



Database Project Report

MIS 6308 – Database Foundations

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GROUP 4

Part 1

Introduction

The purpose of our system is to connect graduate students attending the Naveen Jindal School of Management at the University of Texas at Dallas with employers in the Dallas-Fort Worth metropolitan area. By gathering data from students such as skills, interests, past work experience, etc., we hope to make the best match between students seeking employment to employers looking for applicants with the necessary skills for their job openings. Our system will also provide an online forum available to both students and employers for them to interact with each other. Lastly, we will provide information to students about events on campus and in the local area where they can network with employers.

Business Processes

1. Sign up students

- a. Activity 1: Upload resume – students upload their resume when creating a profile in the system
 - i. Functional Requirement: Career Management Center reviews and approves resume format to ensure it meets professional standards
 1. Data Requirements: Student ID, Majors, Work Experience, Past Education, GPA, Graduation Year, Eligibility criteria, Resume Approval
- b. Activity 2: Select interests & skills – students select at least one interest and skill to include in their profile during profile set-up
 - i. Functional Requirement: interests and skills added to student profile are crossed-checked with resume, background, and selected major
 1. Data Requirement: Student ID, Technical Skills, Interest

2. Sign up employers

- a. Activity 1: Post jobs – employers post jobs under their profile in system
 - i. Functional Requirement: Career Management Center reviews and approves the job posting to ensure it is relevant with School of Management majors
 1. Data Requirements: Employer ID, Employer Name, Industry, Brief Description, SPOC Name, SPOC Email, SPOC MO. #
- b. Activity 2: Publish job posting – employers publish and open application for job posting
 - i. Functional Requirement: provide detailed job description and requirements along with a clear deadline for students to apply to the job posting
 1. Data Requirement: Employer ID, Job ID, Designation, Job Description, Deadline

3. Show calendar of events

- a. Activity 1: Track relevant events – post local events such as job fairs occurring around Dallas-Fort Worth (not just at UT-Dallas)
 - i. Functional Requirement: events must be relevant to School of Management majors

1. Data Requirements: Event ID, Summary, Event Major(Y/N), Location, Date & Time

- b. Activity 2: RSVP to events – provide students a link to RSVP to events

- i. Functional Requirement: students can't RSVP to multiple events occurring at the same time

1. Data Requirement: Event ID, Student ID, Date & Time

4. **Provide student forum**

- a. Activity 1: Create discussion boards – set up and maintain discussion boards for students to post questions

- i. Functional Requirement: posts are reviewed and approved for appropriateness within one hour

1. Data Requirement: Post ID, Student ID, Topic, Date & Time, Approval (Y/N)

- b. Activity 2: Set up employers' accounts – create accounts for employers so they can participate in discussion boards

- i. Functional Requirement: posts are reviewed and approved for appropriateness within one hour

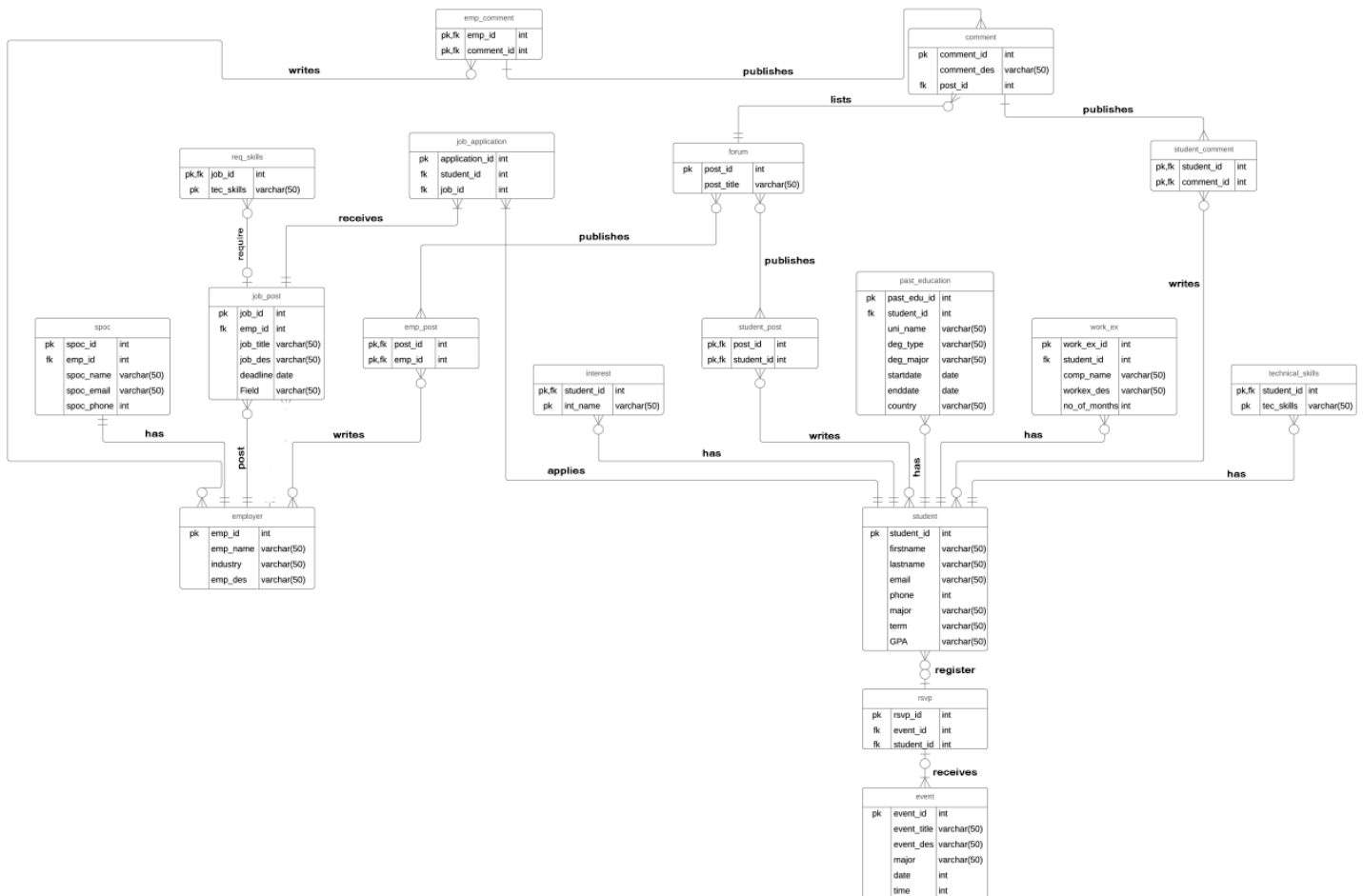
1. Data Requirement: Employer ID, Post ID, Topic, Date & Time

Part 2

Entity Relationship Diagram

Below is the entity relationship diagram for our system:

Student - Employer Mangement System



Part 3

Logical Database Design & Normalization

Below are snapshots of the table design of our normalized tables as well as the relationship diagram of our database in Microsoft Access:

comment	
Field Name	Data Type
comment_id	AutoNumber
post_id	Number
comment_des	Short Text

General	
Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

emp_comment	
Field Name	Data Type
comment_id	Number
emp_id	Number

General	
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (Duplicates OK)
Text Align	General

emp_post		
Field Name	Data Type	
post_id	Number	
emp_id	Number	

General	Lookup
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (Duplicates OK)
Text Align	General

employer		
Field Name	Data Type	
emp_id	AutoNumber	
emp_name	Short Text	
industry	Short Text	
emp_des	Short Text	

General	Lookup
Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

event	
Field Name	Data Type
event_id	AutoNumber
event_title	Short Text
event_des	Long Text
major	Short Text
event_date	Date/Time
event_time	Short Text

General Lookup

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

forum	
Field Name	Data Type
post_id	AutoNumber
post_title	Short Text

General Lookup

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

interest	
Field Name	Data Type
student_id	Number
int_name	Short Text

General	Lookup
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (Duplicates OK)
Text Align	General

job_application	
Field Name	Data Type
application_id	AutoNumber
student_id	Number
job_id	Number

General	Lookup
Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

job_post	
Field Name	Data Type
job_id	AutoNumber
emp_id	Number
job_title	Short Text
job_des	Short Text
deadline	Date/Time
field	Short Text

General Lookup

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

past_education	
Field Name	Data Type
past_edu_id	AutoNumber
student_id	Number
uni_name	Short Text
deg_type	Short Text
deg_major	Short Text
startdate	Date/Time
enddate	Date/Time
country	Short Text

General Lookup

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

req_skills	
Field Name	Data Type
job_id	Number
tec_skills	Short Text

General **Lookup**

Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (Duplicates OK)
Text Align	General

rsvp	
Field Name	Data Type
rsvp_id	AutoNumber
event_id	Number
student_id	Number

General **Lookup**

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

spoc	
Field Name	Data Type
spoc_id	AutoNumber
emp_id	Number
spoc_name	Short Text
spoc_email	Short Text
spoc_phone	Short Text

General Lookup	
Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

student	
Field Name	Data Type
student_id	AutoNumber
firstname	Short Text
lastname	Short Text
email	Short Text
phone	Short Text
major	Short Text
term	Short Text
GPA	Short Text
resume approved	Yes/No

General Lookup	
Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

technical_skills	
Field Name	Data Type
student_id	Number
tec_skills	Short Text

General Lookup

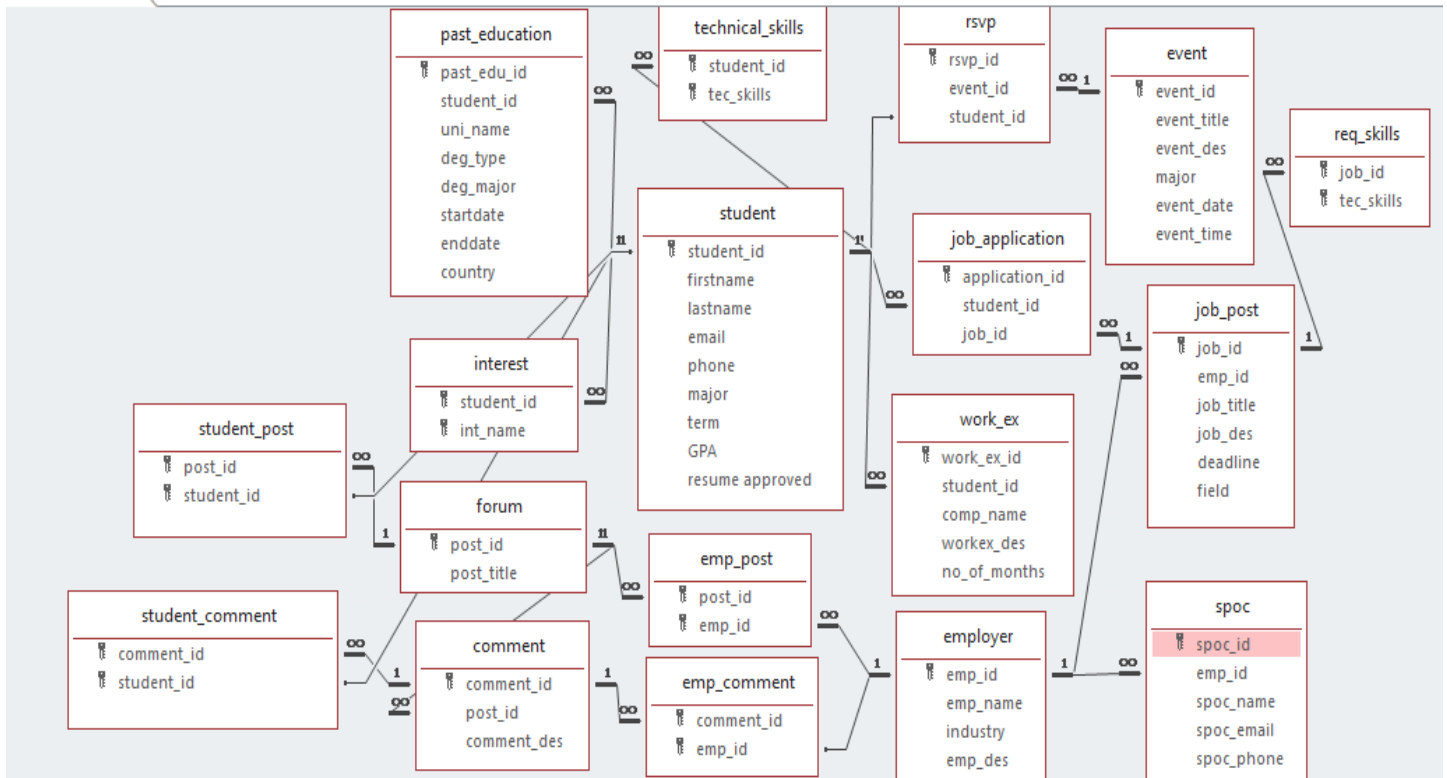
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (Duplicates OK)
Text Align	General

work_ex	
Field Name	Data Type
work_ex_id	AutoNumber
student_id	Number
comp_name	Short Text
workex_des	Short Text
no_of_months	Number

General Lookup

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

Relationships



Part 4

SQL Queries

Below are the queries we created from our data requirements along with the results of each query after they were executed in our database using Microsoft Access:

1. Job suggestions for students that have matching majors with job posting field

```
SELECT student_id, firstname, lastname, job_id, job_title, emp_id, field
FROM student, job_post
WHERE student.major=job_post.field;
```

student_id	firstname	lastname	job_id	job_title	emp_id	field
9	Zhan	Bao	1	Payroll Manager	4	Accounting
2	Hector	Beltran	1	Payroll Manager	4	Accounting
6	Yu	Zheng	2	Senior Economic Analyst	3	Finance
4	Edward	Key	2	Senior Economic Analyst	3	Finance
9	Zhan	Bao	4	Staff Accountant	1	Accounting
2	Hector	Beltran	4	Staff Accountant	1	Accounting
9	Zhan	Bao	10	Sr. Accountant	6	Accounting
2	Hector	Beltran	10	Sr. Accountant	6	Accounting

2. Career events in February

```
SELECT student_id, firstname, lastname, event_id, event_title, event.major
FROM student, event
WHERE student.major=event.major AND event_date>#2/1/2019# AND event_date<#2/28/2019#
```

student_id	firstname	lastname	event_id	event_title	major
9	Zhan	Bao	1	UTD Career Expo	Accounting
2	Hector	Beltran	1	UTD Career Expo	Accounting
8	Wei	Yang	5	Technology, Engineering & Security Clearance Job Fair	Information Technology

3. Students with past work experience of at least 2 years

```
SELECT student.student_id, firstname, lastname, comp_name, workex_des, no_of_months
FROM student LEFT JOIN work_ex ON student.student_id=work_ex.student_id
WHERE no_of_months>=24;
```

student_id	firstname	lastname	comp_name	workex_des	no_of_months
4	Edward	Key	State Farm	Insurance Agent	60
9	Zhan	Bao	Citi Bank	Fund Analyst	48
7	Melinda	Lucas	Apple	Junior Marketing Assistant	36
2	Hector	Beltran	American Airlines	Payroll Clerk	24
*	(New)				

4. The forum posts with the number of comments under each post

```
SELECT forum.post_id, post_title, count(*) AS NumComment
FROM forum, comment
WHERE forum.post_id=comment.post_id
GROUP BY forum.post_id, post_title
```

post_id	post_title	NumComme
1	Introductions	2
2	Job Search Tips	1
3	Resume Help	3
4	Internship Reflections	1
6	Miscellaneous	1

Appendix

User Group Interaction Journal

- 11/29: met with user group to discuss our system

- 1. Recommendations from User Group for Part 1: no recommendations made
 - a. Actions taken: n/a
- 2. Recommendations from User Group for Part 2: no recommendations made
 - a. Actions taken: n/a
- 3. Recommendations from User Group for Part 3: no recommendations made
 - a. Actions taken: n/a
- 4. Recommendations from User Group for Part 4: no recommendations made
 - a. Actions taken: n/a