Project Report

Curriculum information Sharing System

Report of the design of building a curriculum information sharing system which provides sufficient course information for Syracuse University students to help them better select courses for the coming semester.

Minyang Wang
Syracuse University

THE iSCHOOL
Syracuse University

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Summary

This project is supposed to build a course information sharing platform for Syracuse University graduate students to help them better select courses before the start of each semester. Before the start of each semester, every SU Grad student has to select courses for the coming semester. While each program all has its course list indicating the mandatory and optional courses that students can select, sometimes students are still confused about what courses they should choose for each semester because of the lack of course information. Some courses may also have different sections with different instructors, students still don't have any idea about which section they should take. The current Myslice course searching function only provide information about the course ID, section ID, time of each section and each section's instructor. If students want to know more about the course information they have to go to their program's website and to check the detailed information of each classes and instructors, which is very inconvenient. Due to the lack of course information, some students just randomly picked some classes and when the new semester begins, they find the class is either too easy or extremely hard for them to catch up with and they have to drop the class and reselect others which is waste of time.

With the help of the designed information sharing platform, the following detailed curriculum information will be collected and provided for SU student to help them select the appropriate courses:

1. The course list for each program.
2. For each program, the average portion of student selecting different courses in different periods of the program. (For instance, in iShcool, 60% of ADS students select the IST 707 in the first semester of their first year)
3. For each class section, time and location of the class, instructor's information (contact information, resume, focus area etc.), type of course (lecture, seminar, lecture+ lab etc.), course syllabus, average grade of students who have taken this course, composition of students (portion of students from different programs).
4. For each class section, subjective course evaluation of the class from students who have already taken it.

Entities and attributes

Entities and attributes	Explanations
Student	This entity stores the information of each student.
<u>SUID</u> **StdFirstName** **StdLastName** **Program** **YrAttending** **SemAttending**	Primary Key: SUID YrAttending is the year when this student attended the school. SemAttending is the semester this student attended the school.
UniqueCourse	Instances in this entity represent the particular unique course with particular course number and section number in the particular semester of a particular academic year.
<u>UniqueCourseID</u> **CourseNumber** **SectionNumber** **AcademicYear** **Semester**	Primary Key: UniqueCourseID
CourseInfo	This entity stores the information of each unique course.
<u>CourseInfoID</u> **UniqueCourseID** **Time** **Location** **CourseType**	Primary Key: CourseInfoID Foreign Keys: UniqueCourseID. Associated with primary key of "UniqueCourse" table. Explanation: Courses in different academic year or semester may take place in different classroom or have different time.

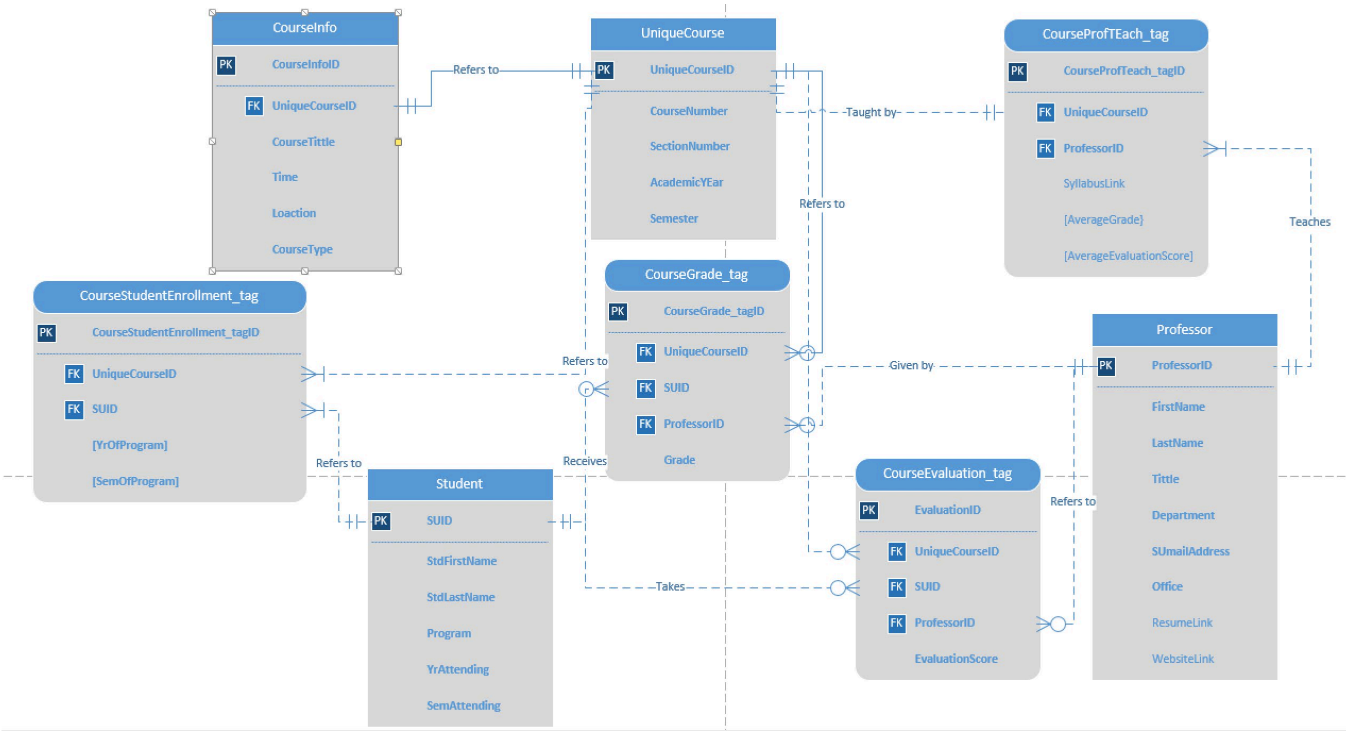
	Business rules: each unique course must have one and only one course information; and each course information must refer to one and only one unique course.
Professor	This entity stores the information of each professor.
ProfessorID **FirstName** **LastName** **Tittle** **Department** **SUmailAddress** **Office** ResumeLink WebsiteLink	Primary Key: ProfessorID
CourseStudentEnrollment_tag	This is an associative entity which establishes the relationship between student and course.
CourseStudentEnrollment_tagID **UniqueCourseID** **SUID** **[YrOfProgram]** **[SemOfProgram]**	Primary Key: CourseStudentEnrollment_tagID Foreign Keys: UniqueCourseID, SUID. Associated with primary keys of “Student” and “UniqueCourse” table. [YrOfProgram] is a derived attribute which indicates in which year of the student’s program he enrolled in this class (for example, in the first year of his program). It’s calculated by counting the number of years since the year this student attended his program until the year when he enrolled in this class. [YrOfSemester] is a derived attribute which similarly indicates in which semester of the student’s program he enrolled in this class (for

	example, in the second semester of his program). When combing [YrOfProgram] and [YrOfSemester] we can store the enrollment information of exactly when the student took this class (for example, in the second semester of his first year of program this student enrolled in this class). Business rules: A student must enroll in one or more courses; and a course must be selected by at least one student.
CourseProfTeach_tag	This is an associative entity which establishes the relationship between professor and course.
CourseProfTeach_tagID **UniqueCourseID** **ProfessorID** SyllabusLink [AverageGrade] [AverageEvaluationScore]	Primary Key: CourseProfTeach_tagID Foreign Keys: UniqueCourseID, ProfessorID. Associated with primary keys of “Professor” and “UniqueCourse” tables. AverageGrade is a derived attribute which is calculated by the average of the grades of students who have taken this particular course taught by this particular professor. It’s not a required attribute because for some ongoing courses the grade has not come out yet. AverageEvaluationScore is a derived attribute which is calculated by the average of the evaluation scores of students who have taken this particular course taught by this particular professor.

	Business rules: A professor must teach at least one course; and a course can be taught by one and only one professor.
CourseGrade_tag	This is an associative entity which establishes the relationship among student, professor, course and grade. It records the grade of a particular student who takes a particular course taught by a particular professor.
CourseGrade_tagID **UniqueCourseID** **SUID** **ProfessorID** **Grade**	Primary Key: CourseGrade_tagID Foreign Keys: UniqueCourseID, SUID, ProfessorID. Associated with primary keys of "UniqueCourse", "Student" and "Professor" tables. Grade is the final grade a particular student got from the course, and the full grade of a course is 100. Business rules: 1. A student can have 0 or more course grades; and a course grade must refer to one and only one student. 2. A professor can give 0 or more course grades; and a course grade must be given by one and only one professor. 3. A course can have 0 or more final grades; and a course grade must refer to one and only one course.
CourseEvaluation_tag	This is an associative entity which establishes the relationship among student, professor, course and course evaluation. It records the evaluation score of a particular course taught by a particular professor rated by students who have taken this class.

EvaluationID **UniqueCourseID** **SUID** **ProfessorID** **EvaluationScore**	Primary Key: EvaluationID Foreign Keys: UniqueCourseID, SUID, ProfessorID. Associated with primary keys of “UniqueCourse”, “Student” and “Professor” tables. EvaluationScore is the evaluation of a student who have taken this particular course by the particular professor, the full score is 5. Business rules: 1. A student can make 0 or more course evaluation; and a course evaluation must be made by one and only one student. 2. A professor can receive 0 or more course evaluation; and a course evaluation must refer to one and only one professor. 3. A course can have 0 or more evaluation scores; and a course evaluation must refer to one and only one course.

Entity relationship diagram



CourseInfo
PK CourseInfoID
FK UniqueCourseID
CourseTittle
Time
Loaction
CourseType

UniqueCourse
PK UniqueCourseID
CourseNumber
SectionNumber
AcademicYEar
Semester

CourseProfTEach_tag
PK CourseProfTeach_tagID
FK UniqueCourseID
FK ProfessorID
SyllabusLink
[AverageGrade}
[AverageEvaluationScore]

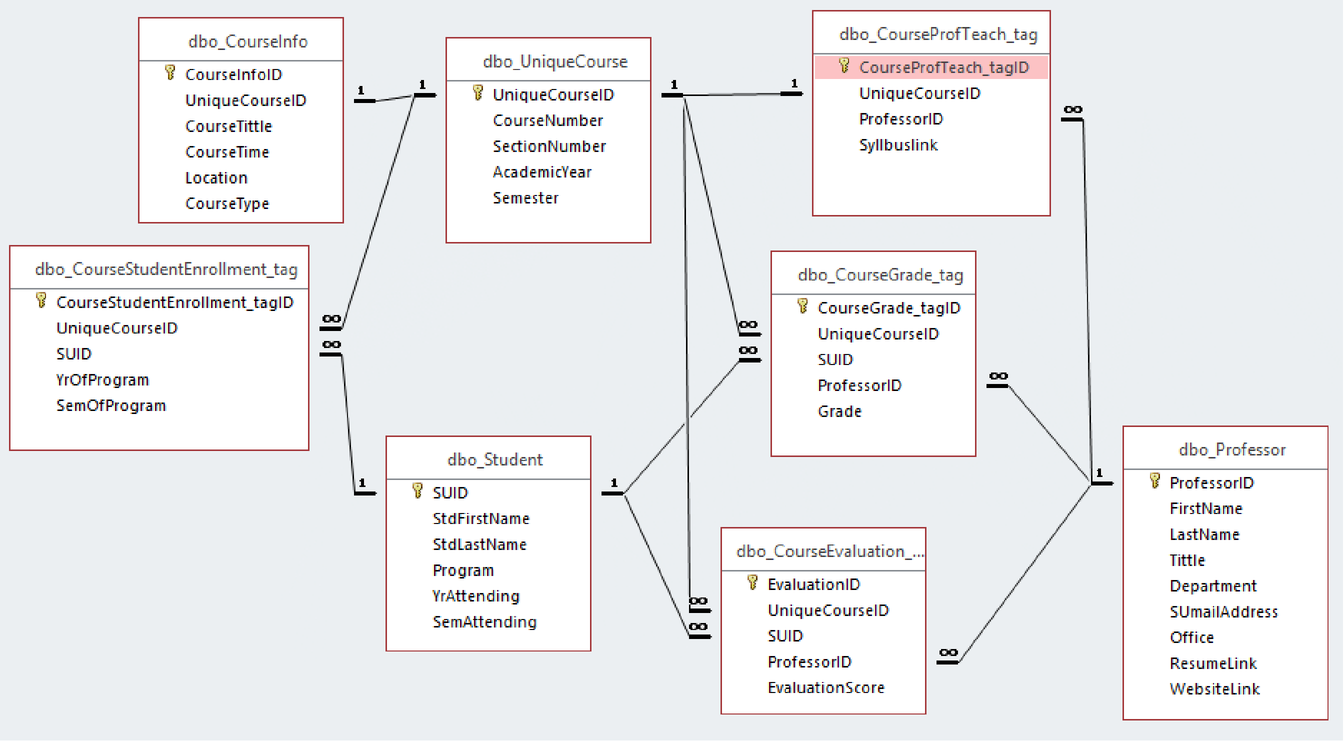
CourseStudentEnrollment_tag
PK CourseStudentEnrollment_tagID
FK UniqueCourseID
FK SUID
[YrOfProgram]
[SemOfProgram]

CourseGrade_tag
PK CourseGrade_tagID
FK UniqueCourseID
FK SUID
FK ProfessorID
Grade

Professor
PK ProfessorID
FirstName
LastName
Tittle
Department
SUmailAddress
Office
ResumeLink
WebsiteLink

Student
PK SUID
StdFirstName
StdLastName
Program
YrAttending
SemAttending

CourseEvaluation_tag
PK EvaluationID
FK UniqueCourseID
FK SUID
FK ProfessorID
EvaluationScore



dbo_CourseInfo
CourseInfoID
UniqueCourseID
CourseTittle
CourseTime
Location
CourseType

dbo_UniqueCourse
UniqueCourseID
CourseNumber
SectionNumber
AcademicYear
Semester

dbo_CourseProfTeach_tag
CourseProfTeach_tagID
UniqueCourseID
ProfessorID
Syllbuslink

dbo_CourseStudentEnrollment_tag
CourseStudentEnrollment_tagID
UniqueCourseID
SUID
YrOfProgram
SemOfProgram

dbo_CourseGrade_tag
CourseGrade_tagID
UniqueCourseID
SUID
ProfessorID
Grade

dbo_Student
SUID
StdFirstName
StdLastName
Program
YrAttending
SemAttending

dbo_CourseEvaluation_...
EvaluationID
UniqueCourseID
SUID
ProfessorID
EvaluationScore

dbo_Professor
ProfessorID
FirstName
LastName
Tittle
Department
SUmailAddress
Office
ResumeLink
WebsiteLink

Additional business rules

1. The ***Semester*** attribute in ***UniqueCourse*** table can only be one of the four values: fall, winter, spring, summer.

The ***SemAttending*** attribute in ***Student*** table can only be one of the three values: fall, spring, summer.

2. The value of the ***Time*** attribute in ***CourseInfo*** table should be the following format: day of the week (Mon, Tue, Wed…Sun) + space + time in the day (military time). For a class which has multiple time, use comma to separate each day and time. For example: “Mon 9:30-10:50, Wed 9:30-10:50”
3. The ***YrOfProgram*** attribute in ***CourseStudentEnrollment_tag*** table can be only one of the two values: first year and second year. (Assume the maximum length of master programs in SU is two years)
4. The ***SemOfProgram*** attribute in ***CourseStudentEnrollment_tag*** table can be only one of the four values: first semester, second semester, winter semester and summer semester. (For example, a student attended the school in the spring semester in 2017 and enrolled in the class in the fall semester in 2018, so this class is recorded as taken in his second semester of his second program year. But if this student took a class in the summer session in 2018, this class is recorded as enrolled in his summer semester in the second year of his program).

SQL scripts for creating and inserting sample data

Create table Student

```
CREATE TABLE Student
(
SUID VARCHAR(9) PRIMARY KEY,
StdFirstName VARCHAR(20) NOT NULL,
StdLastName VARCHAR(20) NOT NULL,
Program VARCHAR(30) NOT NULL,
YrAttending INT NOT NULL,
SemAttending VARCHAR(6) NOT NULL CHECK (SemAttending IN ('fall','spring','summer'))
)
```

Create table Professor

```
CREATE TABLE Professor
(
ProfessorID VARCHAR(15) PRIMARY KEY,
FirstName VARCHAR(20) NOT NULL,
LastName VARCHAR(20) NOT NULL,
Tittle VARCHAR(40) NOT NULL,
Department VARCHAR(40) NOT NULL,
SUmailAddress VARCHAR(40) NOT NULL,
Office VARCHAR(40) NOT NULL,
ResumeLink VARCHAR(100) NULL,
WebsiteLink VARCHAR(100) NULL
)
```

Create table UniqueCourse

```
CREATE TABLE UniqueCourse
(
UniqueCourseID INT IDENTITY (1,1) PRIMARY KEY,
CourseNumber VARCHAR(6) NOT NULL,
SectionNumber VARCHAR(4) NOT NULL,
AcademicYear INT NOT NULL,
Semester VARCHAR(6) NOT NULL CHECK (Semester IN ('fall','winter','spring','summer'))
)
```

Create table CourseInfo

```
CREATE TABLE CourseInfo
(
CourseInfoID INT IDENTITY (1,1) PRIMARY KEY,
UniqueCourseID INT  NOT NULL,
CourseTittle VARCHAR(100) NOT NULL,
CourseTime VARCHAR(100) NOT NULL,
Location VARCHAR(20) NOT NULL,
CourseType VARCHAR(20) NOT NULL,
CONSTRAINT CourseInfo_FK FOREIGN KEY(UniqueCourseID) REFERENCES UniqueCourse(UniqueCourseID)
)
```

Create table CourseProfTeach_tag

```
CREATE TABLE CourseProfTeach_tag
(
CourseProfTeach_tagID INT IDENTITY (1,1) PRIMARY KEY,
UniqueCourseID INT  NOT NULL,
ProfessorID VARCHAR(15) NOT NULL,
Syllbuslink VARCHAR(100) NULL,
CONSTRAINT CourseProfTeach_tag_FK_CourseID FOREIGN KEY (UniqueCourseID) REFERENCES
UniqueCourse(UniqueCourseID),
CONSTRAINT CourseProfTeach_tag_ProfessorID FOREIGN KEY (ProfessorID) REFERENCES
Professor(ProfessorID)
);
```

Create table CourseStudentEnrollment_tag

```
CREATE TABLE CourseStudentEnrollment_tag
(
CourseStudentEnrollment_tagID INT IDENTITY (1,1) PRIMARY KEY,
UniqueCourseID INT  NOT NULL,
SUID VARCHAR(9) NOT NULL,
YrOfProgram VARCHAR(15) NOT NULL CHECK ( YrOfProgram IN ('First Year','Second Year')),
SemOfProgram VARCHAR (40) NOT NULL CHECK (SemOfProgram IN ('First Semester','Second
Semester','Winter Semester','Summer Semester')),
CONSTRAINT CourseStudentEnrollment_tag_FK_CourseID FOREIGN KEY (UniqueCourseID) REFERENCES
UniqueCourse(UniqueCourseID),
CONSTRAINT CourseStudentEnrollment_tag_FK_SUID FOREIGN KEY (SUID) REFERENCES Student(SUID)
);
```

Create table CourseGrade_tag

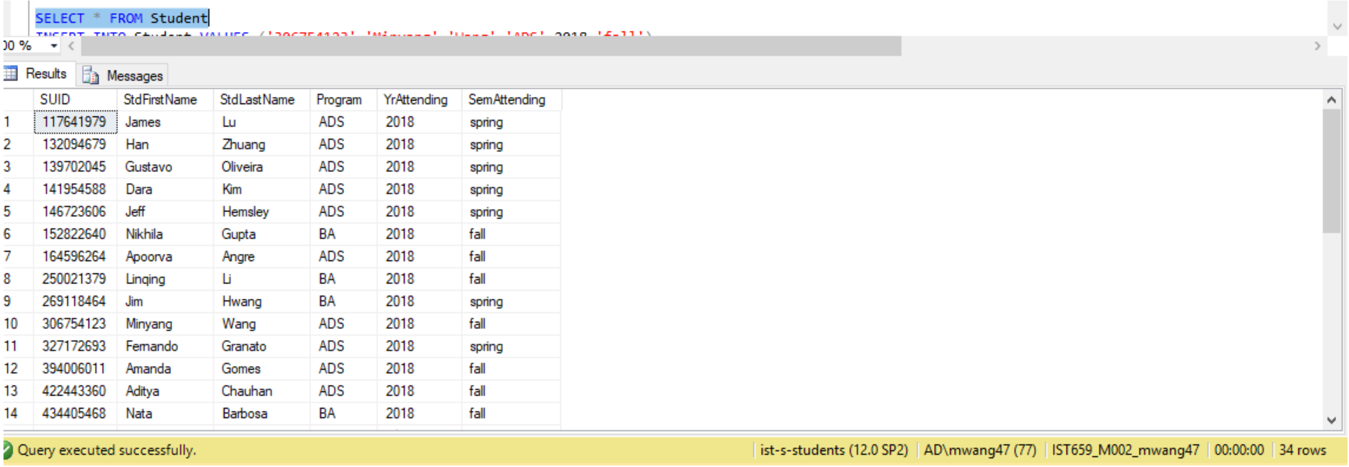
```
CREATE TABLE CourseGrade_tag
(
CourseGrade_tagID INT IDENTITY (1,1) PRIMARY KEY,
UniqueCourseID INT  NOT NULL,
SUID VARCHAR(9) NOT NULL,
ProfessorID VARCHAR(15) NOT NULL,
Grade INT NOT NULL,
CONSTRAINT CourseGrade_tag_FK_CourseID FOREIGN KEY (UniqueCourseID) REFERENCES
UniqueCourse(UniqueCourseID),
CONSTRAINT CourseGrade_tag_FK_SUID  FOREIGN KEY (SUID) REFERENCES Student(SUID),
CONSTRAINT CourseGrade_tag_FK_ProfessorID FOREIGN KEY (ProfessorID) REFERENCES
Professor(ProfessorID)
);
```

Create table CourseEvaluation_tag

```
CREATE TABLE CourseEvaluation_tag
(
EvaluationID INT IDENTITY (1,1) PRIMARY KEY,
UniqueCourseID INT  NOT NULL,
SUID VARCHAR(9) NOT NULL,
ProfessorID VARCHAR(15) NOT NULL,
EvaluationScore INT NOT NULL,
CONSTRAINT CourseEvaluation_tag_FK_CourseID FOREIGN KEY (UniqueCourseID) REFERENCES
UniqueCourse(UniqueCourseID),
CONSTRAINT CourseEvaluation_tag_FK_SUID  FOREIGN KEY (SUID) REFERENCES Student(SUID),
CONSTRAINT CourseEvaluation_tag_FK_ProfessorID FOREIGN KEY (ProfessorID) REFERENCES
Professor(ProfessorID)
)
```

Insert data in Student table

```
INSERT INTO Student VALUES ('306754123','Minyang','Wang','ADS',2018,'fall')
INSERT INTO Student VALUES ('999687609','Abdulaziz','Alsuwayh','ADS',2018,'fall')
INSERT INTO Student VALUES ('422443360','Aditya','Chauhan','ADS',2018,'fall')
INSERT INTO Student VALUES ('591906345','Aditya','Patil','ADS',2018,'fall')
INSERT INTO Student VALUES ('964388836','Alyssa','Gorsky','ADS',2018,'fall')
INSERT INTO Student VALUES ('394006011','Amanda','Gomes','ADS',2018,'fall')
INSERT INTO Student VALUES ('164596264','Apoorva','Angre','ADS',2018,'fall')
INSERT INTO Student VALUES ('945728613','Ashik','Liyakathali','ADS',2018,'fall')
INSERT INTO Student VALUES ('669031207','Austin','Lewis','ADS',2018,'fall')
INSERT INTO Student VALUES ('560617330','Bhavik','Lalwani','ADS',2018,'fall')
INSERT INTO Student VALUES ('782371674','Christopher','Whelan','ADS',2018,'spring')
INSERT INTO Student VALUES ('141954588','Dara','Kim','ADS',2018,'spring')
INSERT INTO Student VALUES ('327172693','Fernando','Granato','ADS',2018,'spring')
INSERT INTO Student VALUES ('139702045','Gustavo','Oliveira','ADS',2018,'spring')
INSERT INTO Student VALUES ('132094679','Han','Zhuang','ADS',2018,'spring')
INSERT INTO Student VALUES ('896855658','Ivan','Huang','ADS',2018,'spring')
INSERT INTO Student VALUES ('117641979','James','Lu','ADS',2018,'spring')
INSERT INTO Student VALUES ('146723606','Jeff','Hemsley','ADS',2018,'spring')
INSERT INTO Student VALUES ('658982897','Jieqing','Hu','BA',2018,'spring')
INSERT INTO Student VALUES ('269118464','Jim','Hwang','BA',2018,'spring')
INSERT INTO Student VALUES ('971866967','Jingyi','Wang','BA',2018,'spring')
INSERT INTO Student VALUES ('835995188','Joey','Sisti','BA',2018,'spring')
INSERT INTO Student VALUES ('651240959','Julia','Fontana','BA',2018,'spring')
INSERT INTO Student VALUES ('884664445','Khushnud','Sapaev','BA',2018,'spring')
INSERT INTO Student VALUES ('936527751','Kirti','Hassani','BA',2018,'spring')
INSERT INTO Student VALUES ('250021379','Linqing','Li','BA',2018,'fall')--
INSERT INTO Student VALUES ('886726697','Luigi','Penaloza','BA',2018,'fall')
INSERT INTO Student VALUES ('687498203','Max','Gerstman','BA',2018,'fall')
INSERT INTO Student VALUES ('664510579','Mengjie','Ge','BA',2018,'fall')
INSERT INTO Student VALUES ('790938363','Mudita','Humar','BA',2018,'fall')
INSERT INTO Student VALUES ('446629472','Narasimha','Shenoy','BA',2018,'fall')
INSERT INTO Student VALUES ('434405468','Nata','Barbosa','BA',2018,'fall')
INSERT INTO Student VALUES ('874367270','Nidhi','Shetty','BA',2018,'fall')
INSERT INTO Student VALUES ('152822640','Nikhila','Gupta','BA',2018,'fall')
```



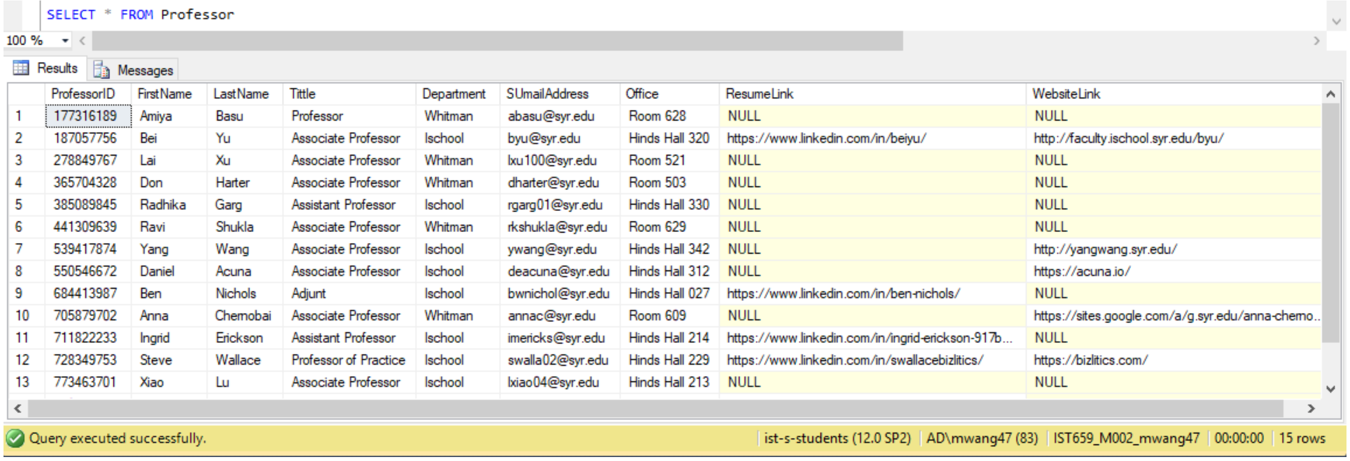
```
SELECT * FROM Student
INSERT INTO Student VALUES ('306754123','Minyang','Wang','ADS',2018,'fall')
```

	SUID	StdFirstName	StdLastName	Program	YrAttending	SemAttending
1	117641979	James	Lu	ADS	2018	spring
2	132094679	Han	Zhuang	ADS	2018	spring
3	139702045	Gustavo	Oliveira	ADS	2018	spring
4	141954588	Dara	Kim	ADS	2018	spring
5	146723606	Jeff	Hemsley	ADS	2018	spring
6	152822640	Nikhila	Gupta	BA	2018	fall
7	164596264	Apoorva	Angre	ADS	2018	fall
8	250021379	Linqing	Li	BA	2018	fall
9	269118464	Jim	Hwang	BA	2018	spring
10	306754123	Minyang	Wang	ADS	2018	fall
11	327172693	Fernando	Granato	ADS	2018	spring
12	394006011	Amanda	Gomes	ADS	2018	fall
13	422443360	Aditya	Chauhan	ADS	2018	fall
14	434405468	Nata	Barbosa	BA	2018	fall

Query executed successfully. | ist-s-students (12.0 SP2) | AD\mwang47 (77) | IST659_M002_mwang47 | 00:00:00 | 34 rows

Insert data in Professor table

```
INSERT INTO Professor VALUES
('684413987','Ben','Nichols','Adjunt','Ischool','bwnichol@syr.edu','Hinds Hall
027','https://www.linkedin.com/in/ben-nichols/',NULL)
INSERT INTO Professor VALUES ('728349753','Steve','Wallace','Professor of
Practice','Ischool','swalla02@syr.edu ','Hinds Hall
229','https://www.linkedin.com/in/swallacebizlitics/','https://bizlitics.com/')
INSERT INTO Professor VALUES ('187057756','Bei','Yu','Associate
Professor','Ischool','byu@syr.edu','Hinds Hall
320','https://www.linkedin.com/in/beiyu/','http://faculty.ischool.syr.edu/byu/')
INSERT INTO Professor VALUES ('705879702','Anna','Chernobai','Associate
Professor','Whitman','annac@syr.edu','Room 609',NULL,'https://sites.google.com/a/g.syr.edu/anna-
chernobai/')
INSERT INTO Professor VALUES ('962201151','Jeffrey','Saltz','Associate
Professor','Ischool','jsaltz@syr.edu','Hinds Hall 233',NULL,NULL)
INSERT INTO Professor VALUES ('773463701','Xiao','Lu','Associate
Professor','Ischool','lxiao04@syr.edu','Hinds Hall 213',NULL,NULL)
INSERT INTO Professor VALUES ('550546672','Daniel','Acuna','Associate
Professor','Ischool','deacuna@syr.edu','Hinds Hall 312',NULL,'https://acuna.io/')
INSERT INTO Professor VALUES ('870632924','Jeff','Hemsley','Associate
Professor','Ischool','jjhemsle@syr.edu','Hinds Hall
346','https://www.linkedin.com/in/jeffhemsley/',NULL)
INSERT INTO Professor VALUES
('177316189','Amiya','Basu','Professor','Whitman','abasu@syr.edu','Room 628',NULL,NULL)
INSERT INTO Professor VALUES ('441309639','Ravi','Shukla','Associate
Professor','Whitman','rkshukla@syr.edu','Room 629',NULL,NULL)
INSERT INTO Professor VALUES ('278849767','Lai','Xu','Associate
Professor','Whitman','lxu100@syr.edu','Room 521',NULL,NULL)
INSERT INTO Professor VALUES ('365704328','Don','Harter','Associate
Professor','Whitman','dharter@syr.edu','Room 503',NULL,NULL)
INSERT INTO Professor VALUES ('539417874','Yang','Wang','Associate
Professor','Ischool','ywang@syr.edu','Hinds Hall 342',NULL,'http://yangwang.syr.edu/')
INSERT INTO Professor VALUES ('711822233','Ingrid','Erickson','Assistant
Professor','Ischool','imericks@syr.edu','Hinds Hall 214','https://www.linkedin.com/in/ingrid-
erickson-917b452/',NULL)
INSERT INTO Professor VALUES ('385089845','Radhika','Garg','Assistant
Professor','Ischool','rgarg01@syr.edu','Hinds Hall 330',NULL,NULL)
```



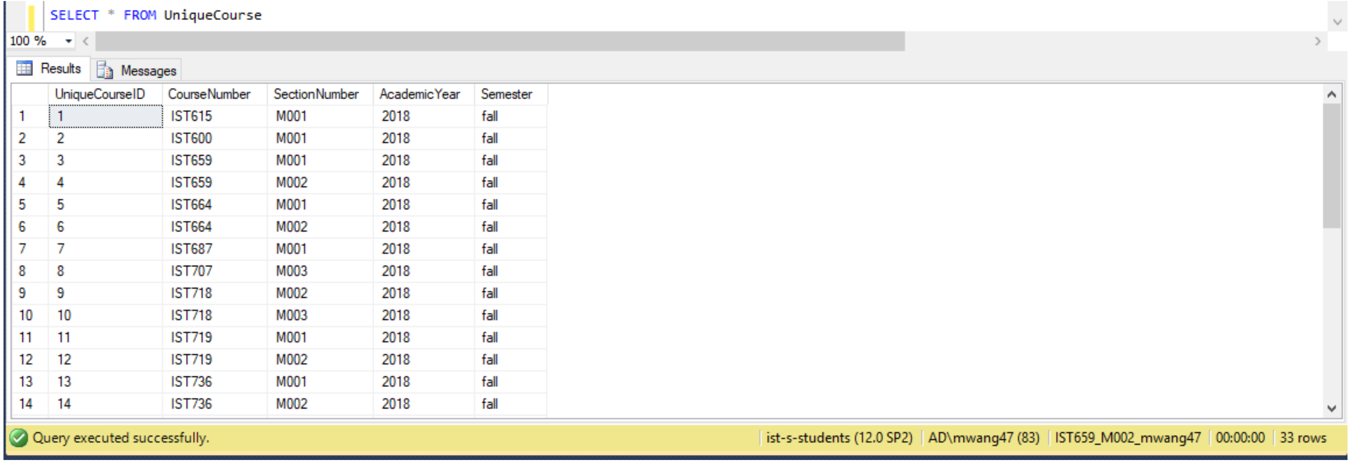
```
SELECT * FROM Professor
```

	ProfessorID	FirstName	LastName	Tittle	Department	SUmailAddress	Office	ResumeLink	WebsiteLink
1	177316189	Amiya	Basu	Professor	Whitman	abasu@syr.edu	Room 628	NULL	NULL
2	187057756	Bei	Yu	Associate Professor	Ischool	byu@syr.edu	Hinds Hall 320	https://www.linkedin.com/in/beiyu/	http://faculty.ischool.syr.edu/byu/
3	278849767	Lai	Xu	Associate Professor	Whitman	lxu100@syr.edu	Room 521	NULL	NULL
4	365704328	Don	Harter	Associate Professor	Whitman	dharter@syr.edu	Room 503	NULL	NULL
5	385089845	Radhika	Garg	Assistant Professor	Ischool	rgarg01@syr.edu	Hinds Hall 330	NULL	NULL
6	441309639	Ravi	Shukla	Associate Professor	Whitman	rkshukla@syr.edu	Room 629	NULL	NULL
7	539417874	Yang	Wang	Associate Professor	Ischool	ywang@syr.edu	Hinds Hall 342	NULL	http://yangwang.syr.edu/
8	550546672	Daniel	Acuna	Associate Professor	Ischool	deacuna@syr.edu	Hinds Hall 312	NULL	https://acuna.io/
9	684413987	Ben	Nichols	Adjunt	Ischool	bwnichol@syr.edu	Hinds Hall 027	https://www.linkedin.com/in/ben-nichols/	NULL
10	705879702	Anna	Chernobai	Associate Professor	Whitman	annac@syr.edu	Room 609	NULL	https://sites.google.com/a/g.syr.edu/anna-cherno..
11	711822233	Ingrid	Erickson	Assistant Professor	Ischool	imericks@syr.edu	Hinds Hall 214	https://www.linkedin.com/in/ingrid-erickson-917b...	NULL
12	728349753	Steve	Wallace	Professor of Practice	Ischool	swalla02@syr.edu	Hinds Hall 229	https://www.linkedin.com/in/swallacebizlitics/	https://bizlitics.com/
13	773463701	Xiao	Lu	Associate Professor	Ischool	lxiao04@syr.edu	Hinds Hall 213	NULL	NULL

Query executed successfully. | ist-s-students (12.0 SP2) | AD\mwang47 (83) | IST659_M002_mwang47 | 00:00:00 | 15 rows

Insert data in UniqueCourse table

```
INSERT INTO UniqueCourse VALUES('IST615','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST600','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST659','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST659','M002',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST664','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST664','M002',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST687','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST707','M003',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST718','M002',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST718','M003',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST719','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST719','M002',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST736','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST736','M002',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST615','M001',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST652','M002',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST659','M002',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST659','M003',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST664','M002',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST664','M003',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST707','M001',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST718','M002',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST718','M003',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST719','M001',2018,'spring')
INSERT INTO UniqueCourse VALUES('IST719','M002',2018,'spring')
INSERT INTO UniqueCourse VALUES('MBC638','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('SCM651','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('SCM651','M001',2018,'spring')
INSERT INTO UniqueCourse VALUES('SCM651','M002',2018,'spring')
INSERT INTO UniqueCourse VALUES('MAR653','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('FIN654','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('FIN756','M001',2018,'fall')
INSERT INTO UniqueCourse VALUES('IST687','M001',2018,'spring')
```



```
SELECT * FROM UniqueCourse
```

	UniqueCourseID	CourseNumber	SectionNumber	AcademicYear	Semester
1	1	IST615	M001	2018	fall
2	2	IST600	M001	2018	fall
3	3	IST659	M001	2018	fall
4	4	IST659	M002	2018	fall
5	5	IST664	M001	2018	fall
6	6	IST664	M002	2018	fall
7	7	IST687	M001	2018	fall
8	8	IST707	M003	2018	fall
9	9	IST718	M002	2018	fall
10	10	IST718	M003	2018	fall
11	11	IST719	M001	2018	fall
12	12	IST719	M002	2018	fall
13	13	IST736	M001	2018	fall
14	14	IST736	M002	2018	fall

Query executed successfully. | ist-s-students (12.0 SP2) | AD\mwang47 (83) | IST659_M002_mwang47 | 00:00:00 | 33 rows

Insert data in CourseInfo table

```sql
INSERT INTO CourseInfo VALUES (1,'Cloud Management','Wed 9:30-12:15','Hinds Hall 021','Lecture')
INSERT INTO CourseInfo VALUES (2,'Intro to Cloud Technology','Wed 12:45-15:35','Hinds Hall 111','Lecture')
INSERT INTO CourseInfo VALUES (3,'Data Admin Concepts & Db Mgmt','Mon 12:30-15:15','Hinds Hall 013','Lab')
INSERT INTO CourseInfo VALUES (4,'Data Admin Concepts & Db Mgmt','Mon 17:15-20:05','Hinds Hall 027','Lab')
INSERT INTO CourseInfo VALUES (5,'Natural Language Processing','Mon 9:30-12:15','Hinds Hall 013','Lecture')
INSERT INTO CourseInfo VALUES (6,'Natural Language Processing','Mon 14:15-17:05','Hinds Hall 010','Lecture')
INSERT INTO CourseInfo VALUES (7,'Introduction to Data Science','Th 9:30-10:50','Grant Auditorium','Lecture')
INSERT INTO CourseInfo VALUES (8,'Data Analytics','Tu 9:30-12:15','Hinds Hall 027','Lab')
INSERT INTO CourseInfo VALUES (9,'Big Data Analytics','Mon 9:30-12:15','Hinds Hall 011','Lecture')
INSERT INTO CourseInfo VALUES (10,'Big Data Analytics','Tu 9:30-12:15','Hinds Hall 011','Lecture')
INSERT INTO CourseInfo VALUES (11,'Information Visualization','Tu 9:30-12:15','Hinds Hall 010','Lecture')
INSERT INTO CourseInfo VALUES (12,'Information Visualization','Wed 9:30-12:15','Hinds Hall 010','Lecture')
INSERT INTO CourseInfo VALUES (13,'Text Mining','Wed 9:30-12:15','Hinds Hall 013','Lab')
INSERT INTO CourseInfo VALUES (14,'Text Mining','Wed 14:15-17:05','Hinds Hall 013','Lab')
INSERT INTO CourseInfo VALUES (15,'Cloud Management','Wed 9:30-12:15','Hinds Hall 021','Lecture')
INSERT INTO CourseInfo VALUES (16,'Scripting for Data Analysis','Mon 17:15-20:05','Hinds Hall 027','Lab')
INSERT INTO CourseInfo VALUES (17,'Data Admin Concepts & Db Mgmt','Mon 12:45-15:30','Hinds Hall 013','Lab')
INSERT INTO CourseInfo VALUES (18,'Data Admin Concepts & Db Mgmt','Mon 9:30-12:15','Hinds Hall 013','Lab')
INSERT INTO CourseInfo VALUES (19,'Natural Language Processing','Mon 9:30-12:15','Hinds Hall 010','Lecture')
INSERT INTO CourseInfo VALUES (20,'Natural Language Processing','Th 9:30-12:15','Hinds Hall 010','Lecture')
INSERT INTO CourseInfo VALUES (21,'Data Analytics','Wed 12:45-15:35','Hinds Hall 013','Lab')
INSERT INTO CourseInfo VALUES (22,'Big Data Analytics','Tu 14:00-16:50','Hinds Hall 117','Lecture')
INSERT INTO CourseInfo VALUES (23,'Big Data Analytics','Wed 9:30-12:15','Hinds Hall 117','Lecture')
INSERT INTO CourseInfo VALUES (24,'Information Visualization','Tu 9:30-12:15','Hinds Hall 010','Lecture')
INSERT INTO CourseInfo VALUES (25,'Information Visualization','Wed 9:30-12:15','Hinds Hall 010','Lecture')
INSERT INTO CourseInfo VALUES (26,'Data Analysis and Decision Making','Wed 9:30-12:15','Whitman 007','Lecture')
INSERT INTO CourseInfo VALUES (27,'Business Analytics','Fri 13:00-15:45','Whitman 104','Lecture')
INSERT INTO CourseInfo VALUES (28,'Business Analytics','Fri 9:30-12:15','Whitman 104','Lecture')
INSERT INTO CourseInfo VALUES (29,'Business Analytics','Fri 13:00-15:45','Whitman 104','Lecture')
INSERT INTO CourseInfo VALUES (30,'Marketing Analytics ','Mon 17:15-18:35, Wed 17:15-18:35','Whitman 204','Lecture')
```

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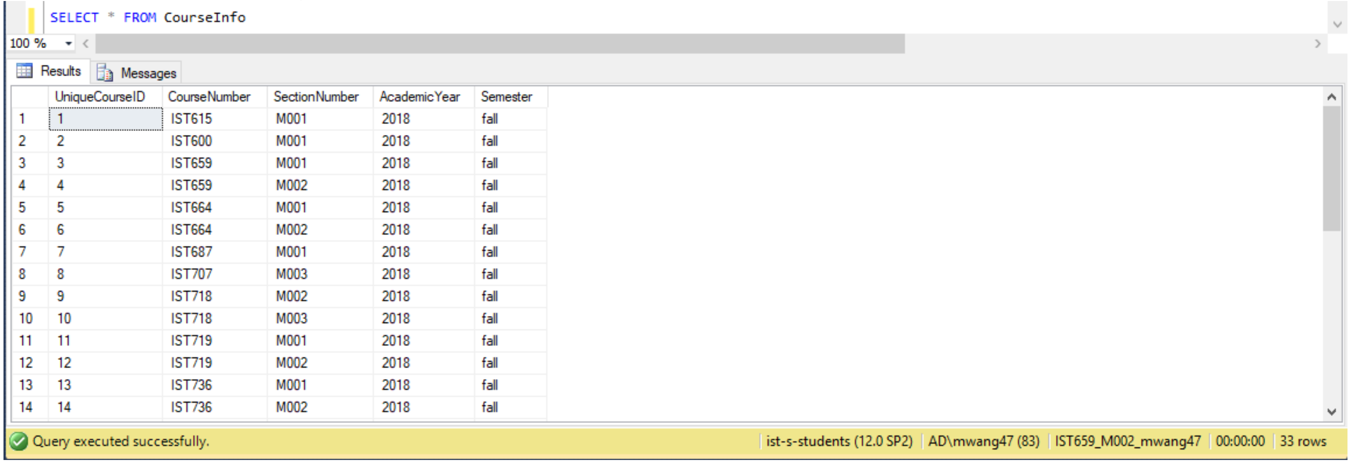
```
INSERT INTO CourseInfo VALUES (31,'Financial Analytics','Tu 18:30-19:50, Th 18:30-
19:50','Whitman 009','Lecture')
INSERT INTO CourseInfo VALUES (32,'Investment Analysis','Th 8:00-9:20, Th 8:00-9:20','Whitman
007','Lecture')
INSERT INTO CourseInfo VALUES (33,'Introduction to Data Science','Th 9:30-10:50','Grant
Auditorium','Lecture')
```



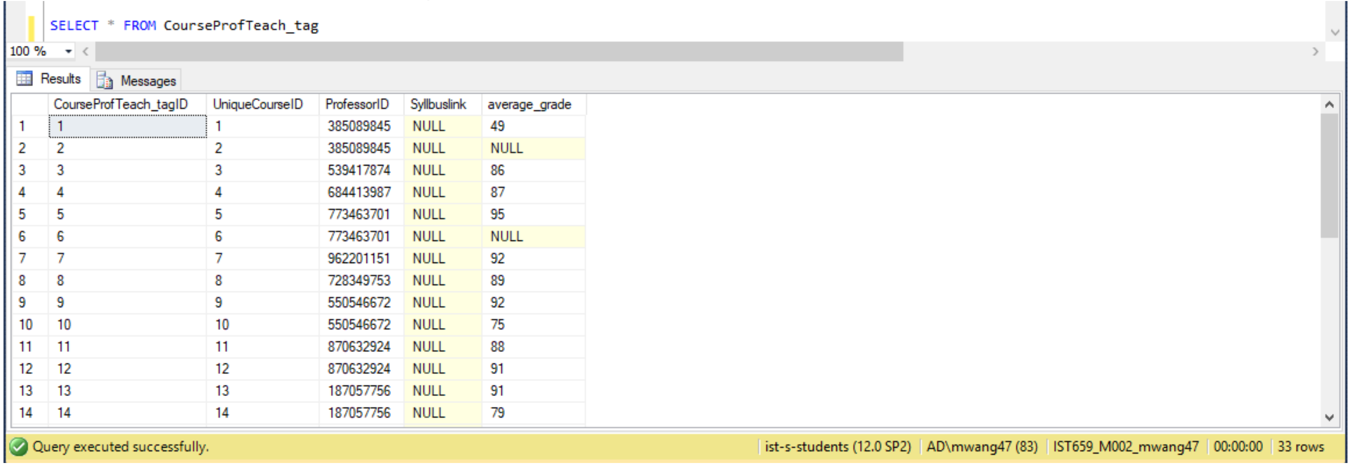
```
SELECT * FROM CourseInfo
```

	UniqueCourseID	CourseNumber	SectionNumber	AcademicYear	Semester
1	1	IST615	M001	2018	fall
2	2	IST600	M001	2018	fall
3	3	IST659	M001	2018	fall
4	4	IST659	M002	2018	fall
5	5	IST664	M001	2018	fall
6	6	IST664	M002	2018	fall
7	7	IST687	M001	2018	fall
8	8	IST707	M003	2018	fall
9	9	IST718	M002	2018	fall
10	10	IST718	M003	2018	fall
11	11	IST719	M001	2018	fall
12	12	IST719	M002	2018	fall
13	13	IST736	M001	2018	fall
14	14	IST736	M002	2018	fall

Query executed successfully. | ist-s-students (12.0 SP2) | AD\mwang47 (83) | IST659_M002_mwang47 | 00:00:00 | 33 rows

Insert data in CourseProfTeach_tag table

```
INSERT INTO CourseProfTeach_tag VALUES (1,'385089845',NULL)
INSERT INTO CourseProfTeach_tag VALUES (2,'385089845',NULL)
INSERT INTO CourseProfTeach_tag VALUES (3,'539417874',NULL)
INSERT INTO CourseProfTeach_tag VALUES (4,'684413987',NULL)
INSERT INTO CourseProfTeach_tag VALUES (5,'773463701',NULL)
INSERT INTO CourseProfTeach_tag VALUES (6,'773463701',NULL)
INSERT INTO CourseProfTeach_tag VALUES (7,'962201151',NULL)
INSERT INTO CourseProfTeach_tag VALUES (8,'728349753',NULL)
INSERT INTO CourseProfTeach_tag VALUES (9,'550546672',NULL)
INSERT INTO CourseProfTeach_tag VALUES (10,'550546672',NULL)
INSERT INTO CourseProfTeach_tag VALUES (11,'870632924',NULL)
INSERT INTO CourseProfTeach_tag VALUES (12,'870632924',NULL)
INSERT INTO CourseProfTeach_tag VALUES (13,'187057756',NULL)
INSERT INTO CourseProfTeach_tag VALUES (14,'187057756',NULL)
INSERT INTO CourseProfTeach_tag VALUES (15,'385089845',NULL)
INSERT INTO CourseProfTeach_tag VALUES (16,'684413987',NULL)
INSERT INTO CourseProfTeach_tag VALUES (17,'539417874',NULL)
INSERT INTO CourseProfTeach_tag VALUES (18,'539417874',NULL)
INSERT INTO CourseProfTeach_tag VALUES (19,'773463701',NULL)
INSERT INTO CourseProfTeach_tag VALUES (20,'728349753',NULL)
INSERT INTO CourseProfTeach_tag VALUES (21,'728349753',NULL)
INSERT INTO CourseProfTeach_tag VALUES (22,'550546672',NULL)
INSERT INTO CourseProfTeach_tag VALUES (23,'550546672',NULL)
INSERT INTO CourseProfTeach_tag VALUES (24,'870632924',NULL)
INSERT INTO CourseProfTeach_tag VALUES (25,'870632924',NULL)
INSERT INTO CourseProfTeach_tag VALUES (26,'705879702',NULL)
INSERT INTO CourseProfTeach_tag VALUES (27,'177316189',NULL)
INSERT INTO CourseProfTeach_tag VALUES (28,'177316189',NULL)
INSERT INTO CourseProfTeach_tag VALUES (29,'177316189',NULL)
INSERT INTO CourseProfTeach_tag VALUES (30,'177316189',NULL)
INSERT INTO CourseProfTeach_tag VALUES (31,'278849767',NULL)
INSERT INTO CourseProfTeach_tag VALUES (32,'441309639',NULL)
INSERT INTO CourseProfTeach_tag VALUES (33,'962201151',NULL)
```



```
SELECT * FROM CourseProfTeach_tag
```

	CourseProfTeach_tagID	UniqueCourseID	ProfessorID	Syllbuslink	average_grade
1	1	1	385089845	NULL	49
2	2	2	385089845	NULL	NULL
3	3	3	539417874	NULL	86
4	4	4	684413987	NULL	87
5	5	5	773463701	NULL	95
6	6	6	773463701	NULL	NULL
7	7	7	962201151	NULL	92
8	8	8	728349753	NULL	89
9	9	9	550546672	NULL	92
10	10	10	550546672	NULL	75
11	11	11	870632924	NULL	88
12	12	12	870632924	NULL	91
13	13	13	187057756	NULL	91
14	14	14	187057756	NULL	79

Query executed successfully. | ist-s-students (12.0 SP2) | AD\mwang47 (83) | IST659_M002_mwang47 | 00:00:00 | 33 rows

Insert data in CourseStudentEnrollment_tag table

```
INSERT INTO CourseStudentEnrollment_tag VALUES (4,'306754123','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (8,'306754123','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (14,'306754123','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'306754123','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (3,'999687609','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'999687609','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'999687609','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'422443360','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'422443360','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (30,'422443360','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'591906345','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'591906345','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (30,'591906345','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'964388836','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'964388836','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (5,'964388836','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'394006011','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'394006011','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (11,'394006011','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'164596264','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'164596264','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (1,'164596264','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'945728613','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'945728613','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (8,'945728613','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'669031207','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (5,'669031207','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'669031207','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (13,'669031207','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'560617330','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'560617330','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (3,'560617330','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'782371674','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (15,'782371674','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (19,'782371674','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'141954588','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (16,'141954588','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (21,'141954588','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'327172693','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (16,'327172693','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (28,'327172693','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'139702045','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (17,'139702045','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (19,'139702045','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'132094679','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (29,'132094679','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (30,'132094679','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'896855658','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (28,'896855658','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (16,'896855658','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'117641979','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (29,'117641979','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (17,'117641979','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'146723606','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (16,'146723606','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (19,'146723606','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (8,'782371674','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'782371674','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (11,'782371674','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'141954588','First Year','Second Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (13,'141954588','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'327172693','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (3,'327172693','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (5,'327172693','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'139702045','First Year','Second Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (11,'139702045','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'132094679','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (5,'132094679','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (9,'132094679','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (13,'132094679','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'896855658','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (8,'896855658','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (11,'896855658','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'117641979','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (5,'117641979','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (8,'117641979','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'146723606','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (31,'146723606','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (8,'146723606','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (11,'146723606','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'658982897','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (28,'658982897','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (17,'658982897','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'269118464','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (29,'269118464','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (17,'269118464','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (16,'269118464','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'971866967','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (28,'971866967','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (16,'971866967','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (33,'835995188','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (29,'835995188','First Year','First Semester')
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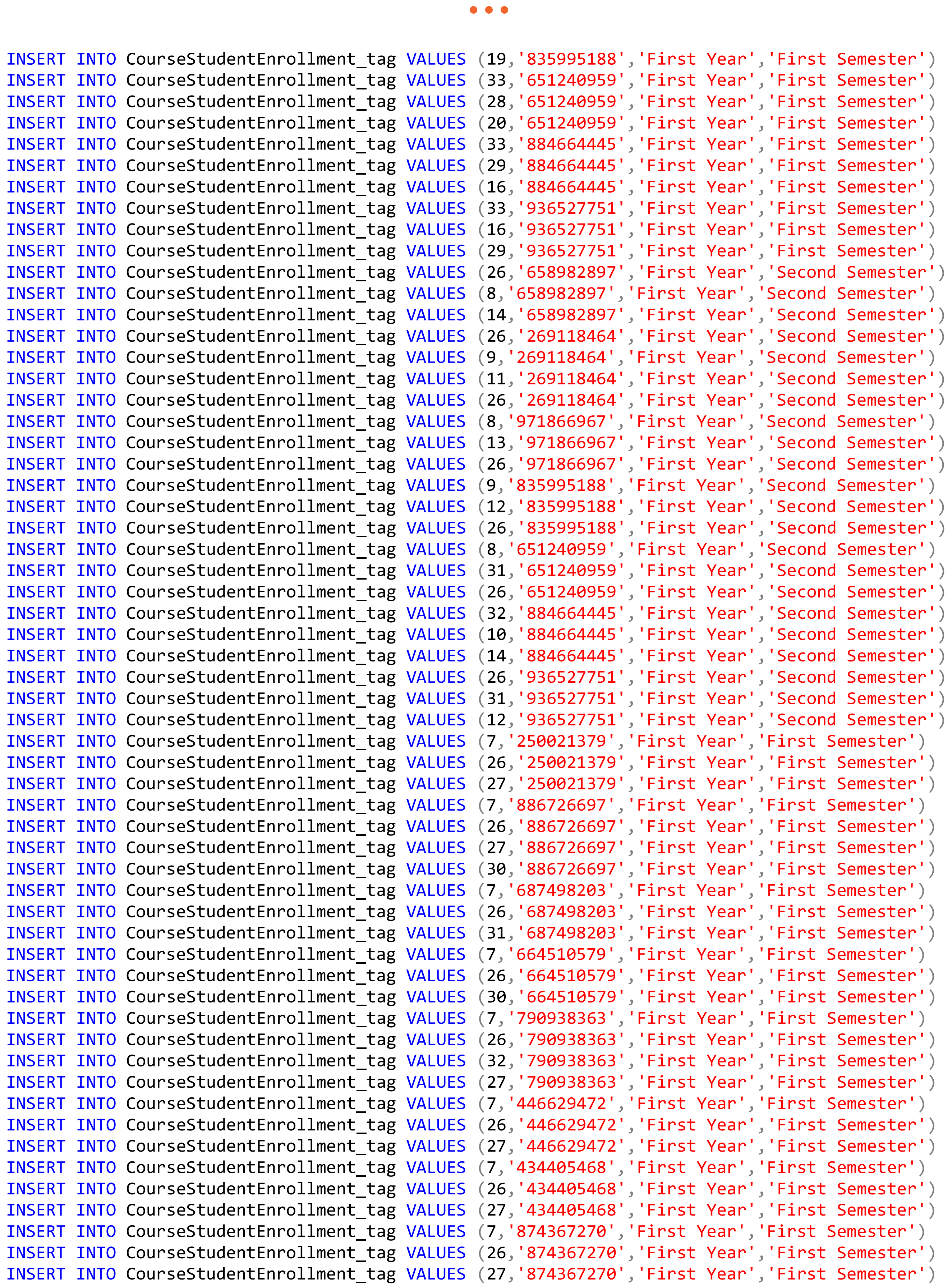

```sql
INSERT INTO CourseStudentEnrollment_tag VALUES (19,'835995188','First Year','First Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (33,'884664445','First Year','First Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (16,'884664445','First Year','First Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (26,'658982897','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (8,'658982897','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (14,'658982897','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'269118464','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (9,'269118464','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (11,'269118464','First Year','Second Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (8,'971866967','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (13,'971866967','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'971866967','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (9,'835995188','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (12,'835995188','First Year','Second Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (14,'884664445','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'936527751','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (31,'936527751','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (12,'936527751','First Year','Second Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'250021379','First Year','First Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (27,'250021379','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'886726697','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'886726697','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (27,'886726697','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (30,'886726697','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'687498203','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'687498203','First Year','First Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (7,'664510579','First Year','First Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (7,'790938363','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'790938363','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (32,'790938363','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (27,'790938363','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'446629472','First Year','First Semester')
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INSERT INTO CourseStudentEnrollment_tag VALUES (26,'434405468','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (27,'434405468','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'874367270','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'874367270','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (27,'874367270','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (7,'152822640','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (26,'152822640','First Year','First Semester')
INSERT INTO CourseStudentEnrollment_tag VALUES (27,'152822640','First Year','First Semester')
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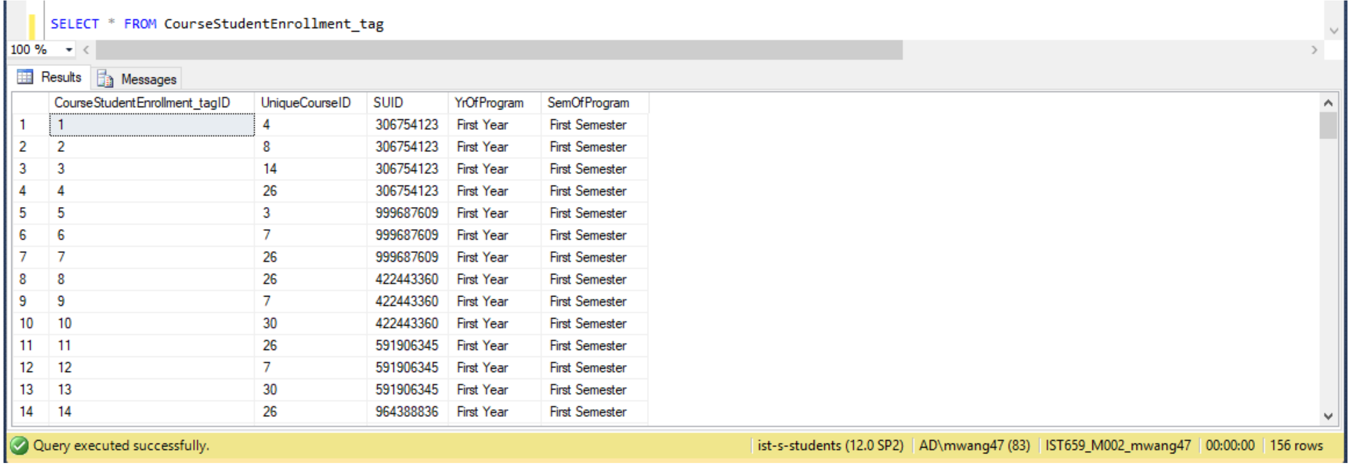

```
SELECT * FROM CourseStudentEnrollment_tag
```

	CourseStudentEnrollment_tagID	UniqueCourseID	SUID	YrOfProgram	SemOfProgram
1	1	4	306754123	First Year	First Semester
2	2	8	306754123	First Year	First Semester
3	3	14	306754123	First Year	First Semester
4	4	26	306754123	First Year	First Semester
5	5	3	999687609	First Year	First Semester
6	6	7	999687609	First Year	First Semester
7	7	26	999687609	First Year	First Semester
8	8	26	422443360	First Year	First Semester
9	9	7	422443360	First Year	First Semester
10	10	30	422443360	First Year	First Semester
11	11	26	591906345	First Year	First Semester
12	12	7	591906345	First Year	First Semester
13	13	30	591906345	First Year	First Semester
14	14	26	964388836	First Year	First Semester

Query executed successfully. | ist-s-students (12.0 SP2) | AD\mwang47 (83) | IST659_M002_mwang47 | 00:00:00 | 156 rows

Insert data in CourseGrade_tag table

```
INSERT INTO CourseGrade_tag VALUES (1, '164596264', '385089845',99)
INSERT INTO CourseGrade_tag VALUES (3, '327172693', '539417874',90)
INSERT INTO CourseGrade_tag VALUES (3, '560617330', '539417874',86)
INSERT INTO CourseGrade_tag VALUES (3, '999687609', '539417874',84)
INSERT INTO CourseGrade_tag VALUES (4, '306754123', '684413987',87)
INSERT INTO CourseGrade_tag VALUES (5, '117641979', '773463701',97)
INSERT INTO CourseGrade_tag VALUES (5, '132094679', '773463701',91)
INSERT INTO CourseGrade_tag VALUES (5, '327172693', '773463701',96)
INSERT INTO CourseGrade_tag VALUES (5, '669031207', '773463701',96)
INSERT INTO CourseGrade_tag VALUES (5, '964388836', '773463701',99)
INSERT INTO CourseGrade_tag VALUES (7, '152822640', '962201151',94)
INSERT INTO CourseGrade_tag VALUES (7, '164596264', '962201151',90)
INSERT INTO CourseGrade_tag VALUES (7, '250021379', '962201151',90)
INSERT INTO CourseGrade_tag VALUES (7, '394006011', '962201151',85)
INSERT INTO CourseGrade_tag VALUES (7, '422443360', '962201151',98)
INSERT INTO CourseGrade_tag VALUES (7, '434405468', '962201151',93)
INSERT INTO CourseGrade_tag VALUES (7, '446629472', '962201151',91)
INSERT INTO CourseGrade_tag VALUES (7, '560617330', '962201151',93)
INSERT INTO CourseGrade_tag VALUES (7, '591906345', '962201151',94)
INSERT INTO CourseGrade_tag VALUES (7, '664510579', '962201151',93)
INSERT INTO CourseGrade_tag VALUES (7, '669031207', '962201151',90)
INSERT INTO CourseGrade_tag VALUES (7, '687498203', '962201151',96)
INSERT INTO CourseGrade_tag VALUES (7, '790938363', '962201151',90)
INSERT INTO CourseGrade_tag VALUES (7, '874367270', '962201151',90)
INSERT INTO CourseGrade_tag VALUES (7, '886726697', '962201151',90)
INSERT INTO CourseGrade_tag VALUES (7, '945728613', '962201151',100)
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INSERT INTO CourseGrade_tag VALUES (7, '999687609', '962201151',98)
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INSERT INTO CourseGrade_tag VALUES (8, '896855658', '728349753',91)
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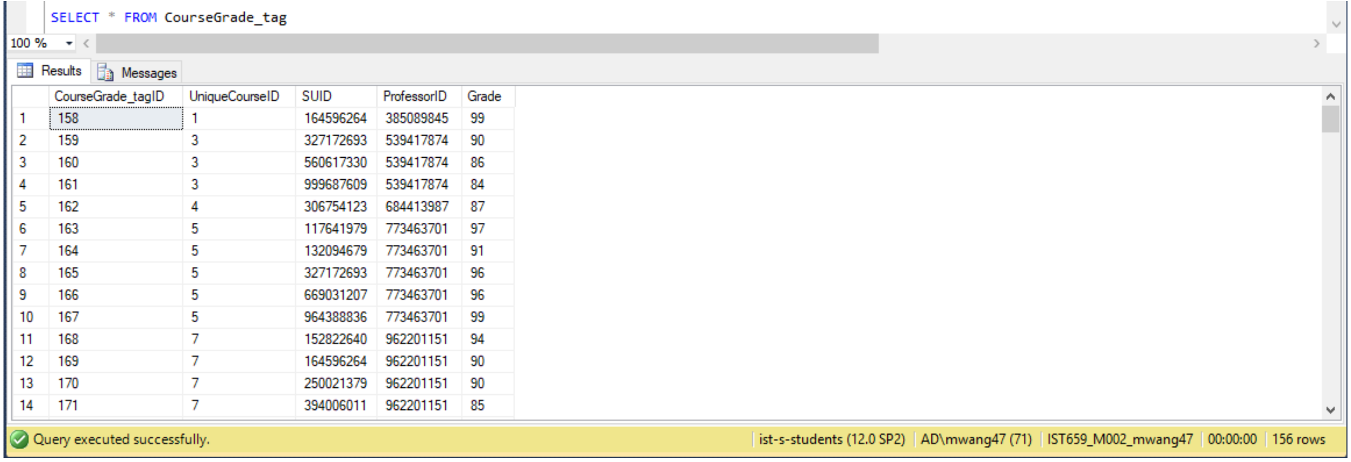

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SELECT * FROM CourseGrade_tag
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3	160	3	560617330	539417874	86
4	161	3	999687609	539417874	84
5	162	4	306754123	684413987	87
6	163	5	117641979	773463701	97
7	164	5	132094679	773463701	91
8	165	5	327172693	773463701	96
9	166	5	669031207	773463701	96
10	167	5	964388836	773463701	99
11	168	7	152822640	962201151	94
12	169	7	164596264	962201151	90
13	170	7	250021379	962201151	90
14	171	7	394006011	962201151	85

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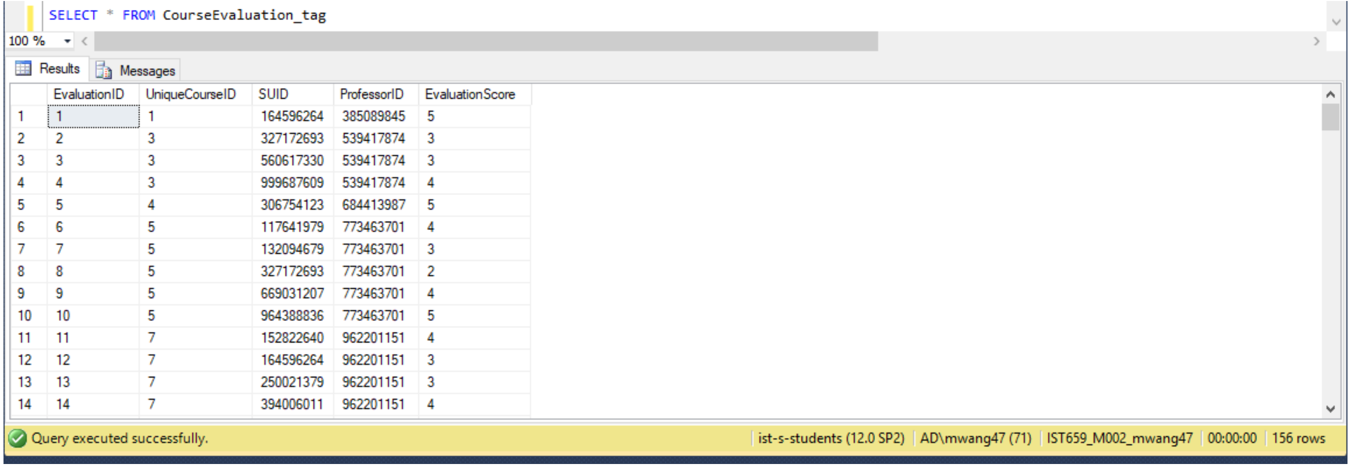

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3	3	3	560617330	539417874	3
4	4	3	999687609	539417874	4
5	5	4	306754123	684413987	5
6	6	5	117641979	773463701	4
7	7	5	132094679	773463701	3
8	8	5	327172693	773463701	2
9	9	5	669031207	773463701	4
10	10	5	964388836	773463701	5
11	11	7	152822640	962201151	4
12	12	7	164596264	962201151	3
13	13	7	250021379	962201151	3
14	14	7	394006011	962201151	4

Query executed successfully. | ist-s-students (12.0 SP2) | AD\mwang47 (71) | IST659_M002_mwang47 | 00:00:00 | 156 rows

5.

Major data questions

There are three type of users of this system: students, professors, and the system administrator.

For students' usage:

Since this course information sharing system is designed mainly for students, this data model can help to answer the following questions regarding course information when students are enrolling in a class:

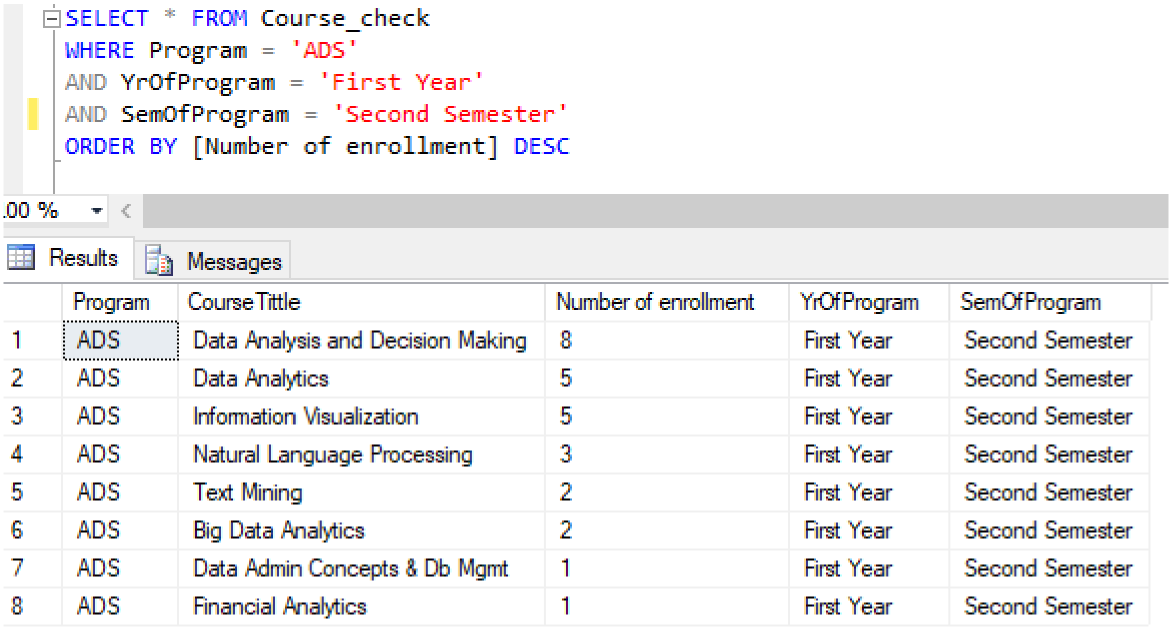
- **Check the most popular courses within a specific program**

  What specific courses are selected by students from a particular program in their particular academic year (the first year or the second year of the program) and particular semester (the first or the second semester of this academic year)? What are the most popular courses?

```
CREATE VIEW Course_check AS
(
SELECT s.Program, ci.CourseTittle, COUNT(cse.SUID) AS 'Number of enrollment',
cse.YrOfProgram, cse.SemOfProgram
FROM Student AS s
INNER JOIN CourseStudentEnrollment_tag AS cse
ON cse.SUID = s.SUID
INNER JOIN CourseProfTeach_tag AS cpt
ON cpt.UniqueCourseID = cse.UniqueCourseID
INNER JOIN CourseInfo AS ci
ON ci.UniqueCourseID = cse.UniqueCourseID
GROUP BY s.Program, ci.CourseTittle, cse.YrOfProgram, cse.SemOfProgram
)
```

  I created a view to show the information of class enrollment, and we can also use this view to check the most popular courses of a given program in a given academic year and particular semester. Assuming an ADS student wants to know in the second semester of his first year of ADS program, what courses are the most popular? He can use the following query statement and get the results:

```
SELECT * FROM Course_check
WHERE Program = 'ADS'
AND YrOfProgram = 'First Year'
AND SemOfProgram = 'Second Semester'
ORDER BY [Number of enrollment] DESC
```



```
SELECT * FROM Course_check
WHERE Program = 'ADS'
AND YrOfProgram = 'First Year'
AND SemOfProgram = 'Second Semester'
ORDER BY [Number of enrollment] DESC
```

	Program	CourseTittle	Number of enrollment	YrOfProgram	SemOfProgram
1	ADS	Data Analysis and Decision Making	8	First Year	Second Semester
2	ADS	Data Analytics	5	First Year	Second Semester
3	ADS	Information Visualization	5	First Year	Second Semester
4	ADS	Natural Language Processing	3	First Year	Second Semester
5	ADS	Text Mining	2	First Year	Second Semester
6	ADS	Big Data Analytics	2	First Year	Second Semester
7	ADS	Data Admin Concepts & Db Mgmt	1	First Year	Second Semester
8	ADS	Financial Analytics	1	First Year	Second Semester

So he knows that **Data Analysis and Decision Making**, **Data Analytics** and **Information Visualization** are the top 3 popular courses in the second semester of the first year of ADS program. Then he can consider enrolling these courses in his coming semester.

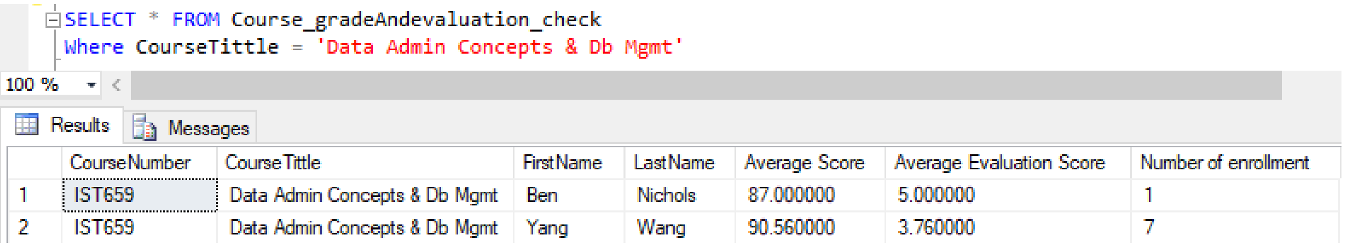
- **Check the average grade and average evaluation score of a given course**

  Given a course name or course number, what are the average final grades of students who have taken this course taught by different professors? And what are the average course evaluation scores of the course taught by different professors?

```
CREATE VIEW Course_gradeAndevaluation_check AS
(
SELECT uc.CourseNumber, ci.CourseTittle, p.FirstName, p.LastName, AVG(cg.Grade/1.0) AS
'Average Score', AVG(ce.EvaluationScore/1.0) AS 'Average Evaluation Score',COUNT(
DISTINCT cg.SUID) AS 'Number of enrollment'
FROM CourseGrade_tag AS cg
INNER JOIN CourseInfo AS ci
ON ci.UniqueCourseID = cg.UniqueCourseID
INNER JOIN Professor AS p
ON p.ProfessorID = cg.ProfessorID
INNER JOIN UniqueCourse AS uc
On uc.UniqueCourseID = cg.UniqueCourseID
INNER JOIN CourseEvaluation_tag AS ce
ON ce.UniqueCourseID = ci.UniqueCourseID
GROUP BY uc.CourseNumber,ci.CourseTittle, p.FirstName, p.LastName
)
```

I created a view to show the average grades and evaluation scores of all different unique courses so that a student can check the average grades and evaluation scores of a course taught by different professors. Assuming a student decides to enroll in the course **Data Admin Concept & Db Mgmt**, he can use the following query statement and get the results:

```
SELECT * FROM Course_gradeAndevaluation_check
Where CourseTittle = 'Data Admin Concepts & Db Mgmt'
```



```
SELECT * FROM Course_gradeAndevaluation_check
Where CourseTittle = 'Data Admin Concepts & Db Mgmt'
```

	CourseNumber	CourseTittle	FirstName	LastName	Average Score	Average Evaluation Score	Number of enrollment
1	IST659	Data Admin Concepts & Db Mgmt	Ben	Nichols	87.000000	5.000000	1
2	IST659	Data Admin Concepts & Db Mgmt	Yang	Wang	90.560000	3.760000	7

The result indicates that there are two professors teaching this course, there was 1 student selecting Ben Nichols's **Data Admin Concept & Db Mgmt** course, the average score of this course is 87 and its evaluation score is 5; this course is also taught by Yang Wang, with 7 enrollment before and the average grade is 90.6 and the average evaluation score is 3.76. So this student can choose the professor of this course according to his preference. If he just wants to finish his program and get high grade, he may choose professor Yang Wang, despite the evaluation score is just 3 points which means that the class could be boring; but if this student prefers fun class, probably he will choose Ben Nichols's class, though it might be very tough (average grade is relative low).

- **Check the detailed information of a given class**

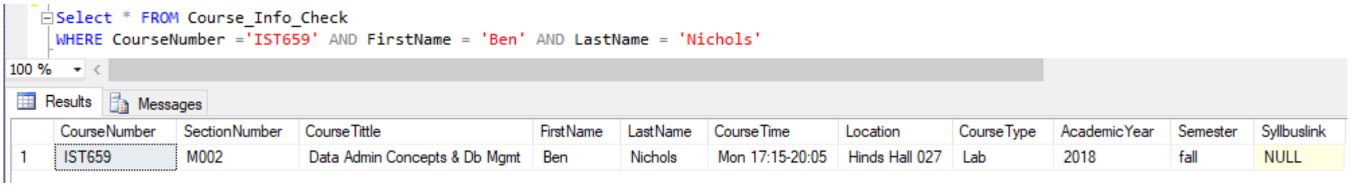
  Given a course number of a course name, what are the detailed course information of this given course?

```
CREATE VIEW Course_Info_Check AS
(
SELECT u.CourseNumber,
u.SectionNumber,ci.CourseTittle,p.FirstName,p.LastName,ci.CourseTime,ci.Location,ci.Cours
eType,u.AcademicYear,u.Semester, cpt.Syllbuslink
FROM UniqueCourse AS u
INNER JOIN CourseInfo AS ci
ON ci.UniqueCourseID = u.UniqueCourseID
INNER JOIN CourseProfTeach_tag AS cpt
ON cpt.UniqueCourseID = u.UniqueCourseID
INNER JOIN Professor AS p
ON p.ProfessorID = cpt.ProfessorID
GROUP BY u.CourseNumber,
u.SectionNumber,ci.CourseTittle,p.FirstName,p.LastName,ci.CourseTime,ci.Location,ci.Cours
eType,u.AcademicYear,u.Semester,cpt.Syllbuslink
)
```

I created a view which aggregated the professor's teaching information and course information, so that the student can check the detailed course information by its course number or course tittle.

Assuming the student we mentioned above plans to take Ben Nichols' Data Admin Concepts & Db Mgmt, he wants to check the detailed information of this class. He can use the following query statement and gets the result:

```
Select * FROM Course_Info_Check
WHERE CourseNumber ='IST659' AND FirstName = 'Ben' AND LastName = 'Nichols'
```



```
Select * FROM Course_Info_Check
WHERE CourseNumber ='IST659' AND FirstName = 'Ben' AND LastName = 'Nichols'
```

	CourseNumber	SectionNumber	CourseTittle	FirstName	LastName	CourseTime	Location	CourseType	AcademicYear	Semester	Syllbuslink
1	IST659	M002	Data Admin Concepts & Db Mgmt	Ben	Nichols	Mon 17:15-20:05	Hinds Hall 027	Lab	2018	fall	NULL

- **Make course evaluation**

  Students can also make a general 5-score evaluation of the course that they have taken regarding the difficulty of the course, the instructor or the assignments etc. Only the students who have taken that class lecture session can make the evaluation and it's anonymous.

For professors' usage:

The main functions of this system for professors are checking course and student information and updating course and professor's profile information. Therefore, the major questions are:

- **Check the program information of students who have taken a professor's course**

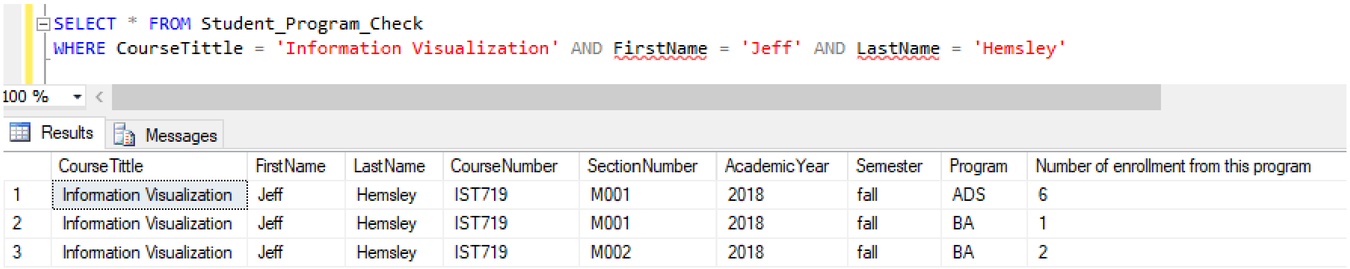
  For a professor, who are the students that have taken his class? Which program are they from and what's the distribution of programs?

  By checking the year of program and program of distribution the professor can determine the content and difficulty of this class. If the majority of the class are from multiple programs, this class should not be designed too difficult because the majority of the class don't have relevant background knowledge.

```
CREATE VIEW Student_Program_Check AS
(
SELECT ci.CourseTittle, p.FirstName,p.LastName, uc.CourseNumber,
uc.SectionNumber,uc.AcademicYear, uc.Semester, s.Program, COUNT(s.Program) AS 'Number of
enrollment from this program'
FROM UniqueCourse AS uc
INNER JOIN CourseInfo AS ci
ON ci.UniqueCourseID = uc.UniqueCourseID
INNER JOIN CourseStudentEnrollment_tag AS cse
On cse.UniqueCourseID = uc.UniqueCourseID
INNER JOIN CourseProfTeach_tag AS cpt
ON cpt.UniqueCourseID = uc.UniqueCourseID
INNER JOIN Student AS s
ON s.SUID = cse.SUID
INNER JOIN Professor AS p
On p.ProfessorID = cpt.ProfessorID
GROUP BY ci.CourseTittle,p.FirstName,p.LastName, uc.CourseNumber,
uc.SectionNumber,uc.AcademicYear, uc.Semester, s.Program
)
```

I created a view to show the program names of students who take a given professor's class, and count the number of students from each program. Assuming that professor Jeff Helmsley wants to check which programs do his students from in his **Information Visualization** class, he can use the following query statement and get the results:

```
SELECT * FROM Student_Program_Check
WHERE CourseTittle = 'Information Visualization' AND FirstName = 'Jeff' AND LastName =
'Hemsley'
```



```
SELECT * FROM Student_Program_Check
WHERE CourseTittle = 'Information Visualization' AND FirstName = 'Jeff' AND LastName = 'Hemsley'
```

	CourseTittle	FirstName	LastName	CourseNumber	SectionNumber	AcademicYear	Semester	Program	Number of enrollment from this program
1	Information Visualization	Jeff	Hemsley	IST719	M001	2018	fall	ADS	6
2	Information Visualization	Jeff	Hemsley	IST719	M001	2018	fall	BA	1
3	Information Visualization	Jeff	Hemsley	IST719	M002	2018	fall	BA	2

He gets to know that in 2018 fall semester, in the M001 section there are 6 students from ADS program and 1 from BA program, so in this section he can design his class more relevant to data science field; and in the M002 section all the 2 students are from BA program, so in this section his class can be more related to business application.

- **Check the evaluation of a course taught by the professor**

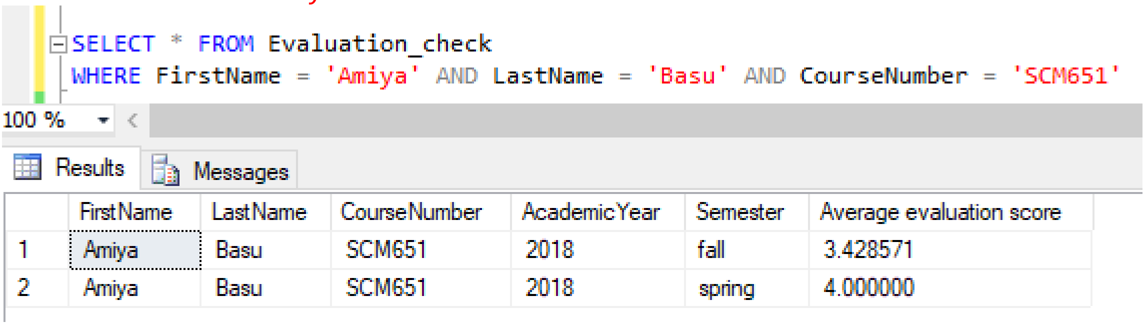
  How much the students like a professor's class? Within the past few semesters, do student like more his class or less?

  A professor can select his name and his course number, then the system will show the evaluation scores of this class rated by students who have taken this class. The professor can also filter the evaluation score by academic year or semester to see the evaluation score trend to know whether students like his class more or less.

```
CREATE VIEW Evaluation_check AS
(
SELECT p.FirstName, p.LastName, uc.CourseNumber,uc.AcademicYear,uc.Semester,
AVG(ce.EvaluationScore/1.0) AS 'Average evaluation score'
FROM Professor AS p
INNER JOIN CourseProfTeach_tag AS cpt
ON cpt.ProfessorID = p.ProfessorID
INNER JOIN CourseEvaluation_tag AS ce
ON ce.ProfessorID = p.ProfessorID
INNER JOIN UniqueCourse AS uc
ON uc.UniqueCourseID = ce.UniqueCourseID
GROUP BY p.FirstName, p.LastName, uc.CourseNumber,uc.AcademicYear,uc.Semester
)
```

Assuming that professor Amiya Basu wants to check the likelihood trend of his class **SCM651** in the past semesters, he can use the following query statement and get the results:

```
SELECT * FROM Evaluation_check
WHERE FirstName = 'Amiya' AND LastName = 'Basu' AND CourseNumber = 'SCM651'
```



```
SELECT * FROM Evaluation_check
WHERE FirstName = 'Amiya' AND LastName = 'Basu' AND CourseNumber = 'SCM651'
```

	FirstName	LastName	CourseNumber	AcademicYear	Semester	Average evaluation score
1	Amiya	Basu	SCM651	2018	fall	3.428571
2	Amiya	Basu	SCM651	2018	spring	4.000000

The result indicates that in 2018, from spring semester to fall semester the average evaluation score of his class **SCM651** drops from 4 to 3.43, he learns that he should pay more efforts on this class since students are not liking his class than before.

- **Edit and update the course and professor's information**

  The instructors have the access of editing their course information and their information including the class time, location, type of class, syllabus link, and their resume and website link. A professor can only edit his own course and profile information.

For administrator's usage:

The platform administrators have the access of all data, as well as inputting data to the system. They need to make sure each user group has its respective authorization to access the data.

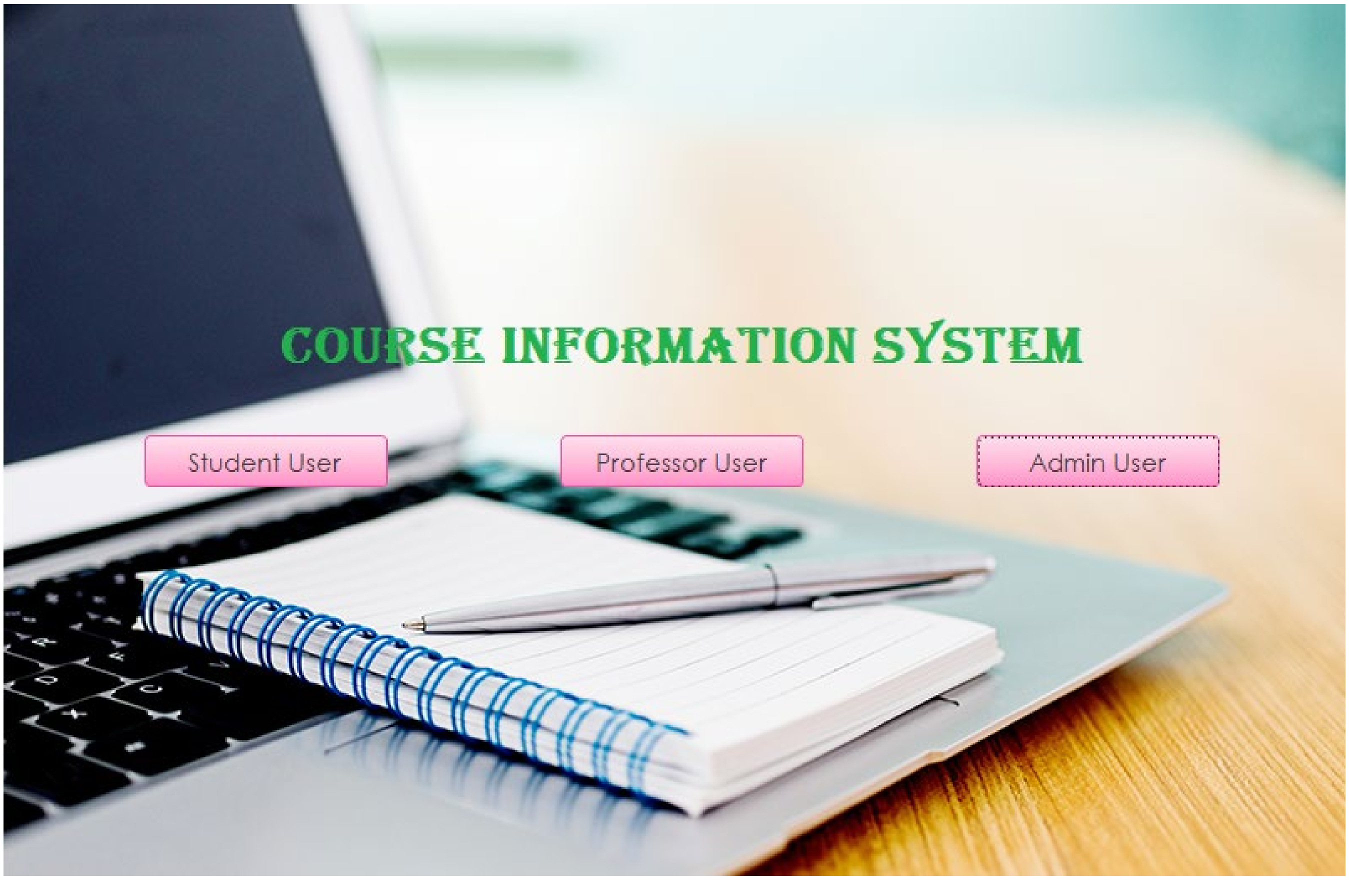
- **Add/ modify or delete student information**

  Administrators have the access of adding, modifying or deleting the student information whenever there is the necessity of updating the data system. Before the beginning of each semester, the administrator creates new instances for each new arriving student into the ***Student*** table.
- **Add/ modify or delete professor information**

When professors are not able to update his course information or they haven’t update the information on time, the administrators have the access to help professors editing their information. When professor opens a new course, the administrator will create a new instance in the ***UniqueCourse*** table to record the information of the new class.

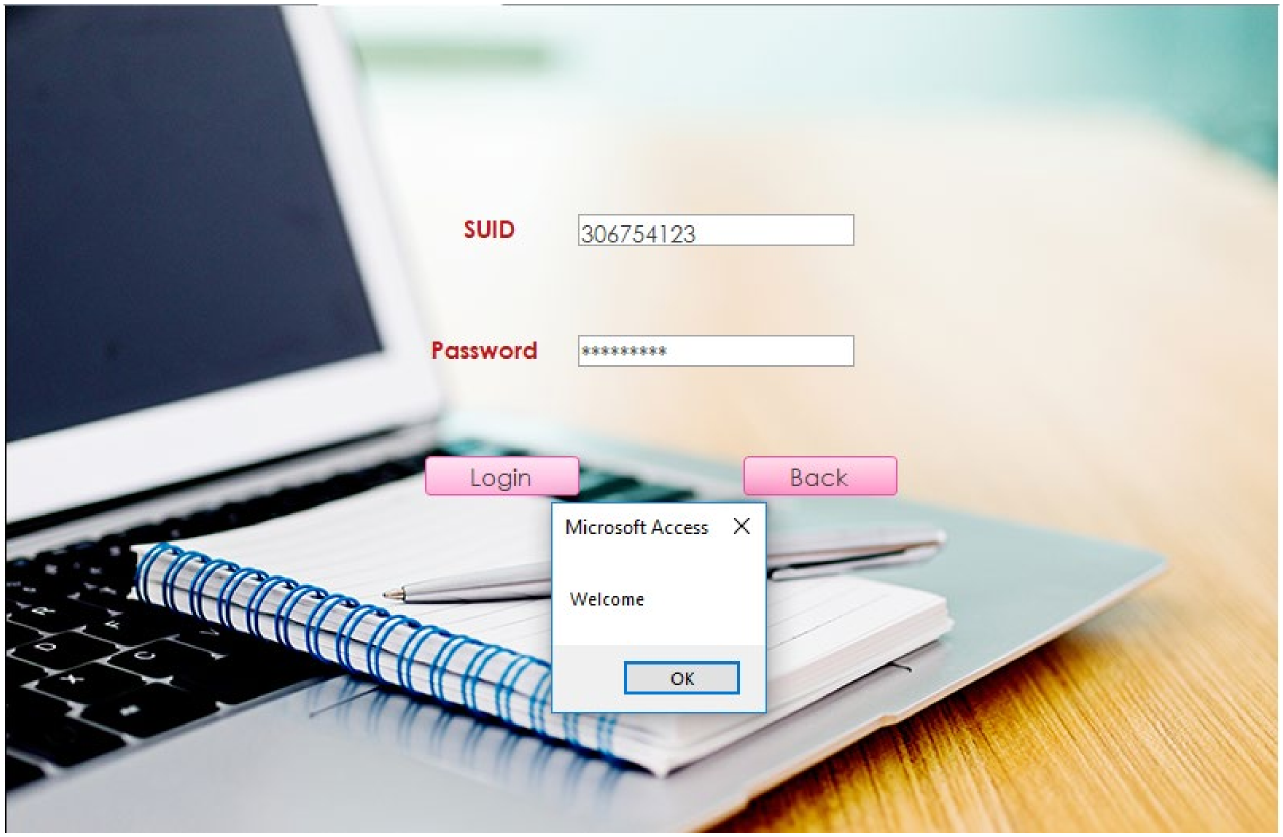
Interface

Homepage:



For student users:

Student users can click the "Student User" button on the homepage and login to the system with their SUID and password.

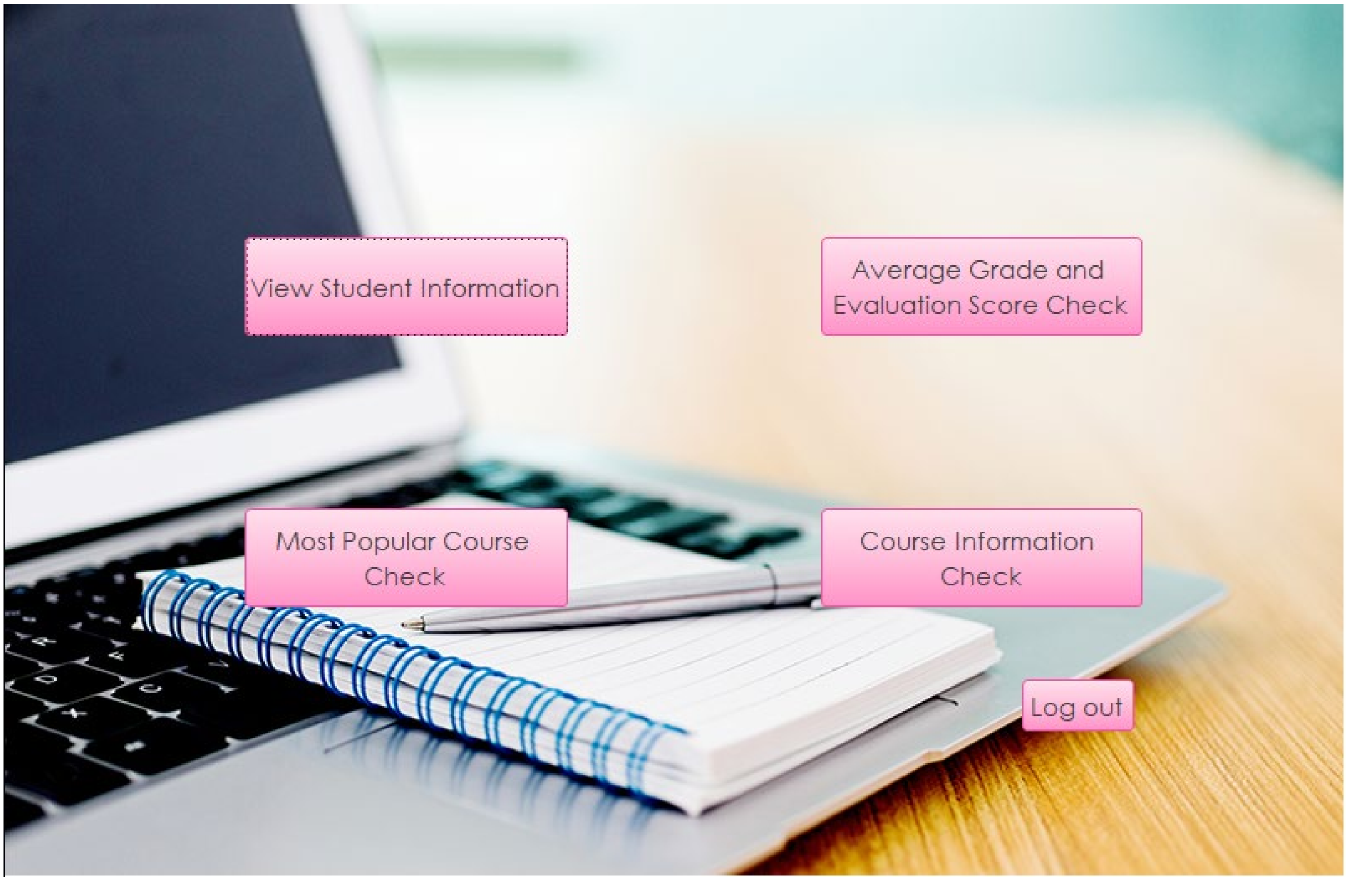


SUID: 306754123

Password: **********

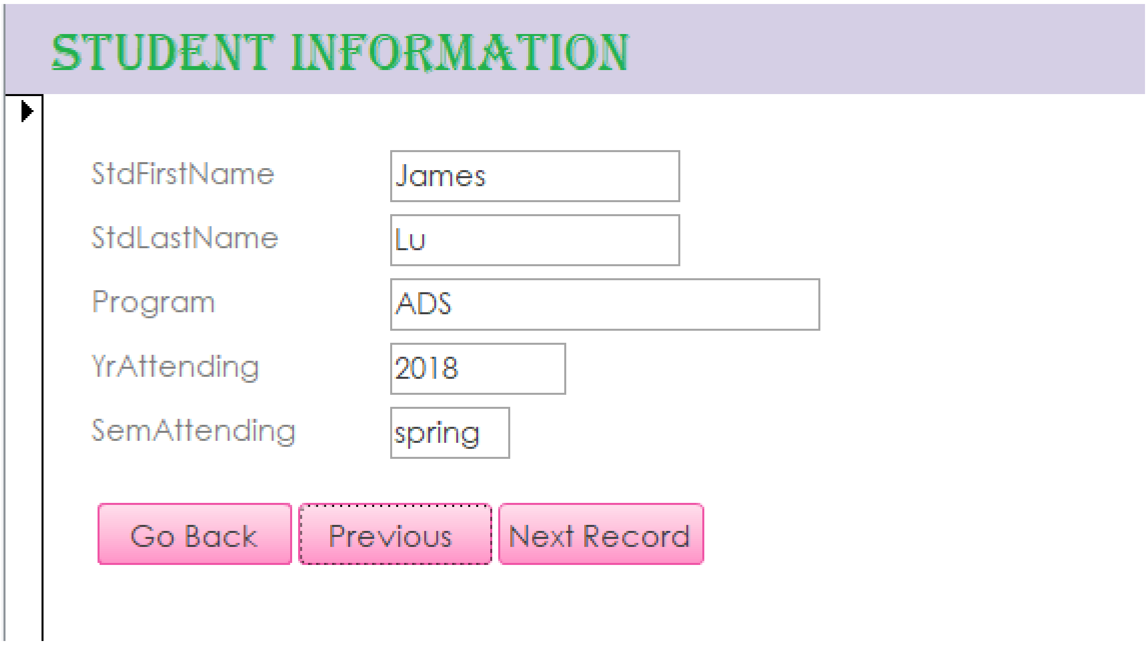
Welcome

Student user homepage:


View Student Information
Average Grade and Evaluation Score Check
Most Popular Course Check
Course Information Check
Log out

After the student successfully login in his account, he can choose to view his and other students' information, to check the most popular courses in SU, to check the average grade and evaluation score of all the courses, or to check the detailed information of every course. After he has queried the information he wanted, he can click on the "Log out" button to quit his account.

View student information:

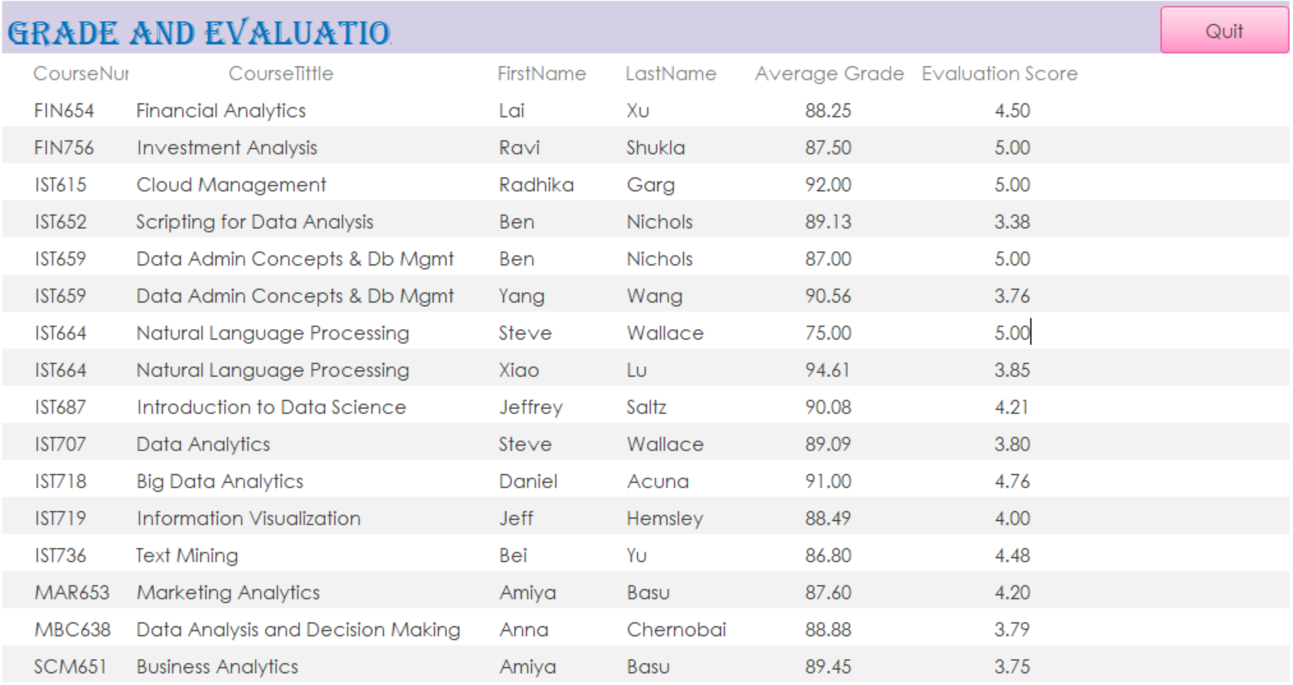


STUDENT INFORMATION

StdFirstName	James
StdLastName	Lu
Program	ADS
YrAttending	2018
SemAttending	spring

Student can view the basic information of other students, to protect the data, the data is read only and student users don't have the privilege of editing or adding the data.

Average grade and evaluation score check:

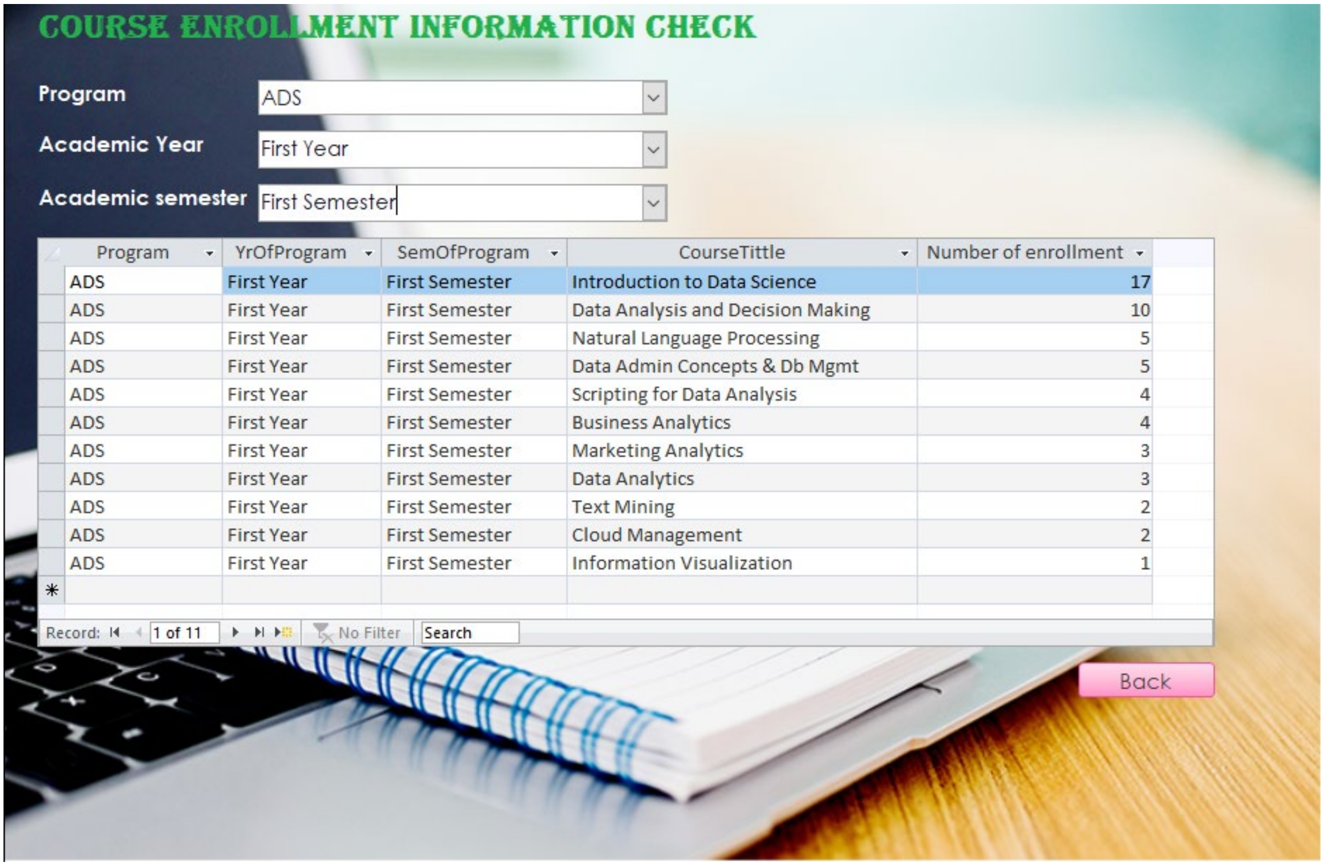


GRADE AND EVALUATIO

CourseNur	CourseTittle	FirstName	LastName	Average Grade	Evaluation Score
FIN654	Financial Analytics	Lai	Xu	88.25	4.50
FIN756	Investment Analysis	Ravi	Shukla	87.50	5.00
IST615	Cloud Management	Radhika	Garg	92.00	5.00
IST652	Scripting for Data Analysis	Ben	Nichols	89.13	3.38
IST659	Data Admin Concepts & Db Mgmt	Ben	Nichols	87.00	5.00
IST659	Data Admin Concepts & Db Mgmt	Yang	Wang	90.56	3.76
IST664	Natural Language Processing	Steve	Wallace	75.00	5.00
IST664	Natural Language Processing	Xiao	Lu	94.61	3.85
IST687	Introduction to Data Science	Jeffrey	Saltz	90.08	4.21
IST707	Data Analytics	Steve	Wallace	89.09	3.80
IST718	Big Data Analytics	Daniel	Acuna	91.00	4.76
IST719	Information Visualization	Jeff	Hemsley	88.49	4.00
IST736	Text Mining	Bei	Yu	86.80	4.48
MAR653	Marketing Analytics	Amiya	Basu	87.60	4.20
MBC638	Data Analysis and Decision Making	Anna	Chernobai	88.88	3.79
SCM651	Business Analytics	Amiya	Basu	89.45	3.75

The report can show the average scores and evaluation scores of courses taught by different professors. For the future version, when the dataset becomes large enough, this report will be changed to a query form that students can query the information by selecting the course number of professor’s name.

Most popular courses check:



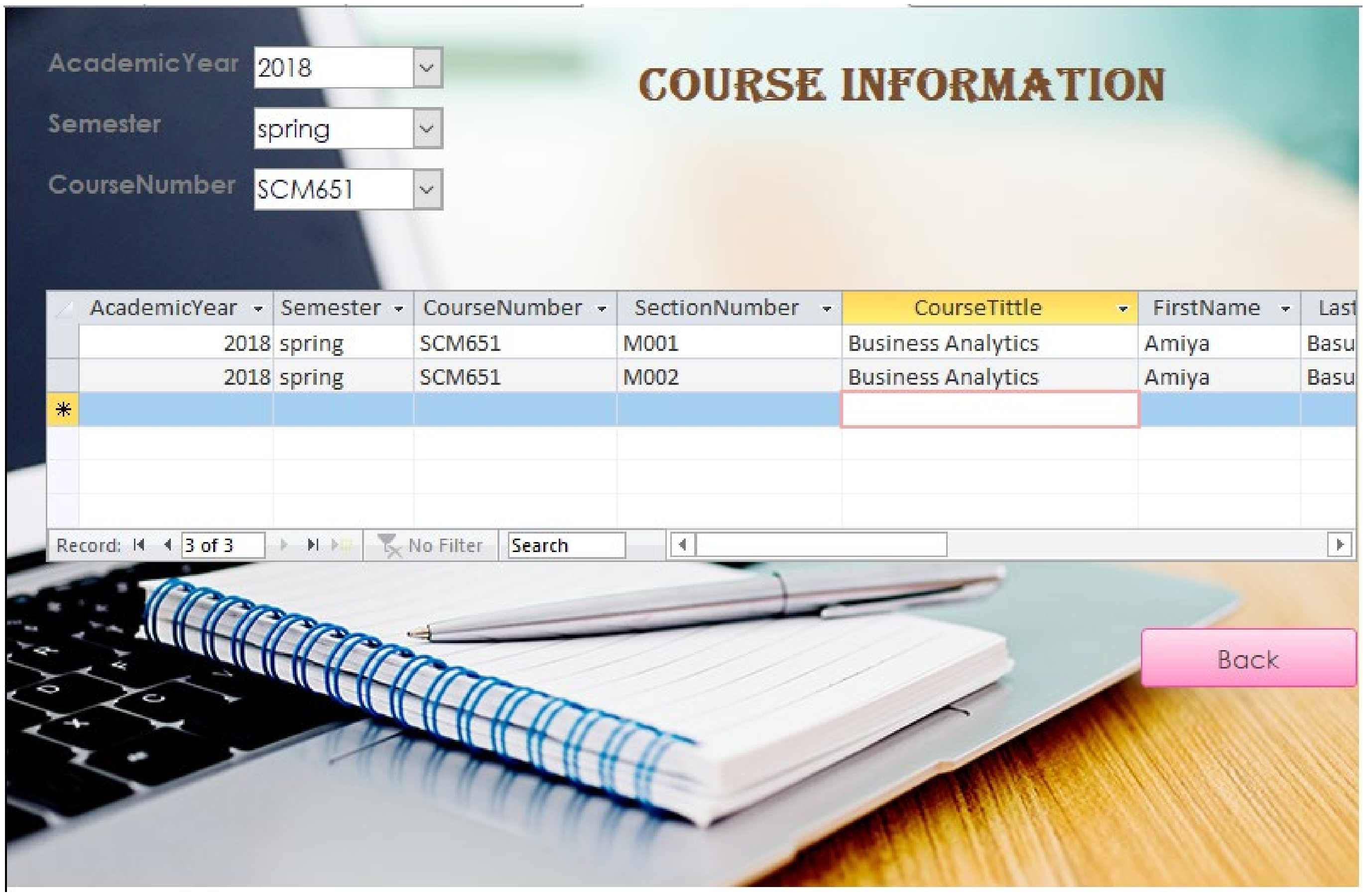
COURSE ENROLLMENT INFORMATION CHECK

Program	ADS
Academic Year	First Year
Academic semester	First Semester

Program	YrOfProgram	SemOfProgram	CourseTittle	Number of enrollment
ADS	First Year	First Semester	Introduction to Data Science	17
ADS	First Year	First Semester	Data Analysis and Decision Making	10
ADS	First Year	First Semester	Natural Language Processing	5
ADS	First Year	First Semester	Data Admin Concepts & Db Mgmt	5
ADS	First Year	First Semester	Scripting for Data Analysis	4
ADS	First Year	First Semester	Business Analytics	4
ADS	First Year	First Semester	Marketing Analytics	3
ADS	First Year	First Semester	Data Analytics	3
ADS	First Year	First Semester	Text Mining	2
ADS	First Year	First Semester	Cloud Management	2
ADS	First Year	First Semester	Information Visualization	1

Student can select his program, program year and program semester in the combo box to query the most popular courses in the given program.

Course information check:



COURSE INFORMATION

AcademicYear	2018
Semester	spring
CourseNumber	SCM651

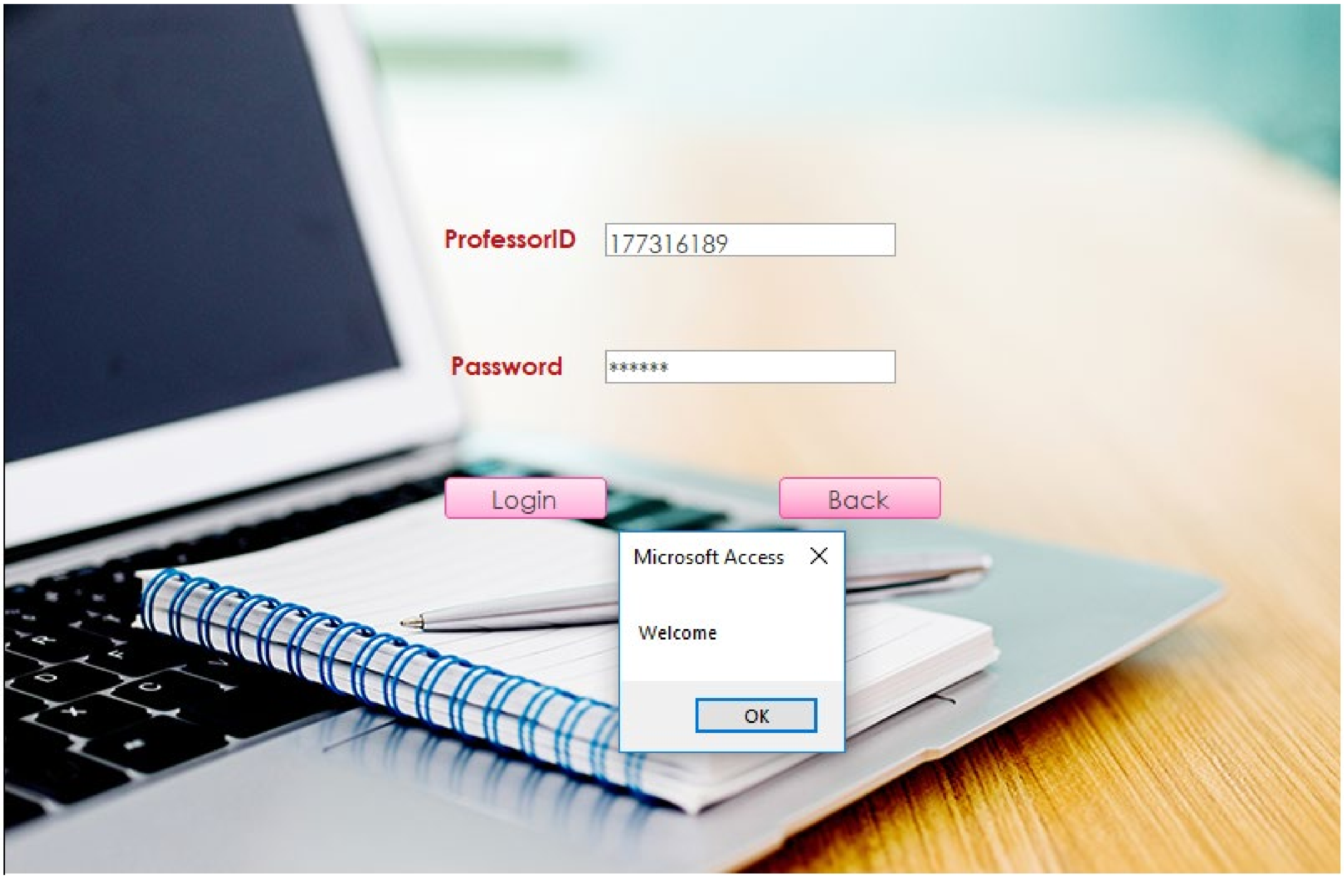
AcademicYear	Semester	CourseNumber	SectionNumber	CourseTittle	FirstName	Last
2018	spring	SCM651	M001	Business Analytics	Amiya	Basu
2018	spring	SCM651	M002	Business Analytics	Amiya	Basu

Record: 3 of 3 No Filter Search

Students can check the detailed information of a particular courses by its academic year, semester, and course number. The user can use the scroll bar to view the whole detailed information of a course.

For professor users:

Professor users can click the “Professor User” button on the homepage and login to the system with their ProfessorID and password.

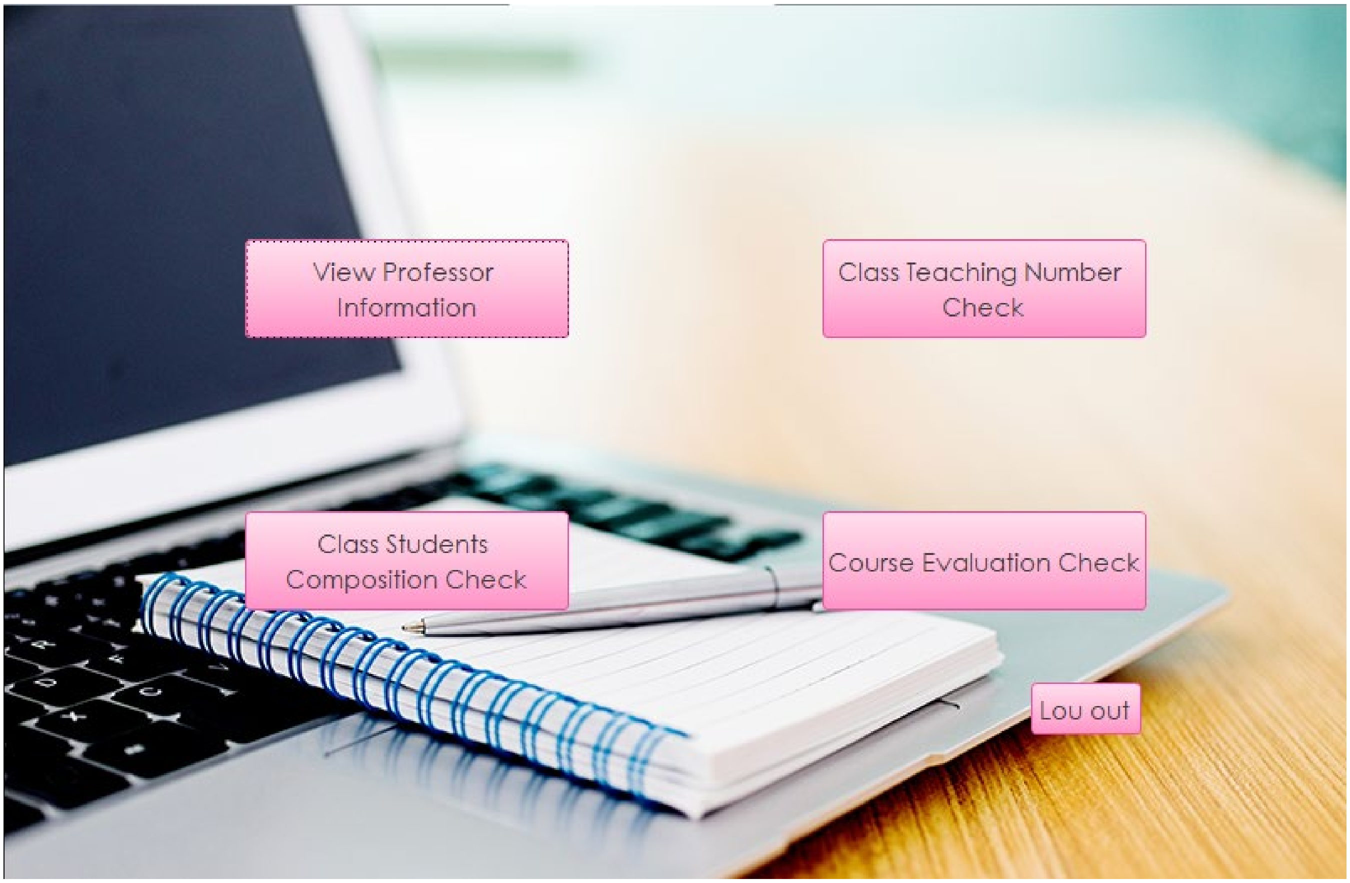


ProfessorID: 177316189

Password: ******

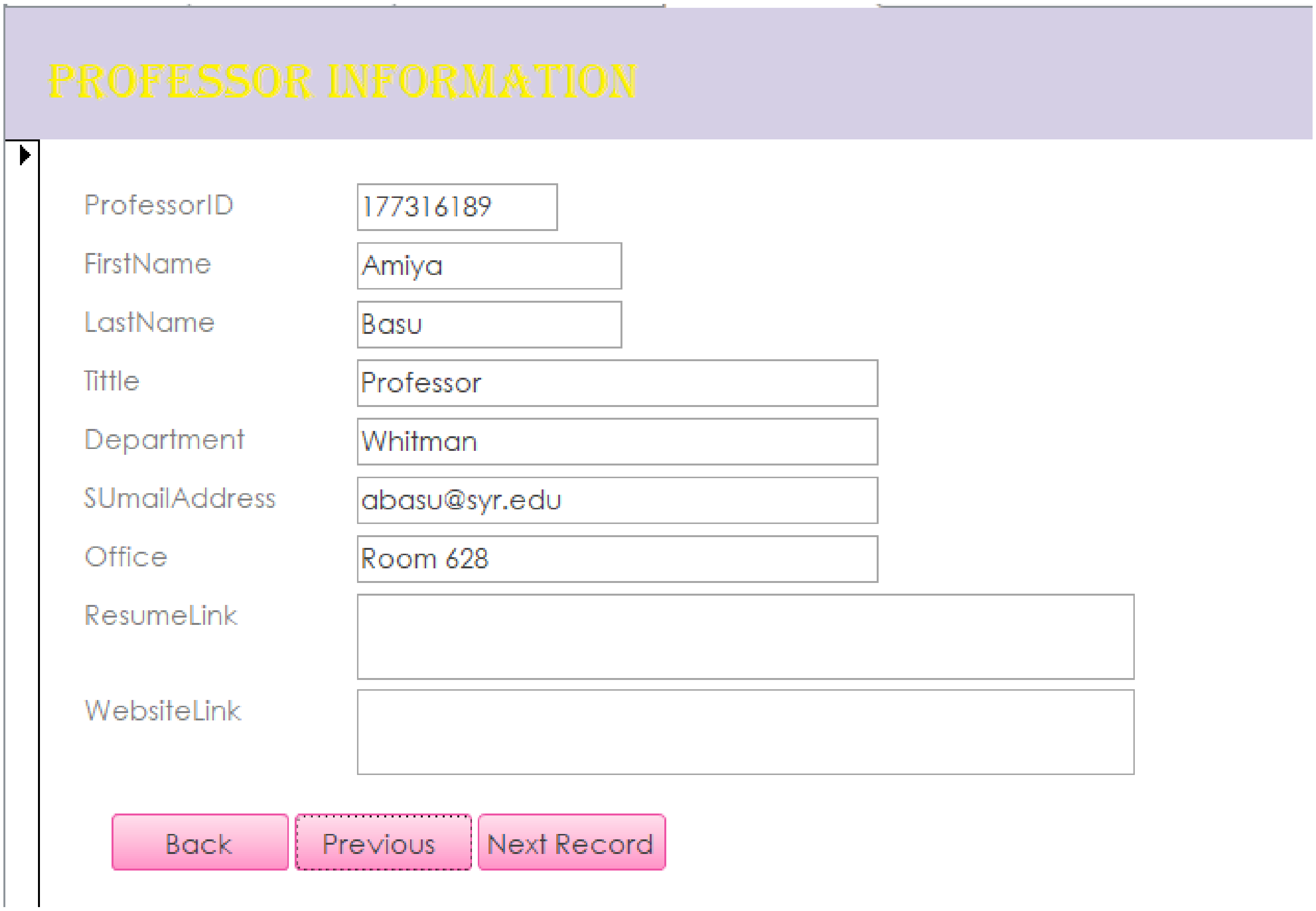
Welcome

Professor user homepage:


View Professor Information
Class Teaching Number Check
Class Students Composition Check
Course Evaluation Check
Lou out

After the professor successfully login in his account, he can choose to view his and other professor information, to check students' program distribution of his classes, to check the number of classes he is teaching in this semester or in the past, or to check the course evaluation history of his classes. After he has queried the information he wanted, he can click on the "Log out" button to quit his account.

View professor's information:

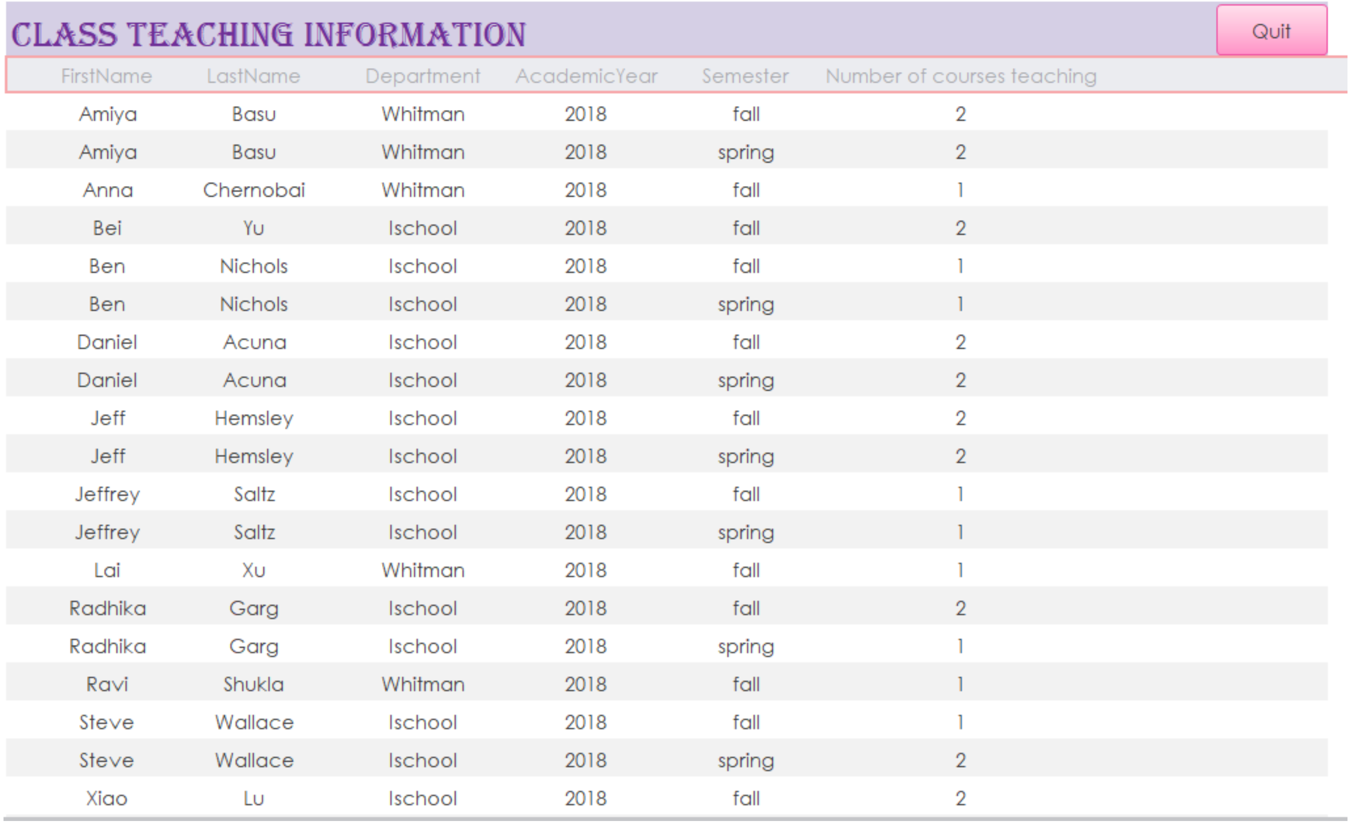


PROFESSOR INFORMATION

ProfessorID	177316189
FirstName	Amiya
LastName	Basu
Tittle	Professor
Department	Whitman
SUmailAddress	abasu@syr.edu
Office	Room 628
ResumeLink	
WebsiteLink	

Professor can view the basic information of other professors, to protect the data, the data is read only and professor users don't have the privilege of editing or adding the data. In the future system versions, professor will have the privilege of editing his own personal information but currently I don't know how to do that.

Class teaching number check:

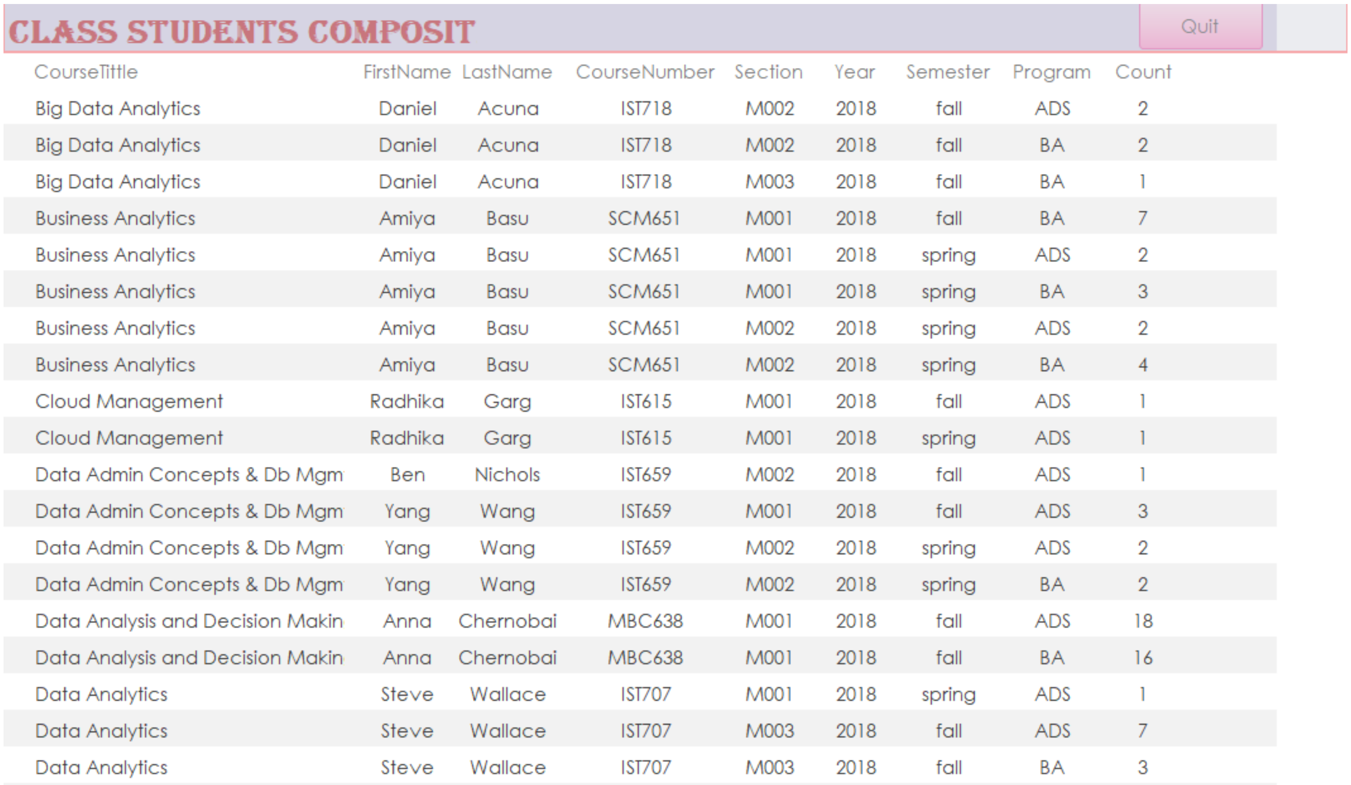


CLASS TEACHING INFORMATION

FirstName	LastName	Department	AcademicYear	Semester	Number of courses teaching
Amiya	Basu	Whitman	2018	fall	2
Amiya	Basu	Whitman	2018	spring	2
Anna	Chernobai	Whitman	2018	fall	1
Bei	Yu	Ischool	2018	fall	2
Ben	Nichols	Ischool	2018	fall	1
Ben	Nichols	Ischool	2018	spring	1
Daniel	Acuna	Ischool	2018	fall	2
Daniel	Acuna	Ischool	2018	spring	2
Jeff	Hemsley	Ischool	2018	fall	2
Jeff	Hemsley	Ischool	2018	spring	2
Jeffrey	Saltz	Ischool	2018	fall	1
Jeffrey	Saltz	Ischool	2018	spring	1
Lai	Xu	Whitman	2018	fall	1
Radhika	Garg	Ischool	2018	fall	2
Radhika	Garg	Ischool	2018	spring	1
Ravi	Shukla	Whitman	2018	fall	1
Steve	Wallace	Ischool	2018	fall	1
Steve	Wallace	Ischool	2018	spring	2
Xiao	Lu	Ischool	2018	fall	2

The professor can check how many courses he is teaching in the given year and given semester. In the future versions, to protect the privacy of other professors, the professor can only see the class teaching information of his wen, but currently I don’t know how to filter the report by the users’ login ID.

Class students' composition check:

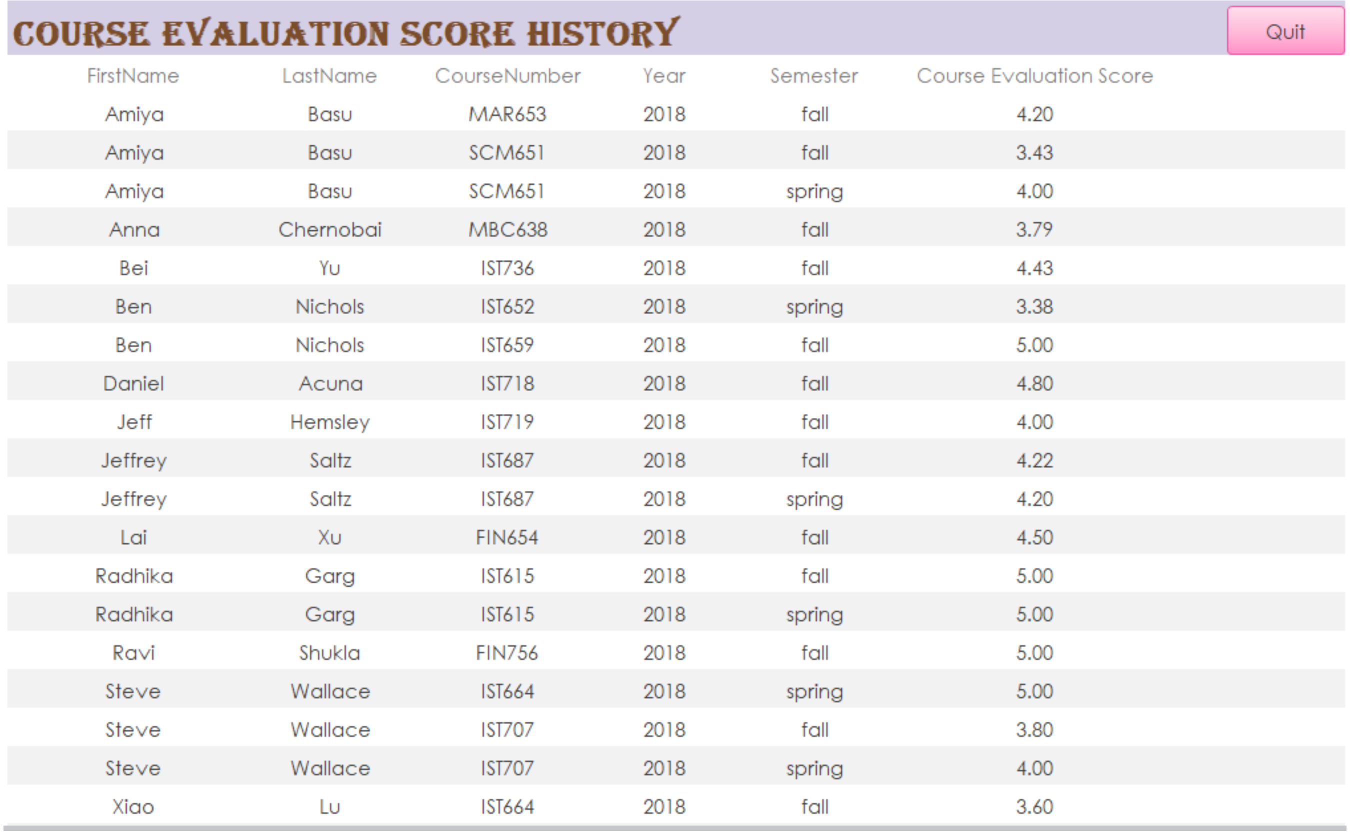


CLASS STUDENTS COMPOSIT

CourseTittle	FirstName	LastName	CourseNumber	Section	Year	Semester	Program	Count
Big Data Analytics	Daniel	Acuna	IST718	M002	2018	fall	ADS	2
Big Data Analytics	Daniel	Acuna	IST718	M002	2018	fall	BA	2
Big Data Analytics	Daniel	Acuna	IST718	M003	2018	fall	BA	1
Business Analytics	Amiya	Basu	SCM651	M001	2018	fall	BA	7
Business Analytics	Amiya	Basu	SCM651	M001	2018	spring	ADS	2
Business Analytics	Amiya	Basu	SCM651	M001	2018	spring	BA	3
Business Analytics	Amiya	Basu	SCM651	M002	2018	spring	ADS	2
Business Analytics	Amiya	Basu	SCM651	M002	2018	spring	BA	4
Cloud Management	Radhika	Garg	IST615	M001	2018	fall	ADS	1
Cloud Management	Radhika	Garg	IST615	M001	2018	spring	ADS	1
Data Admin Concepts & Db Mgm	Ben	Nichols	IST659	M002	2018	fall	ADS	1
Data Admin Concepts & Db Mgm	Yang	Wang	IST659	M001	2018	fall	ADS	3
Data Admin Concepts & Db Mgm	Yang	Wang	IST659	M002	2018	spring	ADS	2
Data Admin Concepts & Db Mgm	Yang	Wang	IST659	M002	2018	spring	BA	2
Data Analysis and Decision Makin	Anna	Chernobai	MBC638	M001	2018	fall	ADS	18
Data Analysis and Decision Makin	Anna	Chernobai	MBC638	M001	2018	fall	BA	16
Data Analytics	Steve	Wallace	IST707	M001	2018	spring	ADS	1
Data Analytics	Steve	Wallace	IST707	M003	2018	fall	ADS	7
Data Analytics	Steve	Wallace	IST707	M003	2018	fall	BA	3

By clicking the "Class Students Composition Check" button the platform will jump to this report showing the students' program distribution of different classes. Similarly, in the future version, the system will only show the login user's information report for the privacy issues.

Course evaluation check:



COURSE EVALUATION SCORE HISTORY

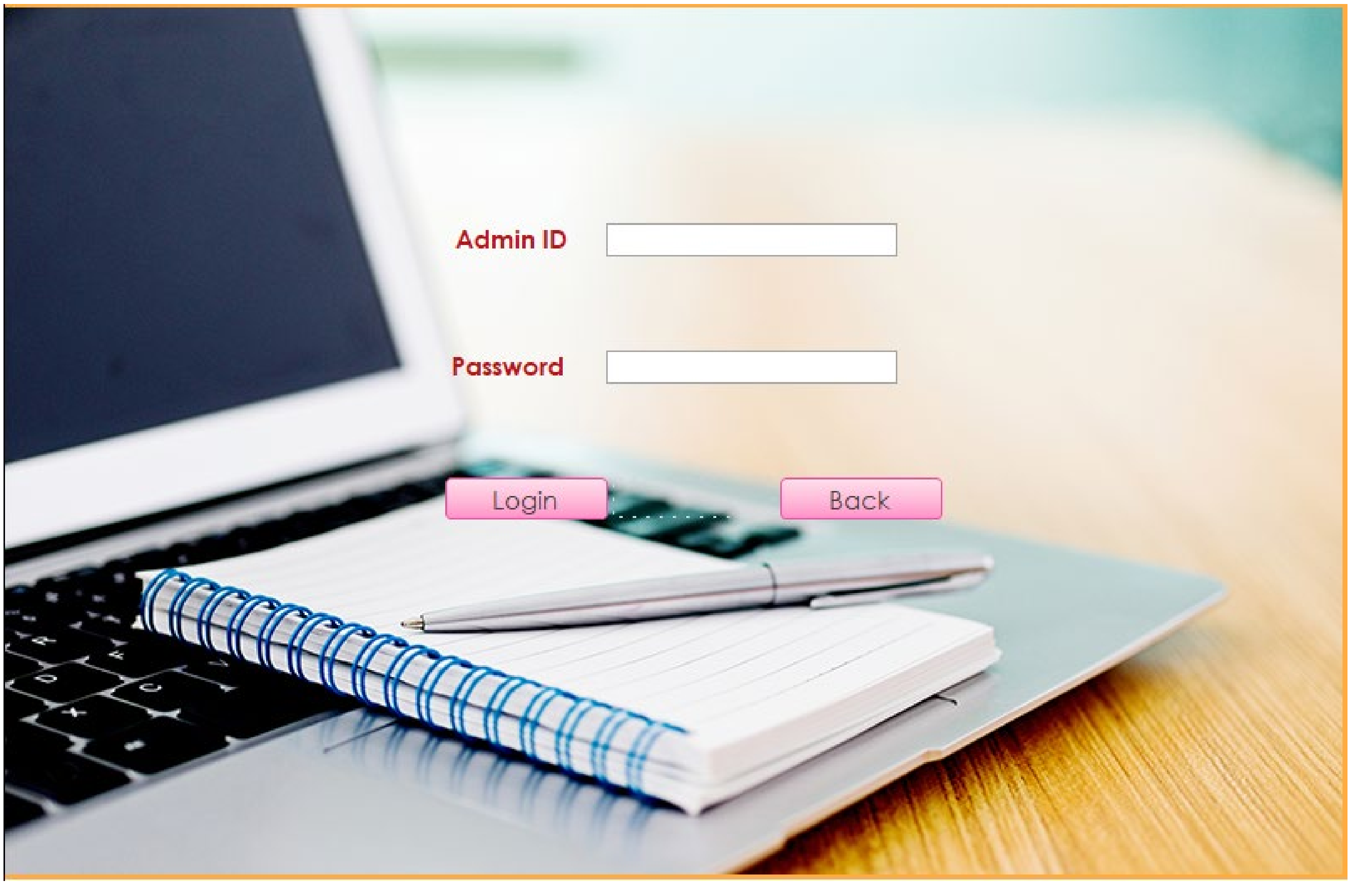
FirstName	LastName	CourseNumber	Year	Semester	Course Evaluation Score
Amiya	Basu	MAR653	2018	fall	4.20
Amiya	Basu	SCM651	2018	fall	3.43
Amiya	Basu	SCM651	2018	spring	4.00
Anna	Chernobai	MBC638	2018	fall	3.79
Bei	Yu	IST736	2018	fall	4.43
Ben	Nichols	IST652	2018	spring	3.38
Ben	Nichols	IST659	2018	fall	5.00
Daniel	Acuna	IST718	2018	fall	4.80
Jeff	Hemsley	IST719	2018	fall	4.00
Jeffrey	Saltz	IST687	2018	fall	4.22
Jeffrey	Saltz	IST687	2018	spring	4.20
Lai	Xu	FIN654	2018	fall	4.50
Radhika	Garg	IST615	2018	fall	5.00
Radhika	Garg	IST615	2018	spring	5.00
Ravi	Shukla	FIN756	2018	fall	5.00
Steve	Wallace	IST664	2018	spring	5.00
Steve	Wallace	IST707	2018	fall	3.80
Steve	Wallace	IST707	2018	spring	4.00
Xiao	Lu	IST664	2018	fall	3.60

This report shows the average evaluation scores history of professors, so that the professor can see whether his students like his class more or less, and then consider whether or not should he pay more effort on teaching. Similarly, in the future versions the report will only show the login users' instances.

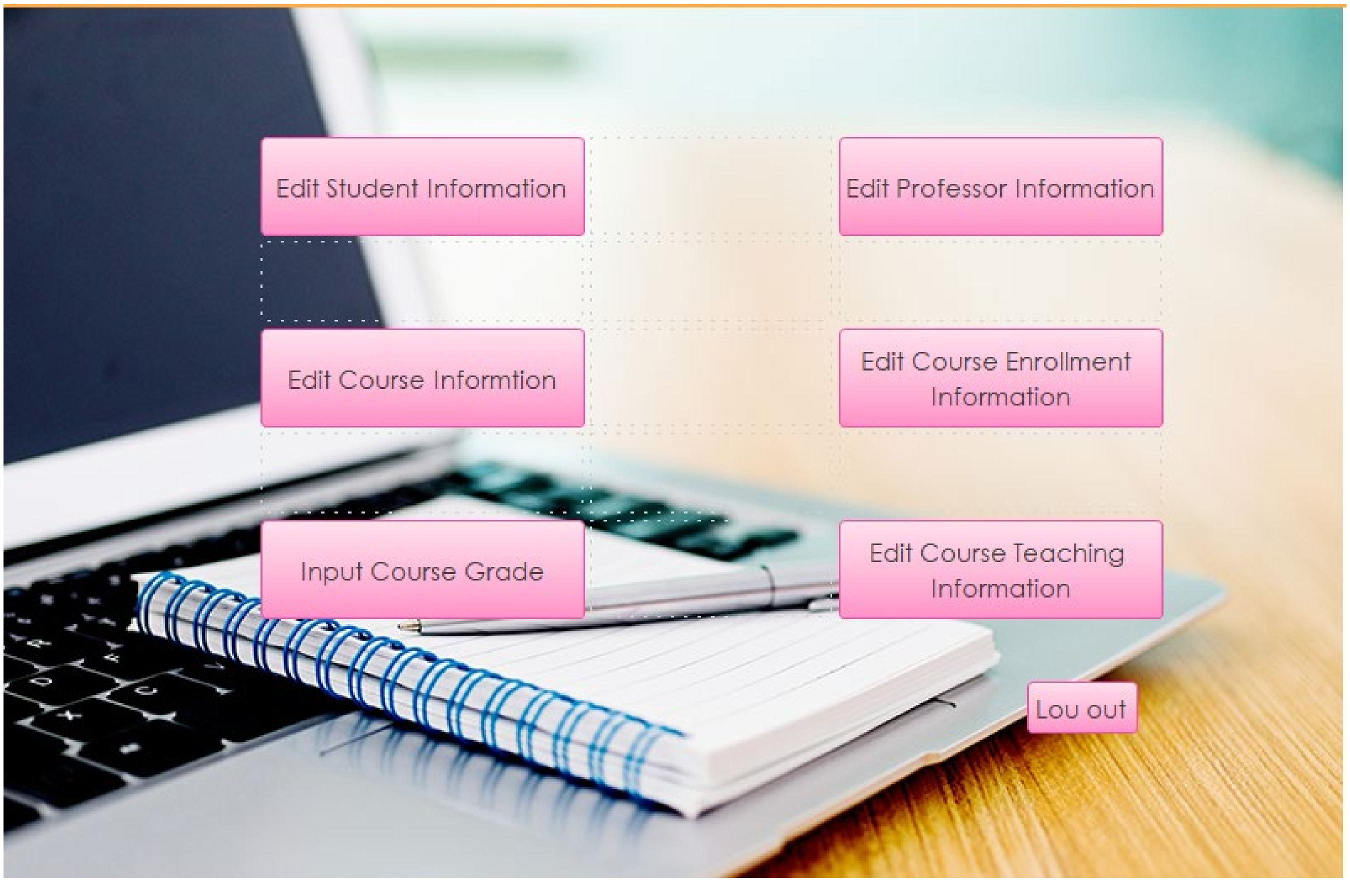
For Administrator use:

The main usage for the database system administrator is to maintain the platform and input the data.

Admin login page:



Admin homepage:


Edit Student Information
Edit Professor Information
Edit Course Informtion
Edit Course Enrollment Information
Input Course Grade
Edit Course Teaching Information
Lou out

The system administrator can edit the student's information, including inserting new students' information and changing students' basic information; the administrator can also edit the professors' information such as inserting or deleting instances if there are new professor coming or old professor retiring, the administrator can also help professors update their basic information if the latter are too busy to do that. When there are new courses coming out in SU, the administrator should also insert the course information and course teaching information into the database. Lastly, when students enroll in classes and receive grades in the class, the administrator will also insert and update the respective information. Since the course evaluation is made by the student, the administrator doesn't have the access to input the course evaluation scores into the database.

Procedure and trigger

Procedure:

I implemented two procedures to calculate the total number of courses that a student has taken and his GPA during his entire program in ***Student*** table.

Code:

```
ALTER TABLE Student ADD Number_of_course INT
CREATE PROCEDURE Stud_Num_of_course
AS
BEGIN
       UPDATE Student
       SET Number_of_course = nc.Number_of_course
       FROM
              (
              SELECT s.SUID, COUNT(cg.UniqueCourseID) AS 'Number_of_course'
              FROM Student AS s
              INNER JOIN CourseGrade_tag AS cg
              ON cg.SUID = s.SUID
              GROUP BY s.SUID
              ) AS nc
              WHERE Student.SUID = nc.SUID
END;
EXECUTE Stud_Num_of_course


ALTER TABLE Student ADD GPA INT
CREATE PROCEDURE Stud_GPA
AS
BEGIN
       UPDATE Student
       SET GPA = gpa.GPA
       FROM
              (
              SELECT s.SUID, AVG(cg.Grade) AS 'GPA'
              FROM Student AS s
              INNER JOIN CourseGrade_tag AS cg
              ON cg.SUID = s.SUID
              GROUP BY s.SUID
              ) AS gpa
              WHERE Student.SUID = gpa.SUID
END;
EXECUTE Stud_GPA
```

Trigger:

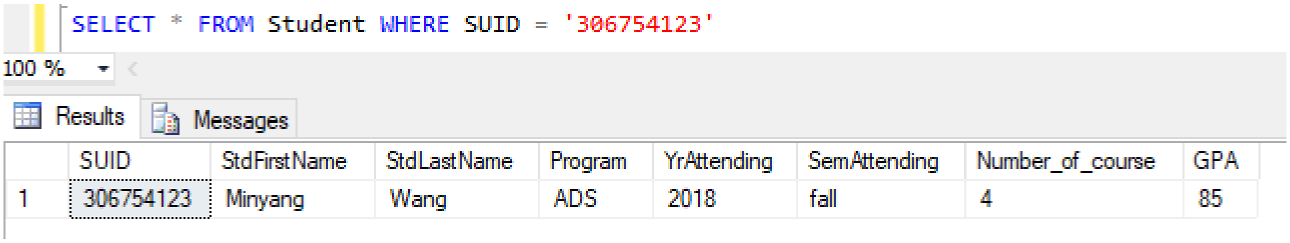
I also implemented two triggers to update the total number of class enrolled and GPA of a student whenever a new course grade record is added into this system.

Code:

```
CREATE TRIGGER Update_num_of_course
ON CourseGrade_tag
FOR INSERT, UPDATE
AS
IF @@ROWCOUNT >= 1
BEGIN
UPDATE Student
       SET Number_of_course = nc.Number_of_course
       FROM
              (
              SELECT s.SUID, COUNT(cg.UniqueCourseID) AS 'Number_of_course'
              FROM Student AS s
              INNER JOIN CourseGrade_tag AS cg
              ON cg.SUID = s.SUID
              GROUP BY s.SUID
              ) AS nc
              WHERE Student.SUID = nc.SUID
END;

CREATE TRIGGER Update_GPA
ON CourseGrade_tag
FOR INSERT, UPDATE
AS
IF @@ROWCOUNT >= 1
BEGIN
UPDATE Student
       SET GPA = gpa.GPA
       FROM
              (
              SELECT s.SUID, AVG(cg.Grade) AS 'GPA'
              FROM Student AS s
              INNER JOIN CourseGrade_tag AS cg
              ON cg.SUID = s.SUID
              GROUP BY s.SUID
              ) AS gpa
              WHERE Student.SUID = gpa.SUID
END;
```

Before the insertion of new grade record:



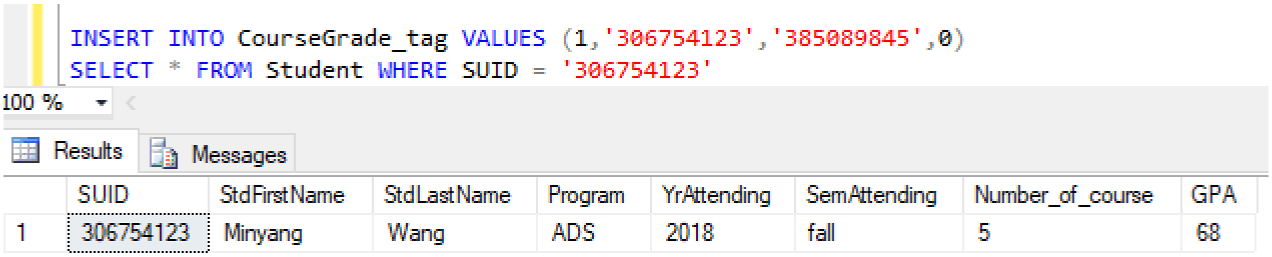
```
SELECT * FROM Student WHERE SUID = '306754123'
```

	SUID	StdFirstName	StdLastName	Program	YrAttending	SemAttending	Number_of_course	GPA
1	306754123	Minyang	Wang	ADS	2018	fall	4	85

Insert new grade record:

```
INSERT INTO CourseGrade_tag VALUES (1,'306754123','385089845',0)
```

After the insertion:



```
INSERT INTO CourseGrade_tag VALUES (1,'306754123','385089845',0)
SELECT * FROM Student WHERE SUID = '306754123'
```

	SUID	StdFirstName	StdLastName	Program	YrAttending	SemAttending	Number_of_course	GPA
1	306754123	Minyang	Wang	ADS	2018	fall	5	68

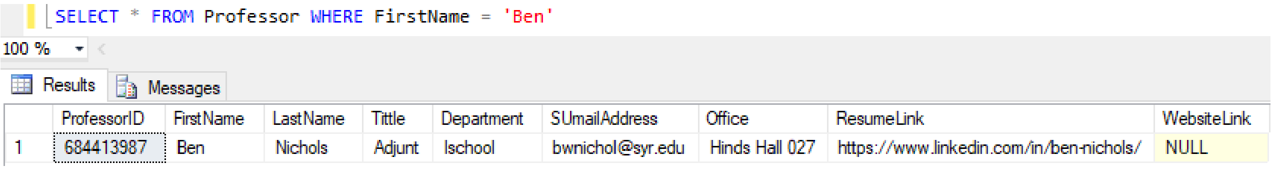
As can be seen from the result above, after inserting a record that I got 0 score in a course whose ID is 1 and is taught by the professor with ID 385089845, my total number of enrollment increases from 4 to 5 and my GPA decreases from 85 to 68.

Transaction

Transaction is created to update temporary information changes. Assuming that some offices in iSchool need to be redecorated during a couple of weeks, so some professors have to move their offices to other rooms temporarily. As a result, Professor Ben Nichols has to move his office from Hinds Hall 027 to Hinds Hall 225. The transaction **Office_change** was created to temporarily update this office change:

```
BEGIN TRANSACTION Office_change
UPDATE Professor
SET  Office = 'Hinds Hall 225'
WHERE FirstName = 'Ben'
```

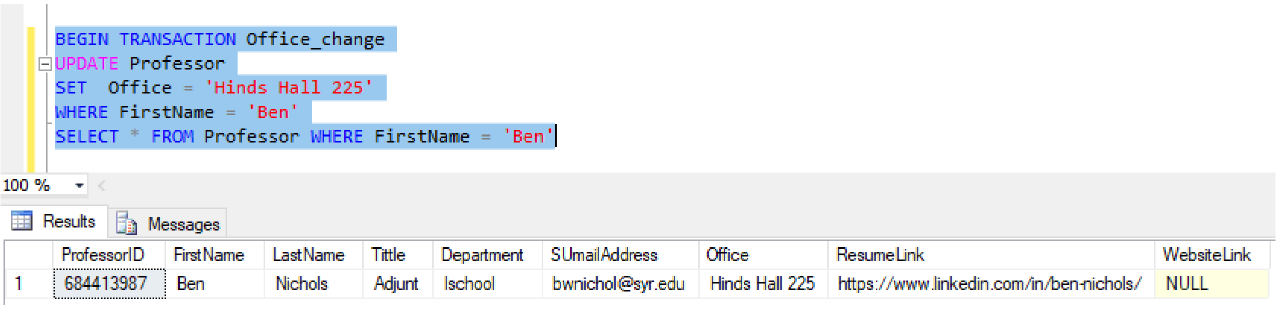
Professor's original office:



```
SELECT * FROM Professor WHERE FirstName = 'Ben'
```

	ProfessorID	FirstName	LastName	Tittle	Department	SUmailAddress	Office	ResumeLink	WebsiteLink
1	684413987	Ben	Nichols	Adjunt	Ischool	bwnichol@syr.edu	Hinds Hall 027	https://www.linkedin.com/in/ben-nichols/	NULL

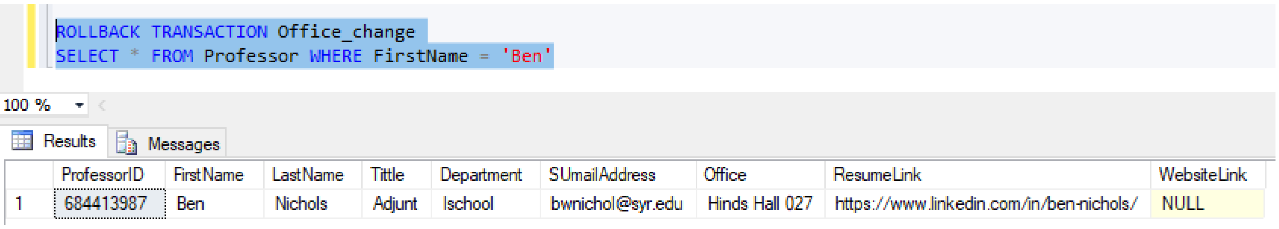
Professor's temporary office:



```
BEGIN TRANSACTION Office_change
UPDATE Professor
SET  Office = 'Hinds Hall 225'
WHERE FirstName = 'Ben'
SELECT * FROM Professor WHERE FirstName = 'Ben'
```

	ProfessorID	FirstName	LastName	Tittle	Department	SUmailAddress	Office	ResumeLink	WebsiteLink
1	684413987	Ben	Nichols	Adjunt	Ischool	bwnichol@syr.edu	Hinds Hall 225	https://www.linkedin.com/in/ben-nichols/	NULL

Professor moves back to his original office once the redecoration is done:



```
ROLLBACK TRANSACTION Office_change
SELECT * FROM Professor WHERE FirstName = 'Ben'
```

	ProfessorID	FirstName	LastName	Tittle	Department	SUmailAddress	Office	ResumeLink	WebsiteLink
1	684413987	Ben	Nichols	Adjunt	Ischool	bwnichol@syr.edu	Hinds Hall 027	https://www.linkedin.com/in/ben-nichols/	NULL