RELATIONAL SCHEMA

1. Administrator

Username	Password

2. Regular User

Username	Password	Name	Address	Email Id	DOB	Permanent Address	Gender	Contact No

3. Student

Student ID	Major	Degree	Username	Tutor

4. Faculty

Instructor ID	Username	Dept ID	Position

5. Faculty Research Interests

Instructor ID	Research Interest

6. Department

Dept ID	Dept Name

7. Section

CRN	Letter	Term	Location	Day	Time	Instructor ID	Course Title

8. Course

Course Title

9. Course Code

Course Title	Code

10. Education History

Student ID	Name of School	Year of Graduation	Degree	Major	GPA

11. Regsisters

Student Id	CRN	Grade Mode	Grade Recieved

12. Application for Tutoring

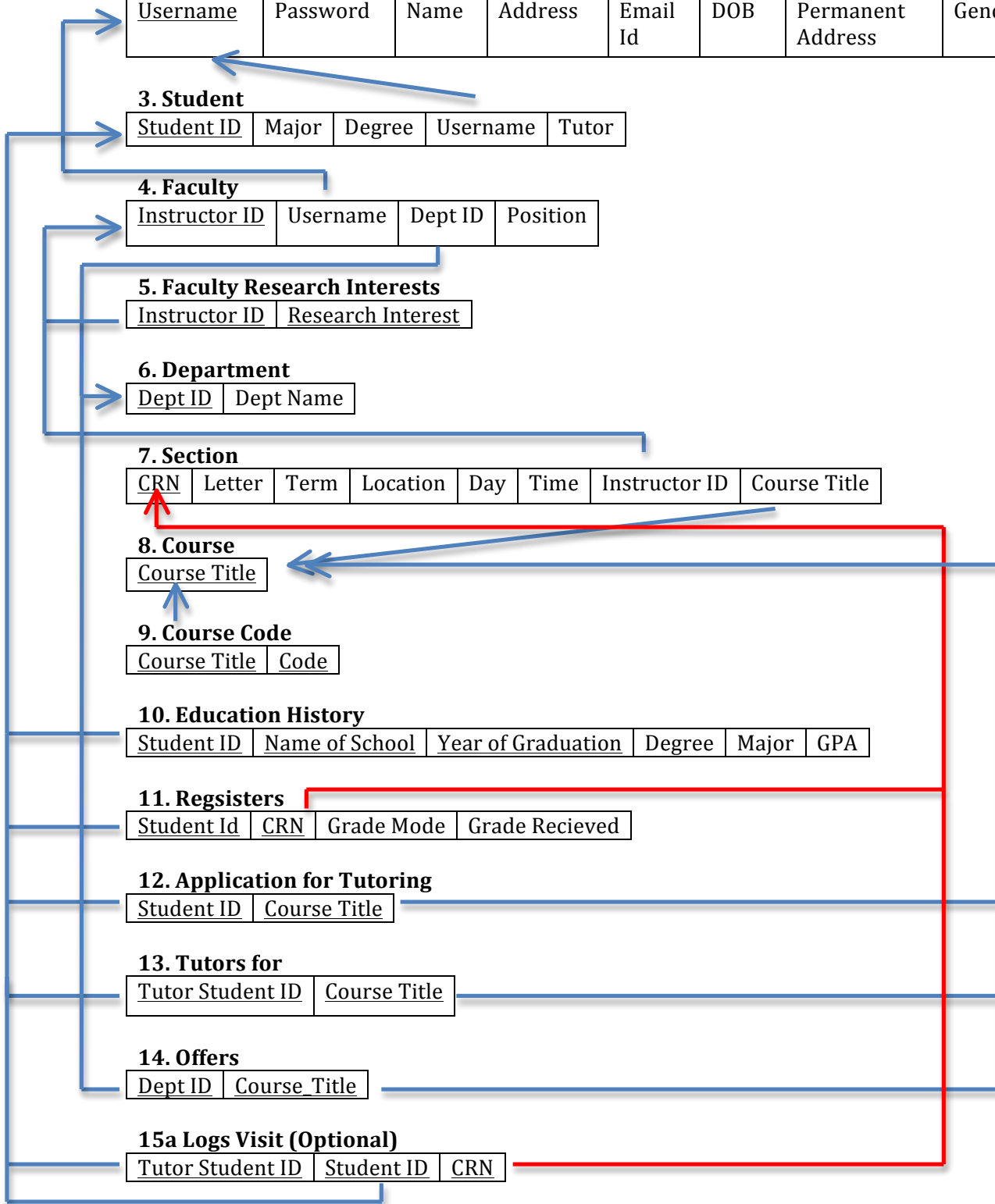| Student ID	Course Title

13. Tutors for

Tutor Student ID	Course Title

14. Offers

Dept ID	Course_Title

15a Logs Visit (Optional)

Tutor Student ID	Student ID	CRN

15b Logs Visit DateTime

Tutor Student ID	Student Id	CRN	DateTime

The 'Tutor_Student_ID' , 'Student_ID' and 'CRN' refer to the corresponding attributes of Table 15a. (If they have Table 15a otherwise they just reference to the Student Table and Section Table).

Alternate Designs

User

Username	Password

Consolidated User Table

Username	Password	X	Y	Z	Student (Binary)	Faculty (Binary)	Administrator (Binary)

Tutor

Username

CREATE TABLE STATEMENTS

```sql
CREATE TABLE `administrators` (
  `Username` varchar(45) NOT NULL,
  `Password` varchar(45) NOT NULL,
  PRIMARY KEY (`Username`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;




CREATE TABLE `application_for_tutoring` (
  `Student_ID` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `Course_Title` varchar(50) NOT NULL,
  PRIMARY KEY (`Student_ID`,`Course_Title`),
  KEY `FK_application_for_tutoring_2` (`Course_Title`),
  CONSTRAINT `FK_application_for_tutoring_2` FOREIGN KEY
(`Course_Title`) REFERENCES `course` (`Course_Title`) ON DELETE CASCADE
ON UPDATE CASCADE,
  CONSTRAINT `FK_Application_For_Tutoring_1` FOREIGN KEY (`Student_ID`)
REFERENCES `student` (`Student_ID`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;




CREATE TABLE `course` (
  `Course_Title` varchar(50) NOT NULL,
  PRIMARY KEY (`Course_Title`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;




CREATE TABLE `course_code` (
  `Course_Title` varchar(50) NOT NULL,
  `Code` int(10) unsigned NOT NULL,
  PRIMARY KEY (`Course_Title`,`Code`) USING BTREE,
  CONSTRAINT `FK_CourseTitle` FOREIGN KEY (`Course_Title`) REFERENCES
`course` (`Course_Title`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;




CREATE TABLE `department` (
  `Dept_ID` int(10) unsigned NOT NULL,
  `Dept_Name` varchar(30) NOT NULL,
  PRIMARY KEY (`Dept_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

```sql
CREATE TABLE `education_history` (
  `Student_ID` int(10) unsigned NOT NULL,
  `Name_Of_School` varchar(45) NOT NULL,
  `Year_Graduation` int(10) unsigned NOT NULL,
  `Degree` varchar(10) NOT NULL,
  `Major` varchar(20) NOT NULL,
  `GPA` decimal(10,2) NOT NULL,
  PRIMARY KEY (`Student_ID`,`Name_Of_School`,`Year_Graduation`),
  CONSTRAINT `FK_education_history_1` FOREIGN KEY (`Student_ID`)
REFERENCES `student` (`Student_ID`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;


CREATE TABLE `faculty` (
  `Instructor_ID` int(10) unsigned NOT NULL,
  `Username` varchar(45) DEFAULT NULL,
  `Dept_ID` int(10) unsigned DEFAULT NULL,
  `Position` varchar(25) NOT NULL,
  PRIMARY KEY (`Instructor_ID`),
  KEY `FK_faculty_2` (`Dept_ID`),
  CONSTRAINT `FK_faculty_2` FOREIGN KEY (`Dept_ID`) REFERENCES
`department` (`Dept_ID`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `FK_faculty_3` FOREIGN KEY (`Username`)REFERENCES
`regular_user` ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;


CREATE TABLE `faculty_research_interests` (
  `Instructor_ID` int(10) unsigned NOT NULL,
  `Research_Interest` varchar(45) NOT NULL,
  PRIMARY KEY (`Instructor_ID`,`Research_Interest`),
  CONSTRAINT `FK_Faculty_Research_Interests_InstID` FOREIGN KEY
(`Instructor_ID`) REFERENCES `faculty` (`Instructor_ID`) ON DELETE
CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;


CREATE TABLE `logs_visit` (
  `Tutor_Student_ID` int(10) unsigned NOT NULL,
  `Student_ID` int(10) unsigned NOT NULL,
  `CRN` int(10) unsigned NOT NULL,
  `DateTime` datetime NOT NULL,
  PRIMARY KEY (`Tutor_Student_ID`,`Student_ID`,`CRN`,`DateTime`),
  KEY `FK_logs_visit_2` (`Student_ID`),
  KEY `FK_logs_visit_3` (`CRN`),
  CONSTRAINT `FK_logs_visit_3` FOREIGN KEY (`CRN`) REFERENCES `section`
(`CRN`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `FK_logs_visit_1` FOREIGN KEY (`Tutor_Student_ID`)
REFERENCES `student` (`Student_ID`) ON DELETE CASCADE ON UPDATE
CASCADE,
```

```sql
  CONSTRAINT `FK_logs_visit_2` FOREIGN KEY (`Student_ID`) REFERENCES
`student` (`Student_ID`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;


CREATE TABLE `offers` (
  `Dept_ID` int(10) unsigned NOT NULL,
  `Course_Title` varchar(50) NOT NULL,
  PRIMARY KEY (`Dept_ID`,`Course_Title`),
  KEY `FK_offers_2` (`Course_Title`),
  CONSTRAINT `FK_offers_2` FOREIGN KEY (`Course_Title`) REFERENCES
`course` (`Course_Title`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `FK_Offers_1` FOREIGN KEY (`Dept_ID`) REFERENCES
`department` (`Dept_ID`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;



CREATE TABLE `registers` (
  `Student_ID` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `CRN` int(10) unsigned NOT NULL,
  `Grade_Mode` varchar(10) NOT NULL,
  `Grade_Received` varchar(1) DEFAULT NULL,
  PRIMARY KEY (`Student_ID`,`CRN`),
  KEY `FK_Registers_CRN` (`CRN`),
  CONSTRAINT `FK_registers_2` FOREIGN KEY (`Student_ID`) REFERENCES
`student` (`Student_ID`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `FK_Registers_CRN` FOREIGN KEY (`CRN`) REFERENCES
`section` (`CRN`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;



CREATE TABLE `regular_user` (
  `Username` varchar(45) NOT NULL,
  `Password` varchar(45) NOT NULL,
  `Name` varchar(45) NOT NULL,
  `Address` varchar(100) NOT NULL,
  `Email_ID` varchar(50) NOT NULL,
  `Date_Of_Birth` date NOT NULL,
  `Permanent_Address` varchar(100) DEFAULT NULL,
  `Gender` varchar(6) DEFAULT NULL,
  `Contact_No` int(11) DEFAULT NULL,
  PRIMARY KEY (`Username`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

```sql
CREATE TABLE `section` (
  `CRN` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `Letter` varchar(1) NOT NULL,
  `Term` varchar(15) NOT NULL,
  `Location` varchar(45) DEFAULT NULL,
  `Day` varchar(10) DEFAULT NULL,
  `Time` varchar(15) DEFAULT NULL,
  `Instructor_ID` int(10) unsigned DEFAULT NULL,
  `Course_Title` varchar(45) NOT NULL,
  PRIMARY KEY (`CRN`),
  KEY `FK_Section_InstID` (`Instructor_ID`),
  KEY `FK_Title` (`Course_Title`),
  CONSTRAINT `FK_Section_InstID` FOREIGN KEY (`Instructor_ID`)
REFERENCES `faculty` (`Instructor_ID`) ON DELETE SET NULL ON UPDATE
CASCADE,
  CONSTRAINT `FK_Title` FOREIGN KEY (`Course_Title`) REFERENCES
`course` (`Course_Title`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;


CREATE TABLE `student` (
  `Student_ID` int(10) unsigned NOT NULL,
  `Major` varchar(30) NOT NULL,
  `Degree` varchar(10) NOT NULL,
  `Username` varchar(45) DEFAULT NULL,
  `Tutor` tinyint(1) DEFAULT '0',
  PRIMARY KEY (`Student_ID`),
  KEY `Username` (`Username`),
  CONSTRAINT `Username` FOREIGN KEY (`Username`) REFERENCES
`regular_user` (`Username`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8;


CREATE TABLE `tutors_for` (
  `Tutor_Student_ID` int(10) unsigned NOT NULL AUTO_INCREMENT,
  `Course_Title` varchar(50) NOT NULL,
  PRIMARY KEY (`Tutor_Student_ID`,`Course_Title`),
  KEY `FK_tutors_for_2` (`Course_Title`),
  CONSTRAINT `FK_tutors_for_2` FOREIGN KEY (`Course_Title`) REFERENCES
`course` (`Course_Title`) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT `FK_Tutors_For_1` FOREIGN KEY (`Tutor_Student_ID`)
REFERENCES `student` (`Student_ID`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

TASK DECOMPOSITION DIAGRAM

Student profile

- Create Profile
- Update Profile
  - Search Courses for tutoring
  - View Profile
  - Enter Information

Faculty Profile

- Create Profile
  - Search Department
  - Search Courses
  - Enter Information
- Update Profile
  - Search Courses
  - Enter Information
  - View Profile

Tutor Assignment

- Search for students who applied
- Assign Tutors
  - Categorize students as tutors
  - Assign Courses to Tutors

Tutor Logbook

- Search courses assigned to Tutor
- Enter student information