

Syracuse University iSchool

Course Catalog Database Report

IST-659

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Project Summary

This project focuses on designing a database for Syracuse University iSchool course catalog and course registration system. The iSchool is offering a course catalog which entails available classes of different levels pertinent to various information areas. Currently, **the course catalog can be accessed through 2 separate routes which simply display a list of available courses and their basic information (course code, instructor, overview, and pre-requisite course).** Apart from the course catalog, the course registration system is integrated with the class searching system called 'Myslice' where users can check their current credit records and view available courses. In conclusion, the current course catalog and course registration system are separate, and they are not capable of providing one single platform for comprehensive data sources, resulting in user inconveniences.

Therefore, **the purpose of this system development is to establish an integrated iSchool course catalog database and link it to the course registration system for enhancing user conveniences.** For instance, students are expected to **shorten their time for browsing** and selecting courses they are interested in or required to take and make better course registration quality-wise. Also, administrators can analyze such data more conveniently and make use of the analysis for improving iSchool academic course design. In the long run, it will contribute to making iSchool courses more attractive as well as elevating students' competences.

For this, we need to build an integrated single database which involves holistic data about all iSchool courses. The database will be complemented with detailed course information both in academic and professional aspects such as technical tools, prerequisite courses, related academic field, career field and so on. Based on the database, functions will be diversified targeting different user groups. **Students will be able to view their profile as well as credit status and directly register courses which align with their academic and career goals.** The system will also help instructors notify course updates and classroom information in real time. Companies could make use of this system to find potential employees by querying the database and administrators could be able to control the whole system more efficiently.

This summary states overall system design, specific purposes and functions, entities and attributes, dependencies and relationships between the various entities and attributes (ERD), business rules, and major data questions related to major issues in the system management.

For this project, we will use following tools: Access, SQL Server, Visio.

Entity and Attribute Table

1. **Class:** This entity captures information about the classes that ischool offered and all the information toward each specific class

Attribute name	Attr type	NOT NULL/NULL	PK	Other constraints	Description
ClassID	VARCHAR(20)	NOT NULL	PK		Primary key identifier of the class, can be defined as courseID
ClassRoom ID	VARCHAR(20)	NOT NULL	FK		Identify the location of the class
InstID	VARCHAR(40)	NOT NULL	FK		Identify the Instructor
Credits	VARCHAR(10)	NOT NULL			Credits for the class
Semester	VARCHAR(20)	NOT NULL			Define which semester it is
StartDate	DATETIME	NOT NULL			The class start date
EndDate	DATETIME	NOT NULL			The class end date
Duration	VARCHAR(20)	NOT NULL			Define the duration of class
ClassSize	VARCHAR(20)	NOT NULL			The size of the class
WKSch	VARCHAR(20)	NOT NULL		(MTWTHFSAS)	Class days of each week (MTWTHF)
CourseID	VARCHAR(20)	NOT NULL	FK		Define the course type that the class belongs to
Enrollment	INTEGER				The actual number of students

2. **Course:** This entity captures information about the courses that ischool offered, the table covered the details about each course and it's descriptions and requirements

Attribute name	Attr type	NOT NULL/NULL	PK	Other constraints	Description
CourseID	VARCHAR(20)	NOT NULL	PK		Primary key identifier for the specific subject
SubjectCode	VARCHAR(20)	NOT NULL		GET/IDS/IST/MBC	Global Enterprise Technology(GET)/Information Technology, Design and Startup(IDS)/Information Studies(IST)/(MBC)
TTID	INTEGER		FK		Define which technical tool is going to be used in this subject
CourseName	VARCHAR(50)	NOT NULL			Name of the subject
PreRequest Course1	VARCHAR(20)				The combination of the Pre required courses.
PreRequest Course2	VARCHAR(20)				Text description of the pre request courses.

3. Classroom: This entity captures information about the class room which contain the geographic information for each class room

Attribute name	Attr type	NOT NULL/NULL	PK	Other constraints	Description
ClassRoom ID	VARCHAR(50)	NOT NULL	PK		Define the place where to take class(including TBA and Online)
Capacity	VARCHAR(20)	NOT NULL			The classroom capacity
ClassRoom Number	VARCHAR(20)	NOT NULL			The classroom number associated with the building
ClassBuilding	VARCHAR(80)	NOT NULL			The building of classroom

4. **TechTool:** This entity captures information about the technical tools that ischool's course covered

Attribute name	Attr type	NOT NULL/NULL	PK	Other constraints	Description
TTID PK	INTEGER	NOT NULL	PK		Primary key for the technical tool which is going to be used
TTName	VARCHAR(20)	NOT NULL			The name of that technical tool
TTDescribe	VARCHAR(50)	NOT NULL			The description of that technical tool

5. **Instructor:** This entity captures information about the instructor who teach ischool courses and its details

Attribute name	Attr type	NOT NULL/NULL	PK	Other constraints	Description
InstID	VARCHAR(40)	NOT NULL	PK		Primary identifier for the instructor
InstFName	VARCHAR(40)	NOT NULL			First name of instructor
InstLName	VARCHAR(40)	NOT NULL			Last name of instructor
InstEmail	VARCHAR(50)	NOT NULL		Unique	Instructor's email
InstGender	VARCHAR(20)	NOT NULL		Male orFemale	The gender of the instructor
InstTitle	VARCHAR(20)	NOT NULL			The position title of the instructor

6. **Student:** This entity captures information about the students and the targeting job position associated with it

Attribute name	Attr type	NOT NULL/NULL	PK	Other constraints	Description
SUID PK	VARCHAR(20)	NOT NULL	PK		Primary identifier for students

StudFName	VARCHAR(20)	NOT NULL			First name of students
StudLName	VARCHAR(20)	NOT NULL			Last name of students
StudEmail	VARCHAR(50)	NOT NULL		Unique	Student's email
StudGender	VARCHAR(20)	NOT NULL			The gender of the student
StudPhoneNum	VARCHAR(20)	NOT NULL		Unique	Phone number of students
StudMajor	VARCHAR(20)	NOT NULL			The program that the student enrolls in
StudLevel	VARCHAR(20)	NOT NULL			Whether a student is graduate or undergraduate
TargetJob	VARCHAR(20)				The kind of job that the student is most like to pursue

7. Registration: This entity captures information about the registration that students who signed up for the classes

Attribute name	Attr type	NOT NULL/NULL	PK	Other constraints	Description
RegstID	VARCHAR(20)	NOT NULL	PK		Primary identifier for the registration
RegstDate	DATETIME	NOT NULL			The date on which the student enrolls the course
SUID	VARCHAR(20)	NOT NULL	FK		Define the student who take the classClasPK
ClassID	VARCHAR(20)	NOT NULL	FK		Define the class which the student takes

8. Company: This entity captures information about the companies who are seeking for employees searching

Attribute name	Attr type	NOT NULL/NULL	PK	Other constraints	Description
CompID	INTEGER	NOT NULL	PK		Primary identifier for the company

CompState	VARCHAR(20)	NOT NULL			The state of the company
CompCity	VARCHAR(20)	NOT NULL			The city of the company
CompField	TEXT				The field of the company
CompValue	TEXT				The description of the value of the company
CompName	VARCHAR(20)	NOT NULL			The Name of Company

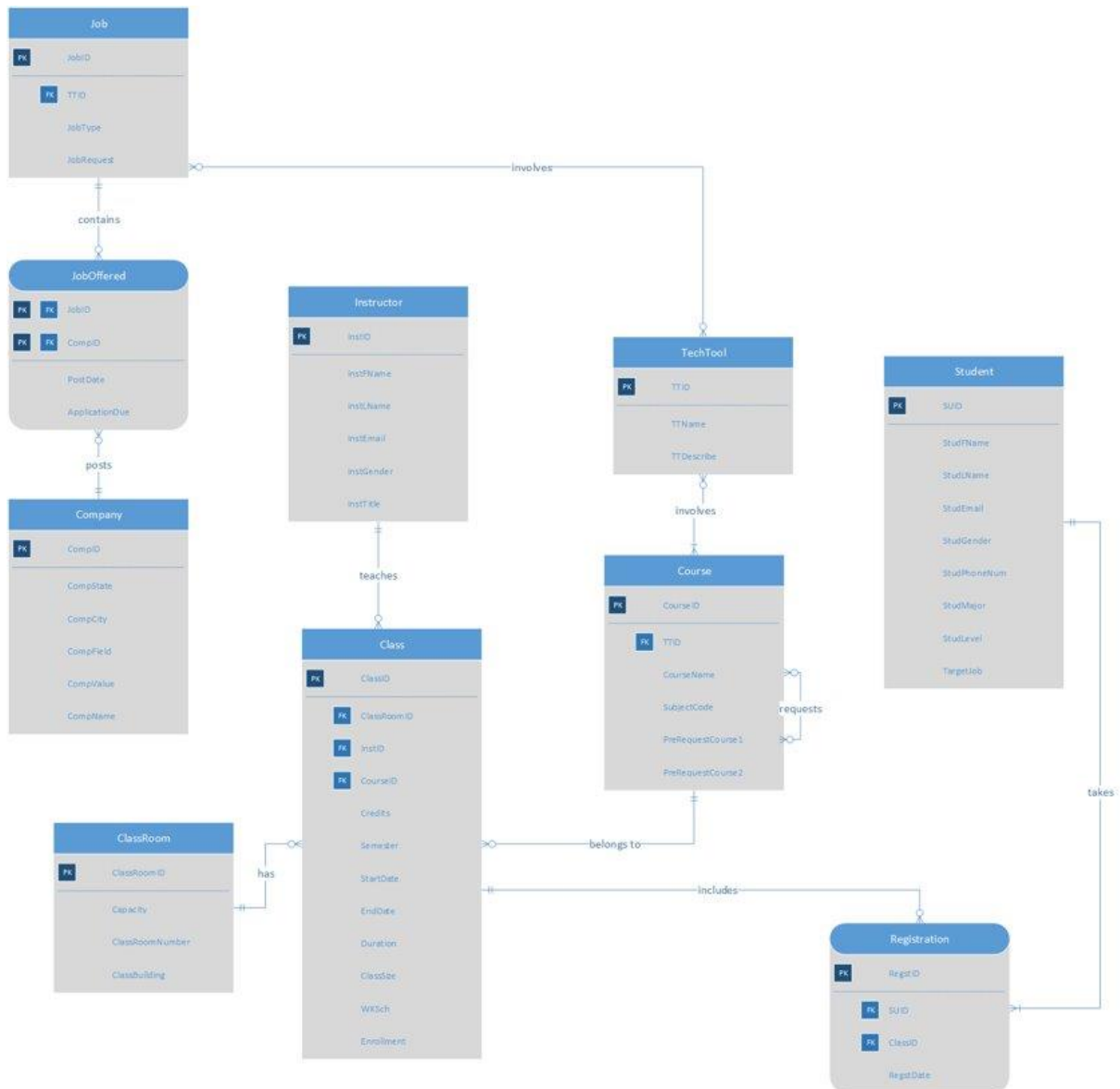
9. **Job:** This entity captures information about the jobs that ischool students might applying

Attribute name	Attr type	NOT NULL/NULL	PK	Other constraints	Description
JobID	INTEGER	NOT NULL	PK		Primary identifier for the job
TTID	INTEGER	NOT NULL	FK		Define the tech tool that the job needs
JobType	VARCHAR(50)	NOT NULL			The type of job such as data, consulting.
JobRequest	TEXT	NOTNULL			Whether the job is an internship or a part-time job or a full-time job.

10. **JobOffered:** This entity captures information about the job details that hiring companies offered

Attr type	NOT NULL/NULL	PK	Other constraints	Description
INTEGER	NOT NULL	PK		Define the Company that posts the job
INTEGER	NOT NULL	PK		Define the job that the company posts
DATETIME	NOTNULL			The date of the job posted
DATETIME				The due of the job application

Entity Relationship Diagram



Creation of Tables

--- Create Classroom ---

```
CREATE TABLE Classroom(
ClassRoomID VARCHAR(50) NOT NULL PRIMARY KEY,
Capacity VARCHAR(20) NOT NULL,
ClassRoomNumber VARCHAR(20) NOT NULL,
ClassBuilding VARCHAR(80) NOT NULL,
);
```

--- Create TechTool ---

```
CREATE TABLE TechTool(  
TTID INTEGER NOT NULL PRIMARY KEY,  
TTName VARCHAR(20) NOT NULL,  
TTDescribe VARCHAR(50) NOT NULL,  
);
```

--- Create Instructor ---

```
CREATE TABLE Instructor(  
InstID VARCHAR(40) NOT NULL PRIMARY KEY,  
InstFName VARCHAR(40) NOT NULL,  
InstLName VARCHAR(40) NOT NULL,  
InstEmail VARCHAR(50) NOT NULL UNIQUE,  
InstGender VARCHAR(20) NOT NULL,  
InstTitle VARCHAR(40) NOT NULL,  
CONSTRAINT chk_InstGendr CHECK (InstGender = 'Male' OR InstGender = 'Female'),  
);
```

--- Create Student ---

```
CREATE TABLE Student(  
SUID VARCHAR(20) NOT NULL PRIMARY KEY,  
StudFName VARCHAR(20) NOT NULL,  
StudLName VARCHAR(20) NOT NULL,  
StudEmail VARCHAR(50) NOT NULL UNIQUE,  
StudGender VARCHAR(20) NOT NULL,  
StudPhoneNum VARCHAR(20) NOT NULL UNIQUE,  
StudMajor VARCHAR(20) NOT NULL,  
StudLevel VARCHAR(20) NOT NULL,  
TargetJob VARCHAR(20),  
CONSTRAINT chk_StudLevel CHECK (StudLevel = 'Undergraduate' OR StudLevel =  
'Graduate'),  
);
```

--- Create Course ---

```
CREATE TABLE Course(  
CourseID VARCHAR(20) NOT NULL PRIMARY KEY,  
SubjectCode VARCHAR(20) NOT NULL,  
TTID INTEGER FOREIGN KEY REFERENCES TechTool(TTID),  
CourseName VARCHAR(50) NOT NULL,  
PreRequestCourse1 VARCHAR(20),  
PreRequestCourse2 VARCHAR(20),  
);
```

--- Create Class ---

```
CREATE TABLE Class(  

```

```

ClassID VARCHAR(20) NOT NULL PRIMARY KEY,
ClassRoomID VARCHAR(50) NOT NULL FOREIGN KEY REFERENCES
ClassRoom(ClassRoomID),
InstID VARCHAR(40) NOT NULL FOREIGN KEY REFERENCES Instructor(InstID),
Credits VARCHAR(10) NOT NULL,
Semester VARCHAR(20) NOT NULL,
StartDate DATETIME NOT NULL,
EndDate DATETIME NOT NULL,
Duration VARCHAR(20) NOT NULL,
ClassSize VARCHAR(20) NOT NULL,
WkSch VARCHAR(20) NOT NULL,
CourseID VARCHAR(20) NOT NULL FOREIGN KEY REFERENCES Course(CourseID),
CONSTRAINT chk_WkSch CHECK (WkSch='M' OR WkSch='T' OR WkSch='W' OR
WkSch='TH' OR WkSch='F' OR WkSch='SA' OR WkSch='S'),
Enrollment INTEGER,
);

```

--- Create Registration ---

```

CREATE TABLE Registration(
RegstID VARCHAR(20) NOT NULL PRIMARY KEY,
RegstDate DATETIME NOT NULL,
SUID VARCHAR(20) FOREIGN KEY REFERENCES Student(SUID),
ClassID VARCHAR(20) FOREIGN KEY REFERENCES Class(ClassID),
);

```

--- Create Company ---

```

CREATE TABLE Company(
CompanyId INTEGER NOT NULL PRIMARY KEY,
CompState VARCHAR(20) NOT NULL,
CompCity VARCHAR(20) NOT NULL,
CompField TEXT,
CompValue TEXT,
CompName VARCHAR(20) NOT NULL,
);

```

--- Create Job ---

```

CREATE TABLE Job(
JobID INTEGER NOT NULL PRIMARY KEY,
TTID INTEGER NOT NULL FOREIGN KEY REFERENCES TechTool(TTID),
JobType VARCHAR(50) NOT NULL,
JobRequest TEXT NOT NULL,
);

```

--- Create JobOffered ---

```

CREATE TABLE JobOffered(
CompID INTEGER NOT NULL REFERENCES Company(CompanyID),
JobID INTEGER NOT NULL REFERENCES Job(JobID),
PostDate DATETIME NOT NULL,
ApplicationDue DATETIME,
PRIMARY KEY(CompID,JobID)
);

```

Insertion of Tables

---Insert data - ClassRoom table---

```

INSERT INTO ClassRoom (ClassRoomID,Capacity,ClassRoomNumber,ClassBuilding)
VALUES('H002','40','2','Hinds Hall')
INSERT INTO ClassRoom (ClassRoomID,Capacity,ClassRoomNumber,ClassBuilding)
VALUES('H008','40','8','Hinds Hall')
INSERT INTO ClassRoom (ClassRoomID,Capacity,ClassRoomNumber,ClassBuilding)
VALUES('H010','40','10','Hinds Hall')
INSERT INTO ClassRoom (ClassRoomID,Capacity,ClassRoomNumber,ClassBuilding)
VALUES('H033','40','33','Hinds Hall')
INSERT INTO ClassRoom (ClassRoomID,Capacity,ClassRoomNumber,ClassBuilding)
VALUES('H113','40','113','Hinds Hall')
INSERT INTO ClassRoom (ClassRoomID,Capacity,ClassRoomNumber,ClassBuilding)
VALUES('H117','40','117','Hinds Hall')
INSERT INTO ClassRoom (ClassRoomID,Capacity,ClassRoomNumber,ClassBuilding)
VALUES('W007','120','7','School of Management');

```

	ClassRoomID	Capacity	ClassRoomNumber	ClassBuilding
1	H002	40	2	Hinds Hall
2	H008	40	8	Hinds Hall
3	H010	40	10	Hinds Hall
4	H033	40	33	Hinds Hall
5	H113	40	113	Hinds Hall
6	H117	40	117	Hinds Hall
7	W007	120	7	School of Management

---Insert data - TechTool table---

```

INSERT INTO TechTool(TTID,TTName,TTDescribe)
VALUES(1,'Excel','Spreadsheet developed by Microsoft')
INSERT INTO TechTool(TTID,TTName,TTDescribe)
VALUES(2,'Visio','Software for drawing a variety of diagrams')
INSERT INTO TechTool(TTID,TTName,TTDescribe)
VALUES(3,'SQL Server','Relational Database Management System')

```

```
INSERT INTO TechTool(TTID,TTName,TTDescribe)
VALUES(4,'R Studio','Integrated Development Environment (IDE) for R');
```

Results		Messages	
	TTID	TTName	TTDescribe
1	1	Excel	Spreadsheet developed by Microsoft
2	2	Visio	Software for drawing a variety of diagrams
3	3	SQL Server	Relational Database Management System
4	4	R Studio	Integrated Development Environment (IDE) for R

---Insert data - Instructor table---

```
INSERT INTO Instructor(InstID,InstFName,InstLName,InstEmail,InstGender,InstTitle)
VALUES('1','Hernando','Hoyos','hhoyos@syr.edu','Male','Professor')
INSERT INTO Instructor(InstID,InstFName,InstLName,InstEmail,InstGender,InstTitle)
VALUES('2','Jilian','Lando','jlando@syr.edu','Female','Professor')
INSERT INTO Instructor(InstID,InstFName,InstLName,InstEmail,InstGender,InstTitle)
VALUES('3','Anna','Chernobai','achernobai@syr.edu','Female','Professor')
INSERT INTO Instructor(InstID,InstFName,InstLName,InstEmail,InstGender,InstTitle)
VALUES('4','Jeff','Cases','jcases@syr.edu','Male','Assistant Professor')
INSERT INTO Instructor(InstID,InstFName,InstLName,InstEmail,InstGender,InstTitle)
VALUES('5','Angela','Wood','awood@syr.edu','Female','Instructor')
INSERT INTO Instructor(InstID,InstFName,InstLName,InstEmail,InstGender,InstTitle)
VALUES('6','Jake','Cox','jcox@syr.edu','Male','Assistant Professor');
```

Results		Messages				
	InstID	InstFName	InstLName	InstEmail	InstGender	InstTitle
1	1	Hernando	Hoyos	hhoyos@syr.edu	Male	Professor
2	2	Jilian	Lando	jlando@syr.edu	Female	Professor
3	3	Anna	Chemobai	achemobai@syr.edu	Female	Professor
4	4	Jeff	Cases	jcases@syr.edu	Male	Assistant Professor
5	5	Angela	Wood	awood@syr.edu	Female	Instructor
6	6	Jake	Cox	jcox@syr.edu	Male	Assistant Professor

---Insert data - Student table---

```
INSERT INTO Student(SUID,StudFName,StudLName,StudEmail,
StudGender,StudPhoneNum,StudMajor,StudLevel,TargetJob)
VALUES('S01','James','Smith','jsmith@syr.edu','Male','315-772-
1221','IM','Undergraduate','Data')
INSERT INTO Student(SUID,StudFName,StudLName,StudEmail,
StudGender,StudPhoneNum,StudMajor,StudLevel,TargetJob)
VALUES('S02','John','Williams','jwilliams@syr.edu','Male','253-432-
1290','IM','Graduate','Data')
```

```
INSERT INTO Student(SUID,StudFName,StudLName,StudEmail,
StudGender,StudPhoneNum,StudMajor,StudLevel,TargetJob)
VALUES('S03','Robert','Johnson','rjohnson@syr.edu','Male','431-333-
7129','ADS','Graduate','Consulting')
```

```
INSERT INTO Student(SUID,StudFName,StudLName,StudEmail,
StudGender,StudPhoneNum,StudMajor,StudLevel,TargetJob)
VALUES('S04','Mary','Davis','mdavis@syr.edu','Female','576-101-
1119','EDS','Graduate','Consulting')
```

```
INSERT INTO Student(SUID,StudFName,StudLName,StudEmail,
StudGender,StudPhoneNum,StudMajor,StudLevel,TargetJob)
VALUES('S05','Jennifer','Cuomo','jcuomo@syr.edu','Female','482-201-
2973','LIS','Graduate',NULL); ---Insert data - Course table---
```

```
INSERT INTO
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST618','IST',NULL,'Information Policy',NULL,NULL)
```

```
INSERT INTO
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST659','IST','3','Database Management',NULL,NULL)
```

```
INSERT INTO
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST687','IST','4','Data Science',NULL,NULL)
```

```
INSERT INTO
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST707','IST','4','Data Analytics','IST687',NULL)
```

```
INSERT INTO
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST722','IST','3','Data Warehouse','IST659',NULL)
```

```
INSERT INTO
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('MBC638','MBC','1','Data Analysis and Decision Making',NULL,NULL);
```

	SUID	StudFName	StudLName	StudEmail	StudGender	StudPhoneNum	StudMajor	StudLevel	TargetJob
1	S01	James	Smith	jsmith@syr.edu	Male	315-772-1221	IM	Undergraduate	Data
2	S02	John	Williams	jwilliams@syr.edu	Male	253-432-1290	IM	Graduate	Data
3	S03	Robert	Johnson	rjohnson@syr.edu	Male	431-333-7129	ADS	Graduate	Consulting
4	S04	Mary	Davis	mdavis@syr.edu	Female	576-101-1119	EDS	Graduate	Consulting
5	S05	Jennifer	Cuomo	jcuomo@syr.edu	Female	482-201-2973	LIS	Graduate	NUL

---Insert data - Course table---

```
INSERT INTO
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST618','IST',NULL,'Information Policy',NULL,NULL)
```

```
INSERT INTO
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST659','IST','3','Database Management',NULL,NULL)
```

INSERT INTO

```
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST687','IST','4','Data Science',NULL,NULL)
```

INSERT INTO

```
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST707','IST','4','Data Analytics','IST687',NULL)
```

INSERT INTO

```
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('IST722','IST','3','Data Warehouse','IST659',NULL)
```

INSERT INTO

```
Course(CourseID,SubjectCode,TTID,CourseName,PreRequestCourse1,PreRequestCourse2)
VALUES('MBC638','MBC','1','Data Analysis and Decision Making',NULL,NULL);
```

Results		Messages				
	CourseID	SubjectCode	TTID	CourseName	PreRequestCourse1	PreRequestCourse2
1	IST618	IST	NULL	Information Policy	NULL	NULL
2	IST659	IST	3	Database Management	NULL	NULL
3	IST687	IST	4	Data Science	NULL	NULL
4	IST707	IST	4	Data Analytics	IST687	NULL
5	IST722	IST	3	Data Warehouse	IST659	NULL
6	MBC638	MBC	1	Data Analysis and Decision Making	NULL	NULL

---Insert data - Class table---

INSERT INTO

```
Class(ClassID,ClassRoomID,CourseID,InstID,Credits,Semester,StartDate,EndDate,Duration,
ClassSize,WKSch,Enrollment)
VALUES('618-M001','H002','IST618','5','3','Summer2019','2019-5-1 00:00:00.000', '2019-6-
18 00:00:00.000','15:00-18:00','27','F',1)
```

INSERT INTO

```
Class(ClassID,ClassRoomID,CourseID,InstID,Credits,Semester,StartDate,EndDate,Duration,
ClassSize,WKSch,Enrollment)
VALUES('638-M001','W007','MBC638','3','3','Spring2019','2019-1-21, 2019-5-4','17:00-
18:20','80','TH',1)
```

INSERT INTO

```
Class(ClassID,ClassRoomID,CourseID,InstID,Credits,Semester,StartDate,EndDate,Duration,
ClassSize,WKSch,Enrollment)
VALUES('659-M001','H117','IST659','2','3','Fall2019','2019-8-26, 2019-12-12','9:30-
12:30','28','W',0)
```

INSERT INTO

```
Class(ClassID,ClassRoomID,CourseID,InstID,Credits,Semester,StartDate,EndDate,Duration,
ClassSize,WKSch,Enrollment)
VALUES('659-M002','H113','IST659','1','3','Fall2019','2019-8-26, 2019-12-12','11:00-
14:00','28','T',1)
```

INSERT INTO

```
Class(ClassID,ClassRoomID,CourseID,InstID,Credits,Semester,StartDate,EndDate,Duration,
ClassSize,WKSch,Enrollment)
```

VALUES('687-M001','H008','IST687','1','3','Fall2018',2019-8-31, 2019-12-5,'14:00-15:30','25','TH',0)

INSERT INTO

Class(ClassID,ClassRoomID,CourseID,InstID,Credits,Semester,StartDate,EndDate,Duration,ClassSize,WKSch,Enrollment)

VALUES('707-M001','H010','IST707','4','3','Spring2020',2019-1-13, 2019-4-30,'8:00-11:00','35','TH',1)

INSERT INTO

Class(ClassID,ClassRoomID,CourseID,InstID,Credits,Semester,StartDate,EndDate,Duration,ClassSize,WKSch,Enrollment)

VALUES('722-M001','H033','IST722','6','3','Full2019',2019-8-26, 2019-12-12,'13:00-14:00','31','M',1);

ClassID	ClassRoomID	InstID	Credits	Semester	StartDate	EndDate	Duration	ClassSize	Wk.Sch	CourseID	Enrollment
618-M001	H002	5	3	Summer2019	2019-05-01 00:00:00.000	2019-06-18 00:00:00.000	15:00-18:00	27	F	IST618	2
638-M001	W007	3	3	Spring2019	1905-06-21 00:00:00.000	1905-07-04 00:00:00.000	17:00-18:20	80	TH	MBC638	1
659-M001	H117	2	3	Fall2019	1905-06-09 00:00:00.000	1905-06-19 00:00:00.000	9:30-12:30	28	W	IST659	1
659-M002	H113	1	3	Fall2019	1905-06-09 00:00:00.000	1905-06-19 00:00:00.000	11:00-14:00	28	T	IST659	1
687-M001	H008	1	3	Fall2018	1905-06-04 00:00:00.000	1905-06-26 00:00:00.000	14:00-15:30	25	TH	IST687	0
707-M001	H010	4	3	Spring2020	1905-06-29 00:00:00.000	1905-06-09 00:00:00.000	8:00-11:00	35	TH	IST707	1
722-M001	H033	6	3	Full2019	1905-06-09 00:00:00.000	1905-06-19 00:00:00.000	13:00-14:00	31	M	IST722	1

---Insert data - Registration table---

INSERT INTO Registration(RegstID,RegstDate,SUID,ClassID)

VALUES('R01','8/22/2018','S01','659-M002')

INSERT INTO Registration(RegstID,RegstDate,SUID,ClassID)

VALUES('R02','1/7/2019','S03','638-M001')

INSERT INTO Registration(RegstID,RegstDate,SUID,ClassID)

VALUES('R03','5/2/2019','S02','618-M001')

INSERT INTO Registration(RegstID,RegstDate,SUID,ClassID)

VALUES('R04','1/11/2020','S05','707-M001')

INSERT INTO Registration(RegstID,RegstDate,SUID,ClassID)

VALUES('R05','8/26/2019','S04','722-M001');

RegstID	RegstDate	SUID	ClassID
R01	2018-08-22 00:00:00.000	S01	659-M002
R02	2019-01-07 00:00:00.000	S03	638-M001
R03	2019-05-02 00:00:00.000	S02	618-M001
R04	2020-01-11 00:00:00.000	S05	707-M001
R05	2019-08-26 00:00:00.000	S04	722-M001
R06	2020-08-29 00:00:00.000	S03	659-M001
R07	2020-08-29 00:00:00.000	S01	618-M001

---Insert data - Company table---

```
INSERT INTO Company(CompanyId,
CompName,CompState,CompCity,CompField,CompValue)
VALUES(1,'Amazon','Washington','Seattle','Computer Service','Creative')
INSERT INTO Company(CompanyId,
CompName,CompState,CompCity,CompField,CompValue)
VALUES(2,'PwC','New York','New York City','Consulting and Tax Service','Customer
Experience')
INSERT INTO Company(CompanyId,
CompName,CompState,CompCity,CompField,CompValue)
VALUES(3,'Facebook','California','San Francisco','Online Social Media Service', NULL);
```

	CompanyId	CompState	CompCity	CompField	CompValue	CompName
1	1	Washington	Seattle	Computer Service	Creative	Amazon
2	2	New York	New York City	Consulting and Tax Service	Customer Experience	PwC
3	3	California	San Francisco	Online Social Media Service	NULL	Facebook

---Insert data - Job table---

```
INSERT INTO Job(JobID,TTID,JobType,JobRequest)
VALUES(1,1,'Consulting','Internship')
INSERT INTO Job(JobID,TTID,JobType,JobRequest)
VALUES(2,3,'Database','Full-time')
INSERT INTO Job(JobID,TTID,JobType,JobRequest)
VALUES(3,2,'Data Analysis','Part-time')
INSERT INTO Job(JobID,TTID,JobType,JobRequest)
VALUES(4,4,'Programming','Full-time')
INSERT INTO Job(JobID,TTID,JobType,JobRequest)
VALUES(5,4,'Data Analysis','Internship');
```

	JobID	TTID	Job Type	Job Request
1	1	1	Consulting	Internship
2	2	3	Database	Full-time
3	3	2	Data Analysis	Part-time
4	4	4	Programming	Full-time
5	5	4	Data Analysis	Internship

---Insert data - JobOffered table---

```

INSERT INTO JobOffered(CompID,JobID,PostDate,ApplicationDue)
VALUES(1,1,'2020-5-1','2020-8-1')
INSERT INTO JobOffered(CompID,JobID,PostDate,ApplicationDue)
VALUES(1,2,'2020-5-1','2020-8-1')
INSERT INTO JobOffered(CompID,JobID,PostDate,ApplicationDue)
VALUES(1,3,'2020-5-1','2020-8-1')
INSERT INTO JobOffered(CompID,JobID,PostDate,ApplicationDue)
VALUES(2,1,'2020-5-1','2020-8-1')
INSERT INTO JobOffered(CompID,JobID,PostDate,ApplicationDue)
VALUES(2,2,'2020-5-1','2020-8-1')
INSERT INTO JobOffered(CompID,JobID,PostDate,ApplicationDue)
VALUES(3,1,'2020-5-1','2020-8-1')
INSERT INTO JobOffered(CompID,JobID,PostDate,ApplicationDue)
VALUES(3,2,'2020-5-1','2020-8-1')
INSERT INTO JobOffered(CompID,JobID,PostDate,ApplicationDue)
VALUES(3,3,'2020-5-1','2020-8-1')
INSERT INTO JobOffered(CompID,JobID,PostDate,ApplicationDue)
VALUES(3,4,'2020-5-1','2020-8-1');

```

	CompID	JobID	PostDate	ApplicationDue
1	1	1	2020-05-01 00:00:00.000	2020-08-01 00:00:00.000
2	1	2	2020-05-01 00:00:00.000	2020-08-01 00:00:00.000
3	1	3	2020-05-01 00:00:00.000	2020-08-01 00:00:00.000
4	2	1	2020-05-01 00:00:00.000	2020-08-01 00:00:00.000
5	2	2	2020-05-01 00:00:00.000	2020-08-01 00:00:00.000
6	3	1	2020-05-01 00:00:00.000	2020-08-01 00:00:00.000
7	3	2	2020-05-01 00:00:00.000	2020-08-01 00:00:00.000
8	3	3	2020-05-01 00:00:00.000	2020-08-01 00:00:00.000
9	3	4	2020-05-01 00:00:00.000	2020-08-01 00:00:00.000

Major Data Questions

For Students:

Q1: What are the prerequisite subjects each course requires?

```

select C1.CourseID, C1.CourseName, C1.PreRequestCourse1, C2.CourseName as
PreCourse1Name,C1.PreRequestCourse2,
C3.CourseName as PreCourse2Name
from Course C1
inner join Course C2
on C2.CourseID = C1.PreRequestCourse1
left join Course as C3
on C3.CourseID = C1.PreRequestCourse2;

```

100 %

```

--- What are the prerequisite subjects each course requires? ---
select C1.CourseID, C1.CourseName, C1.PreRequestCourse1, C2.CourseName as PreCourse1Name, C1.PreRequestCourse2, 
C3.CourseName as PreCourse2Name
from Course C1
inner join Course C2
on C2.CourseID = C1.PreRequestCourse1
left join Course as C3
on C3.CourseID = C1.PreRequestCourse2;

```

	CourseID	CourseName	PreRequestCourse1	PreCourse1Name	PreRequestCourse2	PreCourse2Name
1	IST707	Data Analytics	IST687	Data Science	NULL	NULL
2	IST722	Data Warehouse	IST659	Database Management	NULL	NULL

Q2: What are the technical skills each job requires?

Select JobType, TTName, CompField
from Job, TechTool, JobOffered, Company
where Job.TTID = TechTool.TTID and Job.JobID = JobOffered.JobID and
Company.CompanyId = JobOffered.CompID
order by JobType;

100 %

```

--- What are the technical skills each job requires? ---
Select JobType, TTName, CompField
from Job, TechTool, JobOffered, Company
where Job.TTID = TechTool.TTID and Job.JobID = JobOffered.JobID and Company.CompanyId = JobOffered.CompID
order by JobType;

```

	JobType	TTName	CompField
1	Consulting	Excel	Computer Service
2	Consulting	Excel	Consulting and Tax Service
3	Consulting	Excel	Online Social Media Service
4	Data Analysis	Visio	Online Social Media Service
5	Data Analysis	Visio	Computer Service
6	Database	SQL Server	Online Social Media Service
7	Database	SQL Server	Consulting and Tax Service
8	Database	SQL Server	Computer Service
9	Programming	R Studio	Online Social Media Service

Q3: Whether there are available jobs which matches with student's job target.

select Student.SUID, Student.TargetJob, Job.JobType as TTJob, Job.JobRequest
from Student,Job
where Job.JobType like '%'+cast(Student.TargetJob as varchar)+'%'

100 %

```

--- Whether there are available jobs which matches with student's job target. ---
select Student.SUID, Student.TargetJob, Job.JobType as TTJob, Job.JobRequest
from Student,Job
where Job.JobType like '%'+cast(Student.TargetJob as varchar)+'%'

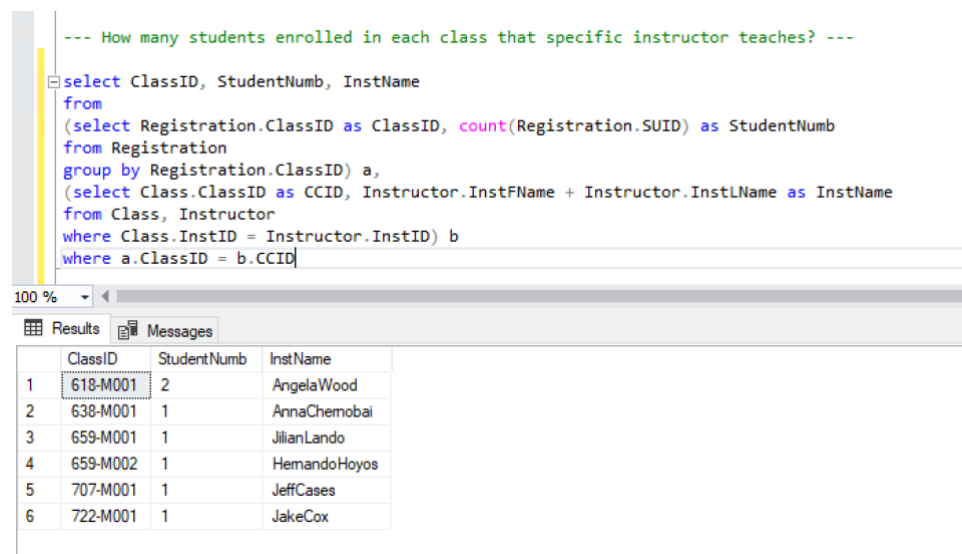
```

	SUID	TargetJob	TTJob	JobRequest
1	S01	Data	Database	Full-time
2	S01	Data	Data Analysis	Part-time
3	S01	Data	Data Analysis	Internship
4	S02	Data	Database	Full-time
5	S02	Data	Data Analysis	Part-time
6	S02	Data	Data Analysis	Internship
7	S03	Consulting	Consulting	Internship
8	S04	Consulting	Consulting	Internship

For Instructors:

Q4: How many students enrolled in each class that specific instructor teaches?

```
select ClassID, StudentNumb, InstName
from
(select Registration.ClassID as ClassID, count(Registration.SUID) as StudentNumb
from Registration
group by Registration.ClassID) a,
(select Class.ClassID as CCID, Instructor.InstFName + Instructor.InstLName as InstName
from Class, Instructor
where Class.InstID = Instructor.InstID) b
where a.ClassID = b.CCID
```



```
--- How many students enrolled in each class that specific instructor teaches? ---
select ClassID, StudentNumb, InstName
from
(select Registration.ClassID as ClassID, count(Registration.SUID) as StudentNumb
from Registration
group by Registration.ClassID) a,
(select Class.ClassID as CCID, Instructor.InstFName + Instructor.InstLName as InstName
from Class, Instructor
where Class.InstID = Instructor.InstID) b
where a.ClassID = b.CCID
```

	ClassID	StudentNumb	InstName
1	618-M001	2	AngelaWood
2	638-M001	1	AnnaChemobai
3	659-M001	1	JilianLando
4	659-M002	1	HernandoHoyos
5	707-M001	1	JeffCases
6	722-M001	1	JakeCox

Q5: Where is the classroom for each class that specific instructor teaches?

```
select InstName, CCID, Room
from
(select Classroom.ClassRoomID + '-' + Classroom.ClassRoomNumber + ',' +
ClassRoom.ClassBuilding as Room, Class.ClassID as CCID
from Classroom, Class
where Class.ClassRoomID = Classroom.ClassRoomID) a,
(select Instructor.InstFName + Instructor.InstLName as InstName, Class.ClassID as CCID2
from Instructor, Class
where Instructor.InstID = Class.InstID) b
where a.CCID = b.CCID2
```

```

--- Where is the classroom for each class that specific instructor teaches? ---
select InstName, CCID, Room
from
(select ClassRoom.ClassRoomID + '-' + ClassRoom.ClassRoomNumber + ',' + ClassRoom.ClassBuilding as Room, Class.ClassID as CCID
from ClassRoom, Class
where Class.ClassRoomID = ClassRoom.ClassRoomID) a,
(select Instructor.InstName + Instructor.InstID as InstName, Class.ClassID as CCID2
from Instructor, Class
where Instructor.InstID = Class.InstID) b
where a.CCID = b.CCID2

```

InstName	CCID	Room
1 AngelaWood	618-M001	H002-2,Hinds Hall
2 AnnaChemobai	638-M001	W007-7,School of Management
3 JilanLando	659-M001	H117-117,Hinds Hall
4 HernandoHoyos	659-M002	H113-113,Hinds Hall
5 HernandoHoyos	687-M001	H008-8,Hinds Hall
6 JeffCases	707-M001	H010-10,Hinds Hall
7 JakeCox	722-M001	H033-33,Hinds Hall

For Companies:

Q6: How many and what kind of courses each student has taken?

```

select Student.SUID, count(Registration.ClassID) as ClassNumber
from Student, Registration
where Student.SUID = Registration.SUID
group by Student.SUID

```

	SUID	ClassNumber
1	S05	1
2	S01	2
3	S02	1
4	S04	1
5	S03	2

```

select SUID, StudName, CourseName, TechTool
from
(select Student.SUID as SUID, Student.StudFName + " " + Student.StudLName as StudName,
Registration.ClassID as RCID
from Registration, Student
where Student.SUID = Registration.SUID) a,
(select Course.CourseName as CourseName, TechTool.TTName as TechTool,
TechTool.TTID as TTID, Class.ClassID as CCID

```

from TechTool

Right join Course on Course.TTID = TechTool.TTID

full join Class on Course.CourseID = Class.CourseID) b

where a.RCID = b.CCID

order by SUID

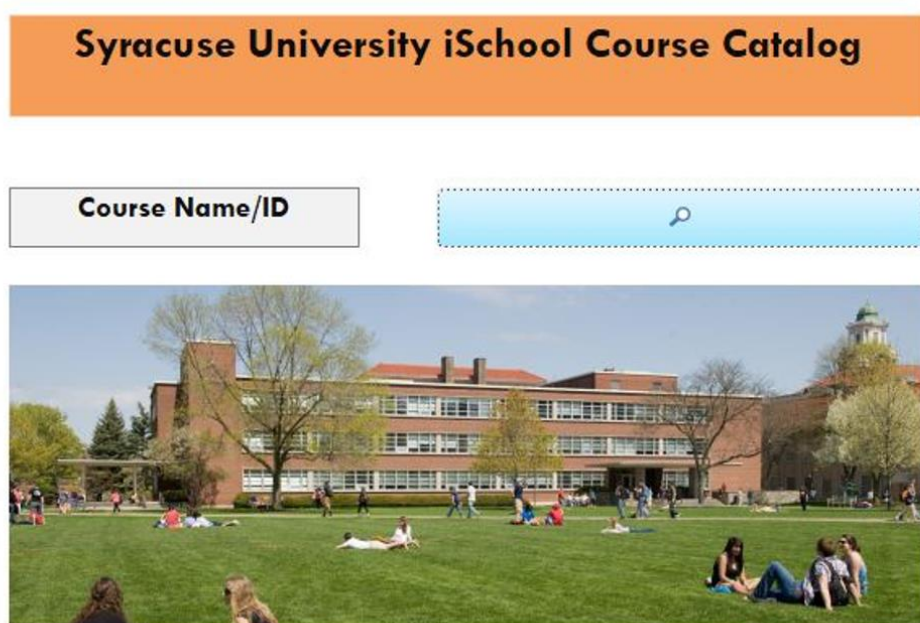
```
--- What kind of course a student has taken? ---
select SUID, StudName, CourseName, TechTool
from
(select Student.SUID as SUID, Student.StudFName + ' ' + Student.StudLName as StudName, Registration.ClassID as RCID
from Registration, Student
where Student.SUID = Registration.SUID) a,
(select Course.CourseName as CourseName, TechTool.TTName as TechTool, TechTool.TTID as TTID, Class.ClassID as CCID
from TechTool
Right join Course on Course.TTID = TechTool.TTID
full join Class on Course.CourseID = Class.CourseID) b
where a.RCID = b.CCID
order by SUID
```

	SUID	StudName	CourseName	TechTool
1	S01	JamesSmith	Database Management	SQL Server
2	S01	JamesSmith	Information Policy	NULL
3	S02	JohnWilliams	Information Policy	NULL
4	S03	RobertJohnson	Data Analysis and Decision Making	Excel
5	S03	RobertJohnson	Database Management	SQL Server
6	S04	MaryDavis	Data Warehouse	SQL Server
7	S05	JenniferCuomo	Data Analytics	R Studio

Interfaces

1. SU iSchool course catalog main page

Users can search for available courses by inputting course name or course ID



2. Course search details

When users enter course name or course ID, they move on to this page and view detailed information about the course they searched.

Course Search Detail

School of Information Studies
Syracuse University

CourseID

MBC638

TechTool

Excel

CourseName

Data Analysis and Decision Making

JobType

Consulting

PreRequisite1

NULL

PreRequisite2

NULL

Class subform

ClassID	ClassRoomID	CourseID	InstID	Credits	Semester	StartDate	EndDate	Duration	ClassSize	WKSch	Enrollment
638-M001	W007	MBC638	003	3	Spring2019	1/21/2019	5/4/2019	17:00-18:20	80	TH	1
*		MBC638									0

Records: 1 of 1
No Filter
Search

3. Class search details

Users can view details of classes for a specific course

Class Search Details

School of Information Studies
Syracuse University

CourseID

IST659

CourseName

Database Management

Credits

3

Semester

Fall2019

WeekSchedule

W

ClassSize

28

InstructorFirstName

Jillian

StartDate

8/26/2019

Enrollment

0

InstEmail

jlando@syr.edu

EndDate

12/12/2019

TechTool

SQL Server

Instructor Last Name

Lando

Duration

9:30-12:30

ToolDescribe

Relational Database Management System

ClassRoomNo

117

PreRequisite1

NULL

Building

Hinds Hall

PreRequisite2

NULL

4. Course registration details

Users can view detailed information about courses in which each student enrolled

School of Information Studies
Syracuse University

CourseID	CourseName	ClassID	Credits	Semester	TtName	JobType	RegstDate
IST659	Database Management	659-M002	3	Fall2019	SQL Server	Database	8/22/2018

Record: 1 of 1 No Filter Search

Users can view available job information

Users can view available job information

School of Information Studies
Syracuse University

JobType	JobRequest	PostDate	ApplicationDu	TTName	TTDescribe
Consulting	Internship	5/1/2020	8/1/2020	Excel	Spreadsheet developed by Microsoft
Database	Full-time	5/1/2020	8/1/2020	SQL Server	Relational Database Management System

Records: 14 of 1 of 2

1. Prerequisite subjects for each course

It will show up to 2 prerequisite subjects for each course

Prerequisite subjects for each course

CourseID	CourseName	PreRequisite1	PreRequisite2
IST618	Information Policy	NULL	NULL
IST659	Database Management	NULL	NULL
IST659	Database Management	NULL	NULL
IST687	Data Science	NULL	NULL
IST707	Data Analytics	IST687	NULL
IST722	Data Warehouse	IST659	NULL
MBC638	Data Analysis and Decision Making	NULL	NULL

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2. Required technical skills for each job

It will show the required technical skills of each job type

Required technical skills for each job

JobType	JobRequest	TechnicalTool	ToolDescription
Consulting	Internship	Excel	Spreadsheet developed by Microsoft
Data Analysis	Part-time	Visio	Software for drawing a variety of diagrams
Database	Full-time	SQL Server	Relational Database Management System
Programming	Full-time	R Studio	Integrated Development Environment (IDE) for R
Data Analysis	Internship	R Studio	Integrated Development Environment (IDE) for R

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3. Available jobs matching with students' target jobs

It will show a list of available jobs which match with students' target jobs

Available jobs matching with student's target job

SUID	StudentMajor	Level	TargetJob	JobType	Company	JobType	PostDate	ApplicationDue
S01	IM	Undergraduate	Data	Database	Facebook	Full-time	5/1/2020	8/1/2020
S01	IM	Undergraduate	Data	Database	PwC	Full-time	5/1/2020	8/1/2020
S01	IM	Undergraduate	Data	Database	Amazon	Full-time	5/1/2020	8/1/2020
S03	ADS	Graduate	Consulting	Consulting	Facebook	Internship	5/1/2020	8/1/2020
S03	ADS	Graduate	Consulting	Consulting	PwC	Internship	5/1/2020	8/1/2020
S03	ADS	Graduate	Consulting	Consulting	Amazon	Internship	5/1/2020	8/1/2020
S04	EDS	Graduate	Consulting	Database	Facebook	Full-time	5/1/2020	8/1/2020
S04	EDS	Graduate	Consulting	Database	PwC	Full-time	5/1/2020	8/1/2020
S04	EDS	Graduate	Consulting	Database	Amazon	Full-time	5/1/2020	8/1/2020
S05	LIS	Graduate		Programming	Facebook	Full-time	5/1/2020	8/1/2020

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4. Enrolled student numbers of each class

It will show how many students enrolled in each class that specific instructor teaches

Enrolled student numbers of each class

CourseID	CourseName	ClassID	Instructor Name		Enrolled Student ID	Total
IST618	Information Policy	618-M001	Angela	Wood	S02	1
MBC638	Data Analysis and Decision Making	638-M001	Anna	Chernobai	S03	1
IST659	Database Management	659-M002	Hernando	Hoyos	S01	1
IST707	Data Analytics	707-M001	Jeff	Cases	S05	1
IST722	Data Warehouse	722-M001	Jake	Cox	S04	1
						5

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5. Classroom information for each class

It will show the classroom information for each class that specific instructor teaches

Classroom information for each class

InstructorName	CourseID	CourseName	ClassID	ClassRoomNumber	ClassBuilding
Hernando Hoyos	IST659	Database Management	659-M002	113	Hinds Hall
Jillian Lando	IST659	Database Management	659-M001	117	Hinds Hall
Anna Chernobai	MBC638	Data Analysis and Decision Making	638-M001	007	School of Management
Jeff Cases	IST707	Data Analytics	707-M001	010	Hinds Hall
Angela Wood	IST618	Information Policy	618-M001	002	Hinds Hall
Jake Cox	IST722	Data Warehouse	722-M001	033	Hinds Hall

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6. Course record of each student

It will show how many and what kind of courses each student has taken

Course record of each student

SUID	StudentName		ClassID	CourseName	Credits	TechnicalTool	JobType
S01	James	Smith	659-M002	Database Management	3	SQL Server	Database
S03	Robert	Johnson	638-M001	Data Analysis and Decision Making	3	Excel	Consulting
S04	Mary	Davis	722-M001	Data Warehouse	3	SQL Server	Database
S05	Jennifer	Cuomo	707-M001	Data Analytics	3	R Studio	Data Analysis
S05	Jennifer	Cuomo	707-M001	Data Analytics	3	R Studio	Programming

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