

Final Report

CS340 Section 400

Group Name: Group 37

Team Members: Jack Mast, Rowan Simmons

a. Project Outline and Database Outline

Overview:

Universities must store a large amount of information to account for each enrolled student, and that information has to be easily accessed by university staff and employees. Our University Student Database provides a way for a university with 4000 students enrolled annually to efficiently record and access the current *Majors*, *Classes*, as well as *Dorms* assignment for *Students*.

Responsibilities:

At the outset of the project it was the intent that, whenever possible and for each step of the project, team members will equally share the responsibility for programming and implementing entities in the database. However, in project execution, the actual responsibilities broke down as follows:

Jack Mast: Coding, including SQL database definition and database manipulation queries, and all javascript and HTML. Code editing. Created the ERD image file below. Equal input on project design and database design.

Rowan Simmons: Site publishing and front-end features testing. Code editing. Provided the CSS code. Created the Schema image file below. Equal input on project design and database design.

Outline:

Students: records the details of the Students enrolled at the University

- student_id: int, auto_increment, unique, not NULL, PK
- email: varchar, not NULL
- gpa: float, not NULL
- student_fname: varchar, not NULL
- student_lname: varchar, not NULL
- student_year: int, not NULL
- major_id: int, unique, FK
- dorm_id: int, unique, not NULL, FK
- Relationships:
 - M:1 relationship between Students and Majors, optional
 - Each student has zero or one major
 - M:1 relationship between Students and Dorms, mandatory
 - Each student has one and only one dorm
 - M:M relationship between Students and Classes, optional
 - Each student has zero or more classes

Majors: records the details of the various major options for students

- major_name: varchar, not NULL
- dept_chair: varchar, not NULL
- required_units: int, not NULL
- major_id: int, auto_increment, unique, not NULL, PK
- Relationships:
 - 1:M relationship between Majors and Students, optional
 - Relationships are optional. Zero or One to One or Many
 - Majors have zero or more Students

Classes: records the classes that students can take

- department: varchar, not NULL
- class_name: varchar, not NULL
- class_capacity: int, not NULL
- class_id: int, auto_increment, unique, not NULL, PK
- Relationships:
 - M:M relationship between Students and Classes, optional
 - Relationships are mandatory. Zero or Many to Zero or Many.
 - Classes have zero or more Students

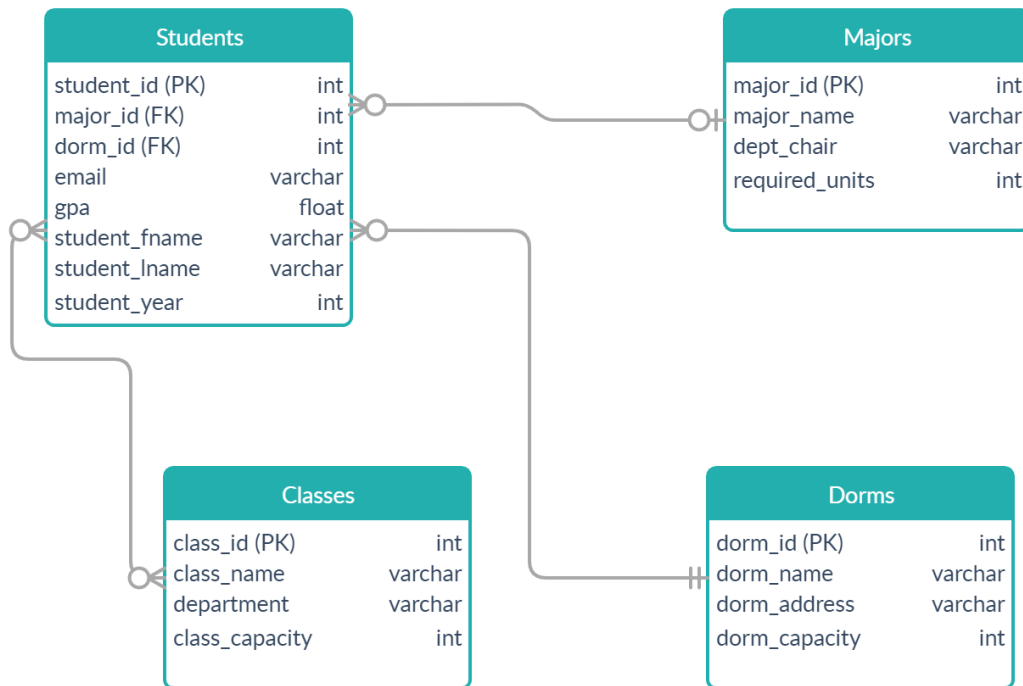
Dorms: records the dorm in which students may live

- dorm_name: varchar, not NULL
- dorm_address: varchar, unique, not NULL
- dorm_capacity: int, not NULL
- dorm_id: int, auto_increment, unique, not NULL, PK
- Relationships:
 - 1:M relationship between Dorms and Students, optional
 - Relationships are mandatory. One to One or Many.
 - Dorms have zero or more Students

Registrations: records the relationship between a student its classes using FKs of ids

- registration_id: int, not NULL, unique, PK
- reg_student_id: int, unique, not NULL, FK
- reg_class_id: int, unique, not NULL, FK
- Relationships:
 - This entity will manage the M:M relationship between Students and Classes
 - A registration links a student and a class. A student can have zero to many classes and a class can have zero to many students.

b. Entity-Relationship Diagram:



c. Schema

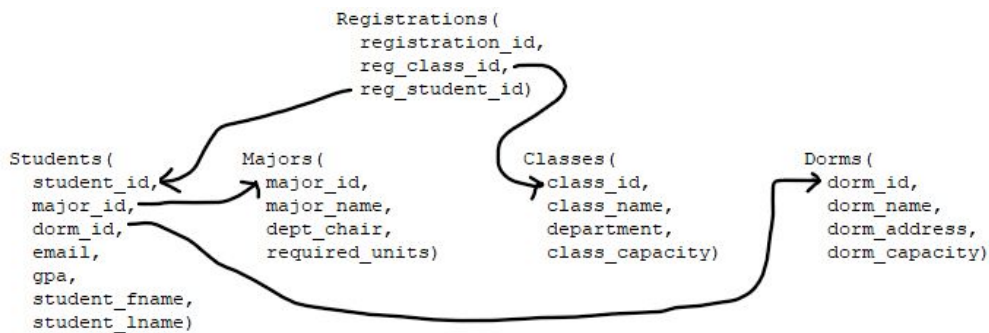
```
Students(  
  student_id,  
  major_id,  
  dorm_id,  
  email,  
  gpa,  
  student_fname,  
  student_lname)
```

```
Majors(  
  major_id,  
  major_name,  
  dept_chair,  
  required_units)
```

```
Classes(  
  class_id,  
  class_name,  
  department,  
  class_capacity)
```

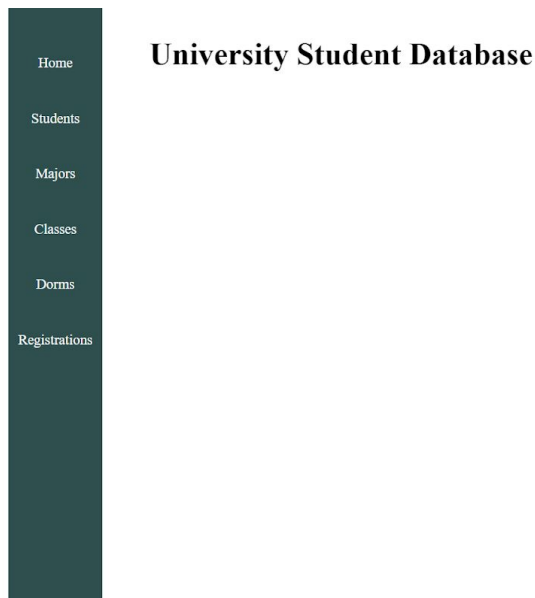
```
Dorms(  
dorm_id,  
dorm_name,  
dorm_address,  
dorm_capacity)
```

```
Registrations(  
registration_id,  
reg_class_id,  
reg_student_id)
```



d. Screen captures of each of the UI pages (with title above each screen capture which explains the CRUD step e.g. “READ/BROWSE/DISPLAY Customers page”

Home page



CREATE/INSERT/ADD NEW, SEARCH/SELECT, READ/BROWSE/DISPLAY, DELETE - Students page

Home

Students

Majors

Classes

Dorms

Registrations

Add Student

Student First Name:

Student Last Name:

Email:

GPA:

Major:

No Major

Dorm:

Ponderosa

Submit

Search for Student Class Schedule

Student:

40102, Sam Hunter

Search

Current Students

Student ID	First Name	Last Name	Email	GPA	Major ID	Dorm ID	Update	Delete
40100	Jimmy	Smith	jsmith@school.edu	3.5	145	1120	Update	Delete
40101	Sarah	Johnson	sjohnson@school.edu	3.75		1120	Update	Delete
40102	Sam	Hunter	shunter@school.edu	3.2		1121	Update	Delete
40103	Ryan	Brown	rborwn@school.edu	3	148	1121	Update	Delete

SEARCH/SELECT/READ - Students/Search page

Home

Students

Majors

Classes

Dorms

Registrations

Search Results

Class Schedule for Sam Hunter, 40102

Class ID	Class Name
222101	Underwater Basket Weaving
222104	Algorithms
222103	Intro to Databases
222101	Underwater Basket Weaving

EDIT/UPDATE

Students page

Home

Students

Majors

Classes

Dorms

Registrations

Update Jimmy Smith:

Student First Name:

Student Last Name:

Email:

GPA:

Major:

Dorm:

Update

Jimmy

Smith

jsmith@school.edu

3.5

Computer Science

Ponderosa

READ/BROWSE/DISPLAY, CREATE/INSERT/ADD NEW -

Majors page

Home

Students

Majors

Classes

Dorms

Registrations

Add Major

Major Name:

Department Chair:

Required Units:

Submit

Current Majors

Major ID	Major Name	Department Chair	Required Units	Update
145	Computer Science	John Smith	60	Update
146	Biology	James Jones II	58	Update
147	English	Hailey Potter	50	Update
148	International Relations	Brian Best	56	Update
149	Mathematics	Helen Smith	60	Update
150	Music	Troy Perry	95	Update
151	Philosophy	Emanuel Kant	196	Update
152	Economics	Morgan Stanley	400	Update
153	Bird-Watching	Horus	0	Update

EDIT/UPDATE -
Majors page

Home

Students

Majors

Classes

Dorms

Registrations

Update major: Computer Science

Major Name:

Computer Science

Department Chair:

John Smith

Required Units:

60

Update

READ/BROWSE/DISPLAY, CREATE/INSERT/ADD NEW
Classes page

Home

Students

Majors

Classes

Dorms

Registrations

Add Class

Class Name:

Department:

Class Capacity:

Submit

Current Classes

Class ID	Class Name	Department	Class Capacity	Update
222101	Underwater Basket Weaving	English	40	Update
222102	Study of Hemingway	English	30	Update
222103	Intro to Databases	Computer Science	200	Update
222104	Algorithms	Computer Science	200	Update
222105	Jousting	International Relations	40	Update
222106	Exercise Physiology	Biology	50	Update
222107	Calculus I	Mathematics	60	Update
222108	math 54	Mathematics	34	Update

EDIT/UPDATE -
Classes page

Home

Students

Majors

Classes

Dorms

Registrations

Update class: Underwater Basket Weaving

Class Name:

Underwater Basket Weaving

Department:

English

Class Capacity:

40

Update

READ/BROWSE/DISPLAY, CREATE/INSERT/ADD NEW -
Dorms page

Add Dorm

Dorm Name:

Address:

Dorm Capacity:

Submit

Current Dorms

Dorm ID	Dorm Name	Address	Dorm Capacity	Update
1120	Ponderosa	245 Freshman Lane	90	Update
1121	Juniper	265 Freshman Lane	120	Update
1122	Evergreen	150 Softmore Road	100	Update
1123	Oakwood	99 Junior Avenue	100	Update
1124	Monterrey	50 Meadow Lane	200	Update
1125	Meadow	500 Junior Ave	150	Update
1126	Peach	123 Fruit Blvd	70	Update
1127	Polar	17 Maple Street	80	Update

EDIT/UPDATE -
Dorms page

Update dorm: Ponderosa

Dorm Name:

Ponderosa

Address:

245 Freshman Lane

Dorm Capacity:

90

Update

READ/BROWSE/DISPLAY, CREATE/INSERT/ADD NEW, DELETE -
Registrations page

Register a Student

Student: 40100, Jimmy Smith ▼

Class: 222101, Underwater Basket Weaving ▼

Submit

Current Registrations

Registration ID	Student ID	Student Name	Class ID	Class Name	Delete
4411236	40100	Jimmy Smith	222103	Intro to Databases	Delete
4411237	40100	Jimmy Smith	222105	Jousting	Delete
4411221	40101	Sarah Johnson	222101	Underwater Basket Weaving	Delete
4411223	40101	Sarah Johnson	222103	Intro to Databases	Delete
4411222	40102	Sam Hunter	222101	Underwater Basket Weaving	Delete
4411224	40102	Sam Hunter	222104	Algorithms	Delete
4411227	40102	Sam Hunter	222103	Intro to Databases	Delete
4411235	40102	Sam Hunter	222101	Underwater Basket Weaving	Delete
4411228	40103	Ryan Brown	222104	Algorithms	Delete