is not counted in this comparison).

6. The skills required by different universities for the same job are not necessarily the same.

7. I created an extra "Hire table" to state whether an applicant get the offer instead of placing the offer column in the "Applicant_applied_job table" is because I think applicants has to attend the interview first then can say if there is an offer. In other words, it makes not sense to state whether they have an offer or not if they don't even have interview opportunity for that job.

8. In stored procedures, I assume all " Find the universities/applicants/job descriptions/ interviews by a given…" means list all information of the row that meet the requirement , eg, "Find the universities with a given name" means list out the id, phone number, address and name of that university with a given name rather then just show the "name" of that university.

9. Based on the assumption in 8, the store procedure "Find the job descriptions requiring a given skill." means jid(job id), jtype(job type) uid(university id) and **all skills** required for that job descriptions should be list out, so although the output might seems a bit redundant, it shows all required job information based on my above assumption.

Assumptions regarding foreign keys and reaction policies:

In all table, if foreign key is set on delete cascade and on update cascade, that is because I think that information in that child table should change if the same information in parent table change. For example, in "Interviews_details table", foreign key aid and jid are from "Applicant_applied_job table", they are both cascade because if applicants change their mind and cancel the application of one job such that no one applies for this job, the corresponding interview won't exist at all.

For all other selection of on update and on delete other than cascade, I will explain each of them respectively:

1. jid in "Applicant_applied_job table" is on update restrict, because it is uncertain that if the details of the job change, the applicant will still apply or not, so whenever the university change the job details after the applicant applied for the job, they must inform the applicant first and let the applicant decide whether they would still apply or not, instead of simply cascade that information changed without any notification to the applicants.

2. sid in both "Job_required_skills table" and "Applicant_Skills table" are on update restrict and on delete restrict, because the skills of applicants can not be deleted or changed from the skills table(parent table), it can only be altered/deleted in the child table itself when the applicant lose/gain a skill. Similarly, he skills needed for a job can not be deleted or changed from the skills table, it can only be altered/deleted in the child table itself when the university decide the job doesn't require a skill anymore or need an extra skill.

3. Jid and aid of "Interview_Details table" are foreign keys and from Applicant_applied_job, it is because if applicant decide not to apply for that job, corresponding interview should also be deleted/changed. Similarly, jid and aid of "Hire table" are foreign keys and from "Interview_Details table" because when that interview changed/deleted, the status of offer should also be changed.