iHelper

COMP2411 Project Report

Group 8

7 Dec 2017

1. **Group Information**
   a. **Group Number:** 8
   b. **Group Member:**
      - ZHANG Hanyu (Leader)
        Role: Back-end Development (Job Board) & Integration & Testing & Database Implementation
      - JAHJA Darwin
        Role: Back-end Development (Administrator) & Database Programming
      - LI Honglong
        Role: Back-end Development (Student) & Database Programming
      - LIAO Zhengyun
        Role: Back-end Development (Supervisor) & Database Programming

2. **Introduction**
   a. **Client company:** Human Resources Office of University
   b. **Organization background**
      The university provides part-time jobs for its students. In this case, a part-time job management system is needed for students, supervisors of part-time jobs and the head of departments.
   c. **Motivation and objectives**
      To construct a full-featured student helper system which covers before-application, in-application and after-application functions.
   d. **The structure of the system**
      i. **Student**
         1. **Job Board**
            a. View
               i. All available jobs in a list
                  *Jobs which is not attended or applied and is satisfied with:
                  1. Major requirements (if any)
                  2. Language requirements
                     a. Cantonese
                     b. English
                     c. Putonghua
                  3. Minimum study year requirement
               ii. Details of each job

      b. Filter
         i. IsContinuous
         ii. LangPreference
         iii. IsReqInterview
      c. Sort
         i. JobHrSalary

2. Application
      a. Submit application
         i. Cover letter (optional)
     CV is included.
      b. View status
         i. Submitted information
         ii. Application result

3. Interview
      a. View status
         i. Interview Arrangement
            1. Date and time
            2. Venue
         ii. Interview result
      b. Choose interview session

4. Management of all attended jobs
      a. Job Session
         i. View session arrangement
            1. Date and time
            2. Venue
         ii. View attendance record
      b. View job announcements
      c. View job contracts
      d. View overall expected salary in the current month
      e. Leave application
      f. View performance reviews
         i. Raise objections to the records (to Supervisor)
       Two opportunities for each record

5. Personal informaion management
      a. View all personal information
      b. Modify:
         i. Contact Information (PhoneNo, Email, Address)
         ii. CV
         iii. Language Preference (Good/bad)
            1. Cantonese
            2. English
            3. Putonghua

ii. **Supervisor**
1. **Job Board**
   a. View all jobs
   b. Create
   c. Modify information of jobs **which is under supervision**
   d. Remove: Only available to the creator of the job
2. **Application management**
   a. View all applications of the jobs under supervision
   b. View personal informations of the applicants
   c. Grading & evaluation
   d. Approve the applications
   e. Arrange interview sessions
   f. Interviewee allocation
      i. Free selection by student:
         1. deadline
      ii. manual allocation after deadline
3. **Interview management**
   a. View all interview sessions of the jobs under supervision
   b. View personal informations of the interviewees
   c. Grading & evaluation
4. **Job management**
   a. All helpers in the job (Contracts)
      i. Sign the contracts
      ii. Write performance reviews:
         1. Positive/negative/neutral records
         2. Raise objections to the records
         Two opportunities for each record
      iii. Terminate the contract
   b. Announcements
      i. Create
      ii. Modify
      iii. Delete
c. Leave requests
      i. Approve/Disapprove requests
      ii. View all approved leaves
iii. **Administrator (Departmental/Super)**
1. **Job Board**
   a. View and manage **ALL** jobs
   b. Remove jobs
2. **Personal information:**
   a. View and modify **ALL** information of all students*

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b. View and modify **ALL** information of all supervisors*

3. **Verify the sensitive operations of supervisors** (underlined above)**:**
   a. Create a job
   b. Modify the information of a job
   c. Deactivate a job
   d. Approve an application
   e. Sign a contract
   f. Terminate a contract

* Administrator is able to view all related information

4. **Review objections towards the performance records:**
   a. **Approve**: invalidate the record
   b. **Disapprove**: remain the same
   c. Reply to the objections

3. **Functional requirements:**

* Since we are using Oracle Database, all database functions are packed into Oracle procedures and functions. The descriptions of the Oracle procedures are below.

a. **Job Board**

   i. **View**
      1. `JOB_LIST.VIEW_JOBS`
         To view all available jobs for the current user
      2. `JOB_LIST.COUNT_JOBS`
         Return the total number of the jobs on the job board
      3. `JOB_LIST.VIEW_JOB_DETAIL`
         To view the detail of a specified job
      4. `SUPE_ACCESS.SHOW_SUPERVISOR_JOB`
         To view all jobs supervised by the current supervisor.

   ii. **Create**
      1. `JOB_LIST.ADD_JOBS`
         To add jobs.
      2. `JOB_LIST.ASSIGN_SUPERVISOR`
         To assign supervisors to a specified job.

   iii. **Modify**
      1. `JOB_LIST.UPDATE_JOB`
         To modify the detail of a specified job.
      2. `JOB_LIST.CLOSE_JOB`
         To make the specified job unable to apply.
      3. `DESTROY.DJOB_SUPERVISOR`
         To remove a supervisor from a specified job.

   iv. **Remove**
      1. `DESTROY.DJOB_REQUEST`
         To submit a remove request to administrator for supervisors.

    2. `DESTROY.DJOB`

    To remove a job for administrators.

b. Student

  i. Application

    1. `JOB_APPLY.SUBMIT_APP`

    To submit the application to a specified job.

    2. `JOB_APPLY.APP_INFO`

    To view the submitted information of a specified application.

    3. `JOB_APPLY.APP_RESULT`

    To view the result of a specified application.

  ii. Interview

    1. `JOB_APPLY.INT_STATUS`

    To view the detail of the allocated interview of a specified application.

    2. `JOB_APPLY.INT_RESULT`

    To view the result of the interview of a specified application.

    3. `JOB_APPLY.CHOOSE_SESSION`

    To choose a interview session of a specified application.

  iii. Management of all attended jobs

    1. `JOB_MANAGE.VJOBSESSION`

    To view all the job sessions of a specified job.

    2. `JOB_MANAGE.VATTENREC`

    To view the attendance record of a specified job.

    3. `JOB_MANAGE.VANNO`

    To view the announcements of a specified job.

    4. `JOB_MANAGE.VCONTRACT`

    To view the contract of a specified job.

    5. `JOB_MANAGE.MONSALARY`

    To view the expected monthly salary of a specified job.

    6. `JOB_MANAGE.TAKE_LEAVE`

    To submit a leave request of a specified job.

    7. `JOB_MANAGE.VPERREVIEW`

    To view the performance records of a specified job.

  iv. Personal informaion management

    1. `JOB_MANAGE.VPERSONINFO`

    To view his/her personal information.

    2. `UPDATE_PEOPLE.IADDRESS`

    To update his/her address.

    3. `UPDATE_PEOPLE.ICONINFO`

    To update his/her phone number and email address.

    4. `UPDATE_PEOPLE.ICV`

    To update his/her CV.

5. `UPDATE_PEOPLE.ILANGPREINFO`
   To update his/her language preferences.

c. Supervisor

    i. Application management

        1. `SUPE_ACCESS.SHOW_SUPERVISOR_JOB_APP`
   To view all applications of the jobs under supervision

        2. `SUPE_ACCESS.SHOW_PI_APPLICANTS`
   View personal informations of the applicants

        3. `JOB_APPLY.SCORE_APP`
   Grading & evaluation

        4. `JOB_APPLY.ADD_INTSESSION`
   `JOB_APPLY.CHANGE_SESSION`
   `JOB_APPLY.UPDATE_INTSESSION`
   `INTERSS_CHECK`
   Arrange interview sessions

        5. `ADDINTER`
   `DINTER`
   Interviewee allocation

    ii. Interview management

        1. `SUPE_ACCESS.SHOW_INTER_SESSION`
   View all interview sessions of the jobs under supervision

        2. `JOB_APPLY.SCORE_INTERVIEW`
   Grading & evaluation

    iii. Job management

        1. All helpers in the job (Contracts)

            a. `JOB_MANAGE.SIGN_CONTRACT`
      Sign the contracts

            b. `JOB_MANAGE.TAKE_RECORD`
      Write performance reviews:

            c. `JOB_MANAGE.SUPERVISOR_OBJECT`
      Raise objections to the records

            d. `JOB_MANAGE.TERMINATE_CONTRACT`
      Terminate the contracts

        2. Job sessions

            a. `JOB_MANAGE.ADD_JOB_SESSION`
      Create sessions

            b. `JOB_MANAGE.UPDATE_ATTENDANCE`
      `JOB_MANAGE.VATTENREC`
      Attendance management

        3. Announcements

            a. `JOB_MANAGE.ADD_ANNOUNCEMENT`
      Create

        b. `JOB_MANAGE.UPDATE_ANNOUNCEMENT`
   Modify

        c. `DESTROY.DANNOUNCEMENT`
   Delete

4. Leave requests

        a. `JOB_MANAGE.APPROVE_LEAVE`
   Approve/Disapprove requests

        b. `SHOW_LR`
   `SHOW_LR_DETAIL`
   View all approved leaves

d. Administrator (Departmental/Super)

    i. Personal information:

        1. `VIEW_PEOPLE.STUD_GENERAL_SEARCH`
   To search students.

        2. `VIEW_PEOPLE.SUPE_GENERAL_SEARCH`
   To search supervisors.

        3. `VIEW_PEOPLE.VIEW_ALL_PERSON`
   To get a list of all users.

        4. `VIEW_PEOPLE.VIEW_ALL_STUDENT`
   To get a list of all students.

        5. `VIEW_PEOPLE.VIEW_ALL_SUPERVISOR`
   To get a list of all supervisors.

        6. `VIEW_PEOPLE.VIEW_STUD_DETAIL`
   To view all the personal information of a specified student.

        7. `VIEW_PEOPLE.VIEW_SUPE_DETAIL`
   To view all the personal information of a specified supervisor.

        8. `UPDATE_PEOPLE.ISTUDENT`
   To update the personal information of a specified student.

        9. `UPDATE_PEOPLE.ISUPERVISOR`
   To update the personal information of a specified supervisor.

        10. `UPDATE_PEOPLE.IADMIN`
   To update the personal information of a specified administrator.

    ii. Verify the sensitive operations of supervisors:

        1. `APPROVE.VIEWNA_JOB`
   To view all requests of job modifications to approve.

        2. `APPROVE.JOB_CHANGES`
   To approve/disapprove the specified job modifications.

        3. `APPROVE.VIEWNA_APP`
   To view all requests of job application acceptances to approve.

        4. `APPROVE.APPLICATION`
   To approve/disapprove the specified application acceptances.

5. APPROVE.VIEWNA_CONTRACT

   To view all requests of contracts to approve.

6. APPROVE.CONTRACT_CHANGES

   To approve/disapprove the specified contracts.

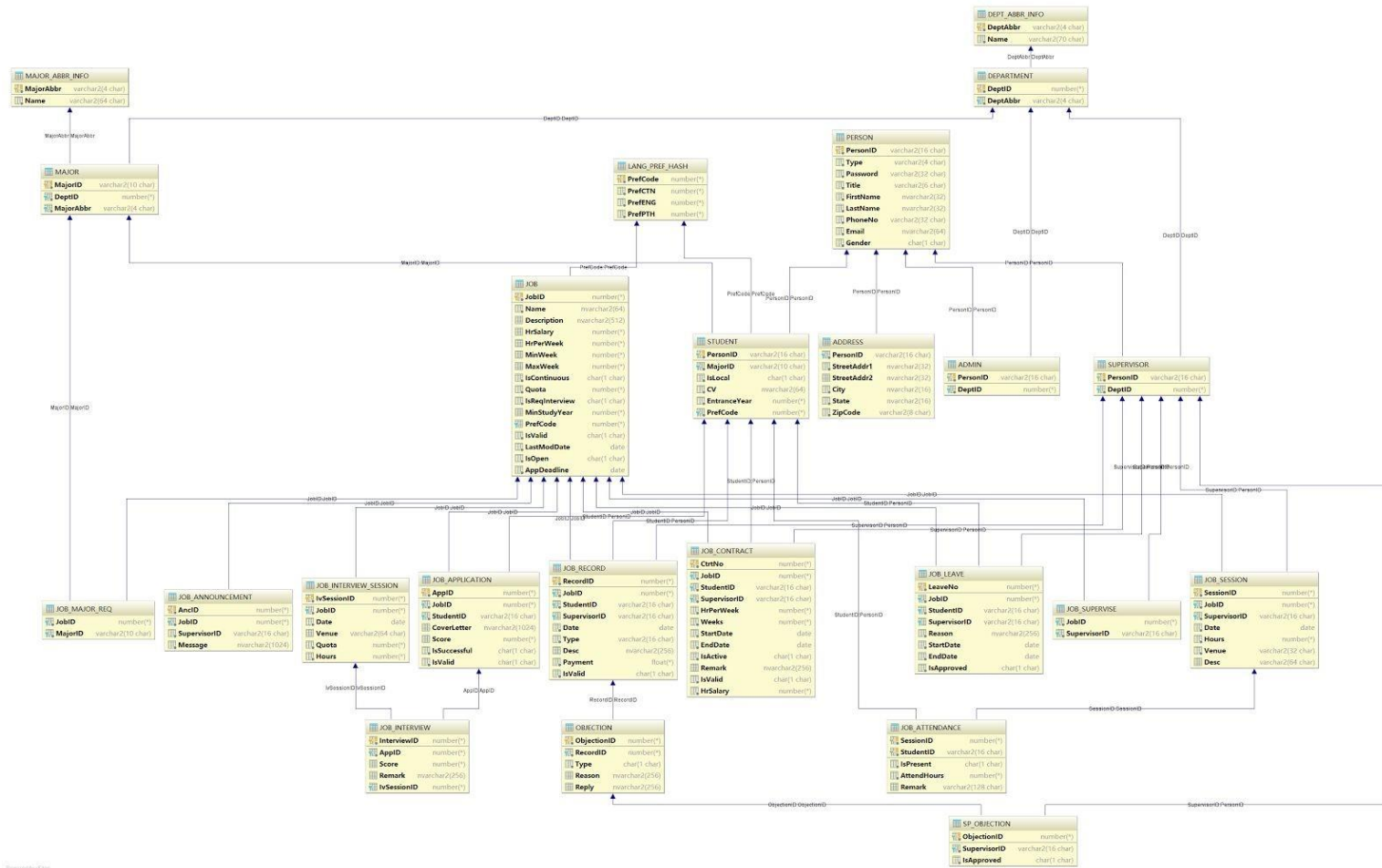### iii. Review objections towards the performance records:

1. APPROVE.VIEWNA_OBJECTION

   To view all record objections to approve.

2. APPROVE.OBJECTION

   To approve/disapprove the specified record objections.

4. ERD design:

5. Database Schemas:

Dept_Abbr_Info (**DeptAbbr**, Name)

Department (**DeptID**, DeptAbbr*)

Major_Abbr_Info (**MajorAbbr**, Name)

Major (**MajorID**, DeptID*, MajorAbbr*)

Lang_Pref_Hash (**PrefCode**, PrefCantonese, PrefEnglish, PrefPutonghua)

Person (**PersonID**, Type, Password, Title, FirstName, LastName, PhoneNo, Email, Gender)

Address (**PersonID***, StreetAddr1, StreetAddr2, City, State, ZipCode)

Student (**PersonID***, MajorID*, IsLocal, CV, EntranceYear, PrefCode*)

Supervisor (**PersonID***, DeptID*)

Admin (**PersonID***, DeptID*)

Job (**JobID**, PrefCode*, Name, Description, HrSalary, HrPerWeek, MinWeek, MaxWeek, IsContinuous, Quota, IsReqInterview, MinStudyYear, IsOpen, AppDeadline, IsValid, LastModDate)

Job_Supervise (**JobID***, **SupervisorID***)

Job_MajorReq (**JobID***, **MajorID***)

Job_Application (**AppID**, JobID*, StudentID*, CoverLetter, Score, IsSuccessful, IsValid)

Job_Interview (**InterviewID**, AppID*, IvSessionID*, Score, Remark)

Job_Interview_Session (**IvSessionID**, JobID*, Date, Venue, Quota, Hours)

Job_Contract (**CtrtNo**, JobID*, StudentID*, SupervisorID*, HrPerWeek, Weeks, StartDate, EndDate, IsActive, Remark, IsValid)

Job_Announcement (**AncID**, JobID*, SupervisorID*, Message)

Job_Session (**SessionID**, JobID*, SupervisorID*, Date, Hours, Venue, Desc)

Job_Attendance (**SessionID***, **StudentID***, IsPresent, AttendHours, Remark)

Job_Leave (**JobID***, **StudentID***, SupervisorID*, Reason, StartDate, EndDate, IsApproved)

Job_Record (**RecordID**, JobID*, StudentID*, SupervisorID*, Date, Type, Desc, Payment, IsValid)

Objection(**ObjectionID**, RecordID*, Reason, Reply, Type)

Sp_Objection (**ObjectionID***, SupervisorID*, IsApproved)

6. **Future Development**
    a. Supervisor:
        i. Job session management
            1. Create
            2. Allocate
            3. Attendance record
            4. Remove
        ii. Export e-calandar of job sessions
    b. Student:
        i. Export e-calandar of job sessions
    c. Job board:
        i. Statistic for page views and sort the jobs by popularity
    d. Others:
        i. Enhance front-end user experience
        ii. Password encryption

7. **Special Reminder for Testing:**
    a. As a database system for the university, access from random visitors should

be prevented. Therefore, this system **does not provide the user registration function** and does not provide any functions for visitors intentionally. But the database administrator could call the procedures of `ADD_PEOPLE.ASTUDENT`, `ADD_PEOPLE.ASUPERVISOR` or `ADD_PEOPLE.AADMIN` to add students, supervisors or administrators manually or import the university database directly.

b. The reason why all PHP files are placed in one single folder is that we found out that the PHP sessions are not accessible among different sub-directories on the PolyU COMP web server. To make the data in the PHP session accessible in the whole system, we have to put all PHP files in one single folder.

c. User accounts for testing: (case-sensitive)

    i.   Students:

        1. Username: `123`
           Password: `123456`

        2. Username: `234`
           Password: `password`

        3. Username: `345`
           Password: `PASSWORD`

    ii.   Supervisors:

        1. Username: `dmli`
           Password: `654321`

        2. Username: `xhwang`
           Password: `123321`

        3. Username: `dalao`
           Password: `wode`

    iii.   Administrator:

        1. Username: `comp1`
           Password: `CoMP2411`