**CS4400 Database Project**

**GTPort**

**Phase II**

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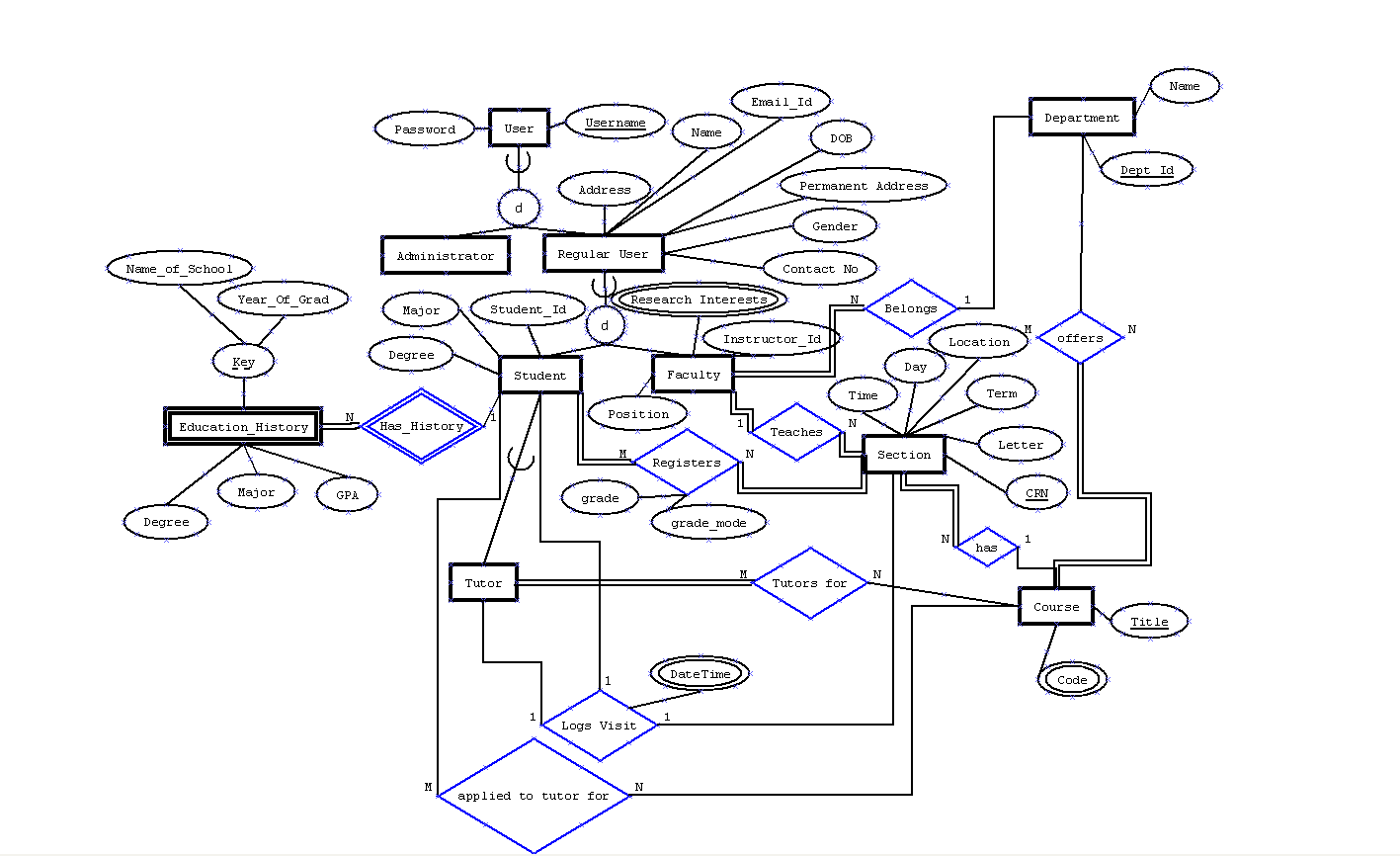
**Linshu Wuliu**

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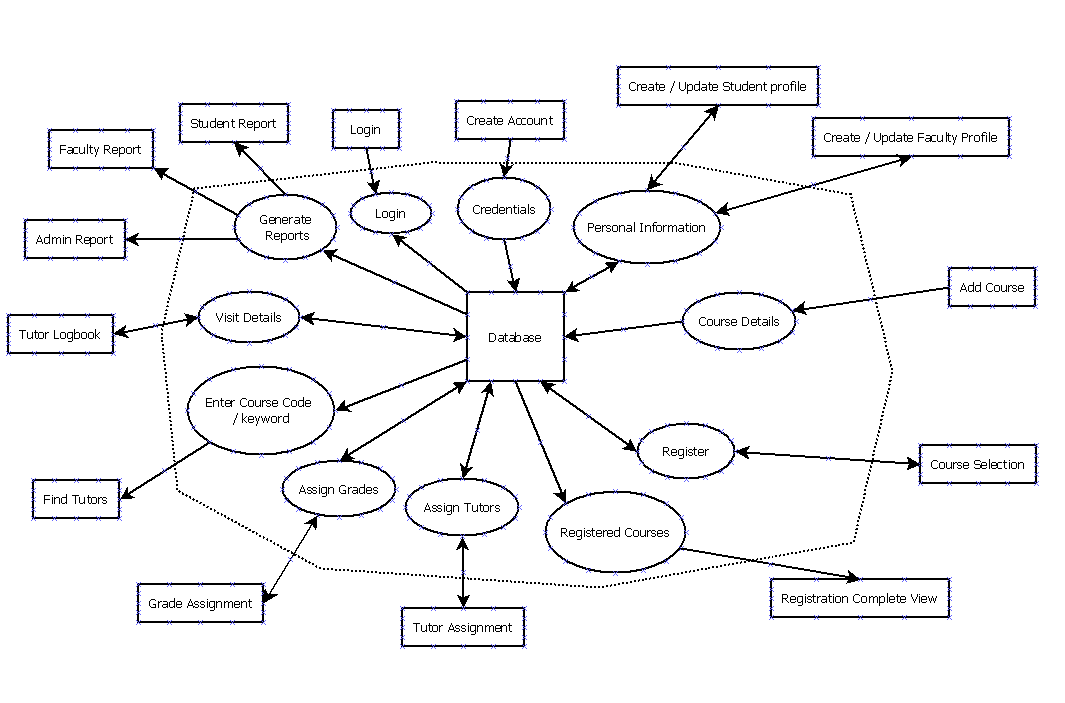
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**Section C**

1. EER Diagram



1. Information Flow Diagram



1. Task Decomposition Diagram
2. Relational Schema Diagram

User

|  |  |
| --- | --- |
| Username | Password |

Administrator

|  |
| --- |
| Username |

Regular\_User

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Username | Address | Name | Email\_Id | DOB | Permanent\_Address | Gender | Contact\_No |

Student

|  |  |  |  |
| --- | --- | --- | --- |
| Username | Student\_Id | Major | Degree |

Education\_History

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Username | Year\_Of\_Grad | Name\_Of\_School | Major | Degree | GPA |

Tutor

|  |
| --- |
| Username |

Department

|  |  |
| --- | --- |
| Dept\_Id | Name |

Faculty

|  |  |  |  |
| --- | --- | --- | --- |
| Username | Instructor\_Id | Position | Dept\_Id |

Research\_Interests

|  |  |
| --- | --- |
| Username | Interest |

Course

|  |
| --- |
| Title |

Code

|  |  |
| --- | --- |
| Title | Code |

Section

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| CRN | Term | Letter | Location | Day | Time | Instructor\_Username | Title |

Applied\_To\_Tutor\_For

|  |  |
| --- | --- |
| Username | Title |

Tutors\_For

|  |  |
| --- | --- |
| Username | Title |

Logs\_Visit

|  |  |  |  |
| --- | --- | --- | --- |
| Student | Tutor | CRN | DateTime |

Registers

|  |  |  |  |
| --- | --- | --- | --- |
| Username | CRN | Grade | Grade\_Mode |

Department\_Offers\_Course

|  |  |
| --- | --- |
| Dept\_Id | Title |

1. Create Table statements

CREATE TABLE User

(Username VARCHAR(16) NOT NULL,

Password VARCHAR(16) NOT NULL,

PRIMARY KEY (Username));

CREATE TABLE Administrator

(Username VARCHAR(16) NOT NULL,

PRIMARY KEY (Username)

FOREIGN KEY (Username) REFERENCES User(Username),

ON DELTE CASCADE ON UPDATE CASCADE);

CREATE TABLE Regular\_User

(Username VARCHAR(16) NOT NULL,

Address VARCHAR(30) NOT NULL,

Name VARCHAR(20) NOT NULL,

Email\_Id VARCHAR(30) NOT NULL,

DOB DATE NOT NULL,

Permanent\_Address VARCHAR(30) NOT NULL,

Gender CHAR(1) NOT NULL,

Contact\_No INT NOT NULL,

PRIMARY KEY (Username),

UNIQUE (Email\_Id),

FOREIGN KEY (Username) REFERENCES User(Username),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Student

(Username VARCHAR(16) NOT NULL,

Student\_Id INT NOT NULL AUTO\_INCREMENT,

Major VARCHAR(33) NOT NULL,

Degree VARCHAR(4) NOT NULL,

PRIMARY KEY (Username),

UNIQUE (Student\_Id),

FOREIGN KEY (Username) REFERENCES Regular\_User(Username),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Tutor

(Username VARCHAR(16) NOT NULL,

PRIMARY KEY (Username),

FOREIGN KEY (Username) REFERENCES Student(Username),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Education\_History

(Username VARCHAR(16) NOT NULL,

Year\_Of\_Grad INT NOT NULL,

Name\_Of\_School VARCHAR(40) NOT NULL,

Major VARCHAR(33) NOT NULL,

Degree VARCHAR(4) NOT NULL,

GPA DEC(2,1) NOT NULL,

PRIMARY KEY (Username, Year\_Of\_Grad, Name\_Of\_School),

FOREIGN KEY (Username) REFERENCES Student(Username),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Department

(Dept\_Id INT NOT NULL AUTO\_INCREMENT,

Name VARCHAR(33) NOT NULL,

PRIMARY KEY (Dept\_Id));

CREATE TABLE Faculty

(Username VARCHAR(16) NOT NULL,

Instructor\_Id INT NOT NULL AUTO\_INCREMENT,

Position VARCHAR(19) NOT NULL,

Dept\_Id INT NOT NULL,

PRIMARY KEY (Username),

UNIQUE (Instructor\_Id),

FOREIGN KEY (Username) REFERENCES Regular\_User(Username),

ON DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (Dept\_Id) REFERENCES Department(Dept\_Id),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Research\_Interests

(Username VARCHAR(16) NOT NULL,

Interest VARCHAR(20) NOT NULL,

PRIMARY KEY (Username, Interest),

FOREIGN KEY (Username) REFERENCES Faculty(Username),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Course

(Title VARCHAR(30) NOT NULL,

PRIMARY KEY (Tiltle));

CREATE TABLE CCode

(Title VARCHAR(30) NOT NULL,

Code VARCHAR(9) NOT NULL,

PRIMARY KEY(Title, Code),

FOREIGN KEY (Title) REFERENCES Course(Title),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Section

(CRN INT NOT NULL AUTO\_INCREMENT,

Letter CHAR(1) NOT NULL,

Term VARCHAR(6) NOT NULL,

Building CHAR(4) NOTL NULL,

Location VARCHAR(9) NOT NULL,

Time VARCHAR(19) NOT NULL,

Instructor\_Username VARCHAR(16) NOT NULL,

Title VARCHAR(30) NOT NULL,

PRIMARY KEY (CRN),

FOREIGN KEY (Instructor\_Username) REFERENCES Faculty(Username),

ON DELETE CASCADE ON UPDATE CASCADE);

FOREIGN KEY (Title) REFERENCES Course(Title),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Applied\_To\_Tutor\_For

(Username VARCHAR(16) NOT NULL,

Title VARCHAR(30) NOT NULL,

PRIMARY KEY (Username, Title),

FOREIGN KEY (Username) REFERENCES Student(Username),

ON DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (Title) REFERENCES Course(Title),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Logs\_Visit

(Tutor VARCHAR(16) NOT NULL,

Student VARCHAR(16) NOT NULL,

CRN INT NOT NULL,

DateTime TIMESTAMP NOT NULL,

PRIMARY KEY (Student, Tutor, CRN, DateTime),

FOREIGN KEY (Student) REFERENCES Student(Username),

ON DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (Tutor) REFERENCES Tutor(Username),

ON DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (CRN) REFERENCES Section(CRN),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Tutors\_For

(Username VARCHAR(16) NOT NULL,

Title VARCHAR(30) NOT NULL,

PRIMARY KEY (Username, Title),

FOREIGN KEY (Username) REFERENCES Tutor(Username),

ON DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (Title) REFERENCES Course(Title),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Registers

(Username VARCHAR(16) NOT NULL,

Grade CHAR(1),

Grade\_Mode VARCHAR(10) NOT NULL,

CRN INT NOT NULL,

PRIMARY KEY (Username, CRN),

FOREIGN KEY (Username) REFERENCES Student(Username),

ON DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (CRN) REFERENCES Section(CRN),

ON DELETE CASCADE ON UPDATE CASCADE);

CREATE TABLE Department\_Offers\_Course

(Dept\_Id INT NOT NULL,

Title VARCHAR(30) NOT NULL,

PRIMARY KEY (Dept\_Id, Title, Code),

FOREIGN KEY (Dept\_Id) REFERENCES Department(Dept\_Id),

ON DELETE CASCADE ON UPDATE CASCADE,

FOREIGN KEY (Title, Code) REFERENCES CCode(Title, Code),

ON DELETE CASCADE ON UPDATE CASCADE);

1. SQL statements for each task