UTDIsTheWorld: Phase 4 Update

Name: UTDIsTheWorld

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Description

UTD is a big school. Yes, UTD. Every student is related to each class in their degree plan, and every class is related to a professor. So on and so forth. We will model these complex relationships through our entity-relationship diagram.

Assumptions

People

We assume that people on campus are either students, professors, or administrators.

Student – A student that goes to UT Dallas that has a netID.

We assume a student must be a part of a school – they must have a definite major.

We assume a student need not be enrolled in a section of a course (the student can take a gap year).

We assume that students are only a part of a single school.

We assume a student only enrolls in one section of a course.

We assume a student only enrolls in courses respective to their school.

We assume a student only has one advisor.

We assume a student can join zero or more organizations.

We assume a student has a definite classification.

Professor – A member of staff that teaches a class.

We assume professors can teach a course but don't have to.

We assume a professor must teach a section of a course.

We assume a professor can teach many sections of one course.

We assume a professor can sponsor zero or more organizations.

Administrator - A member of staff that does not teach a class.

We assume an administrator works at one type of office (for instance, the office of information technology).

Advisor – An administrator that helps assist students.

We assume an advisor has multiple students whom they advise to.

We assume an advisor must belong to a school.

Parts/Structure of UTD

Schools - A department of UTD in which a student or advisor is a part of.

We assume a school has multiple students that are a part of it.

We assume a school has multiple advisors that are a part of it.

We assume that one school has multiple courses only within that school.

We assume a school can have multiple locations.

Office – A department of UTD in which an administrator works.

We assume one office has one or more administrators working at it.

We assume that every office provides some service.

Organizations - A student-run body in which multiple students, or a single professor is a part of.

We assume an organization must have five or more students.

We assume an organization has at least one professor that sponsors it.

Event – An Event that occurs on campus for students to attend

We assume all organizations host events

We assume any student can go to an event

We assume professors don't attend events

We assume all events get attended by at least one student

Classes

Course – A part of a school that allows students to fulfill their degree plan, and professors to perform their job.

We assume there are multiple courses that stem from one school.

We assume that one course has multiple sections.

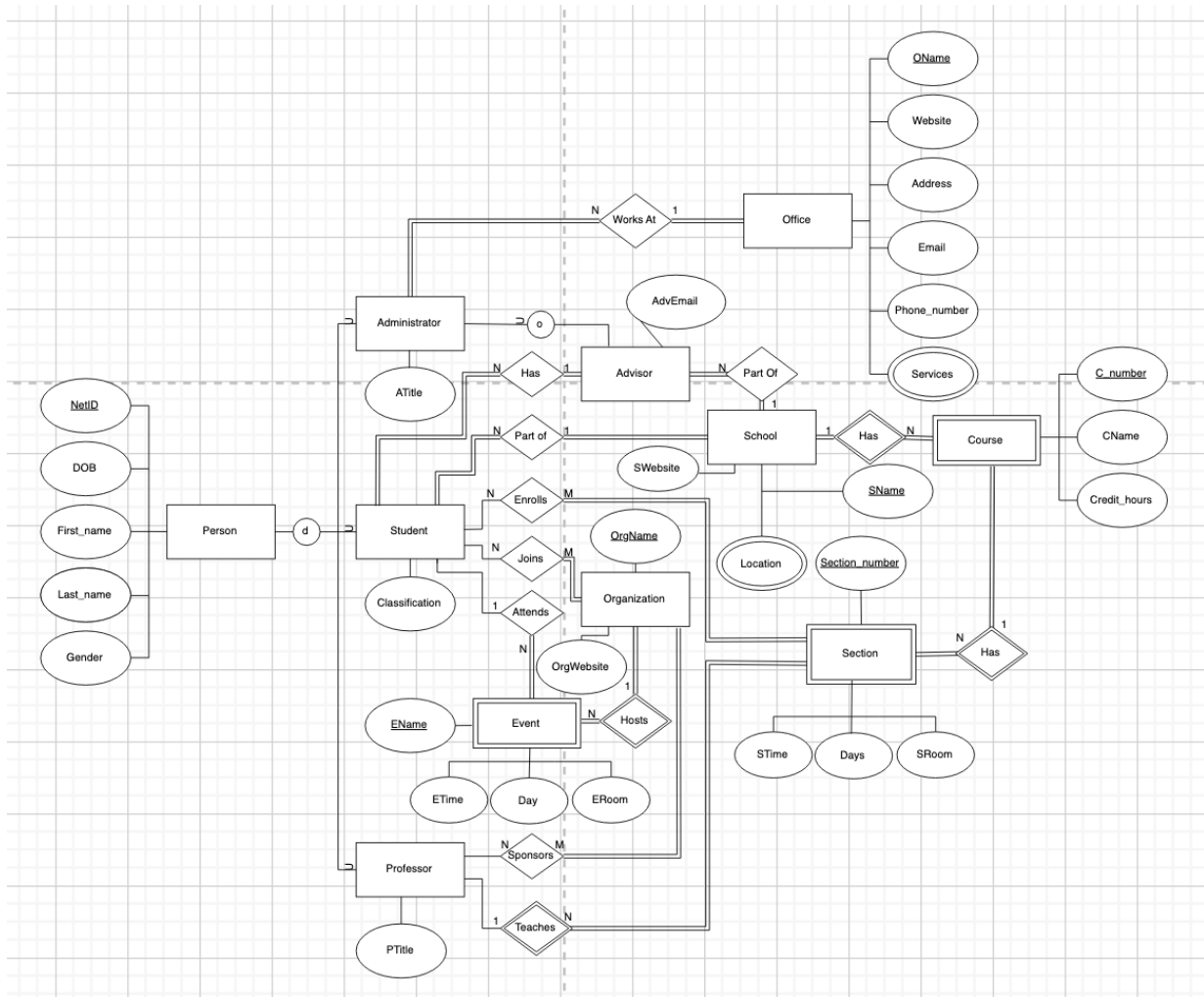We assume that the credit hours granted by a course are whole numbers.

Section - A subset of a course.

We assume that multiple sections are a part of one course.

We assume that one section has only one professor teaching it.

We assume that one section has many students enrolled in it.

UTDIsTheWorld: ER Diagram

UTDIsTheWorld: ER Dictionary

ENTITY DICTIONARY:

Entity: Administrator

Description: Administrators are people at UTD who manage the university

Attributes

   - ATitle, VARCHAR(180)
   - Primary Key: NetID from Person

Entity: Advisor

Description: An advisor is an administrator who manages a group of students

Attributes:

   - AdvEmail: VARCHAR(120)
   - Primary Key: NetID from Administrator

Entity: Course

Description: Classes that students can take at UTD

Attributes:

   - C_number, INTEGER
   - CName, VARCHAR(60)
   - Credit_hours, INTEGER
   - Primary Key: C_number

Entity: Event

Description: An event that occurs at UTD hosted by organizations

Attributes:

- ETime, VARCHAR(40)
- Day, DATE
- ERoom, VARCHAR(20)
- EName, VARCHAR(120)
- Primary Key: EName

Entity: Office

Description: Departments at UTD that provide services in various areas

Attributes:

- OName, VARCHAR(120)
- Website, VARCHAR(120)
- Address, VARCHAR(120)
- Email, VARCHAR(120)
- Phone_number, VARCHAR(20)
- Services, SET
- Primary Key: OName

Entity: Organization

Description: Student organizations / clubs

Attributes:

- OrgName, VARCHAR(120)
- OrgWebsite, VARCHAR(120)
- Primary Key: OrgName

Entity: Person

Description: People at UTD

Attributes:

- DOB, DATE
- First_name, VARCHAR(80)
- Last_name, VARCHAR(80)
- Gender, VARCHAR(20)
- NetID, VARCHAR(20)
- Primary Key: NetID

Entity: Professor

Description: A person at UTD who teaches classes.

Attributes:

- PTitle, VARCHAR(180)
- Primary Key: NetID from Person

Entity: School

Description: Specialized departments in the university

Attributes:

- SName, VARCHAR(80)
- SWebsite, VARCHAR(120)
- Location, SET
- Primary Key: SName

Entity: Section

Description: A section is an instance of a course

Attributes:

- Section_number, VARCHAR(6)
- STime, VARCHAR(20)
- Days, VARCHAR(10)
- SRoom, VARCHAR(10)
- Primary Key: Section_number

Entity: Student

Description: A person that is a student at UTD

Attributes:

- Classification, VARCHAR(20)
- Primary Key: NetID from Person

RELATION DICTIONARY:

Relationship: Attends

Description: Students attend events by going to them when they are announced

Entities: Student, Event

Cardinality: 1:N (One-to-Many)

Participation: Student-Partial, Event-Total

Relationship: Enrolls

Description: Students take classes by enrolling in sections.

Entities: Student, Section

Cardinality: N:M (Many-to-Many)

Participation: Student-Partial, Section-Total

Relationship: Has

Description: Each student has an advisor. Advisors take care of many students.

Entities: Student, Advisor

Cardinality: N:1 (Many-to-One)

Participation: Student-Total, Advisor-Total

Relationship: Has

Description: Schools provide courses for students.

Entities: School, Course

Cardinality: 1:N (One-to-Many)

Participation: School-Total, Course-Total

Relationship: Has

Description: Each course may have multiple sections.

Entities: Section, Course

Cardinality: N:1 (Many-to-One)

Participation: Section-Total, Course-Total

Relationship: Hosts

Description: Organizations host events that students can attend

Entities: Organization, Event

Cardinality: 1:N (One-to-Many)

Participation: Organization-Total, Event-Total

Relationship: Joins

Description: Students can join student organizations.

Entities: Student, Organization

Cardinality: N:M (Many-to-Many)

Participation: Student-Partial, Organization-Total

Relationship: Part of

Description: Students belong to a specific school at the university.

Entities: Student, School

Cardinality: N:1 (Many-to-One)

Participation: Student-Total, School-Total

Relationship: Part of

Description: Advisors belong to a specific school at the university.

Entities: Advisor, School

Cardinality: N:1 (Many-to-One)

Participation: Advisor-Total, School-Total

Relationship: Sponsors

Description: Professors sponsor organizations to get them running.

Entities: Professor, Organization

Cardinality: N:M (Many-to-Many)

Participation: Professor-Partial, Organization-Total

Relationship: Teaches

Description: Professors teach sections.

Entities: Professor, Section

Cardinality: 1:N (One-to-Many)

Participation: Professor-Partial, Section-Total

Relationship: Works At

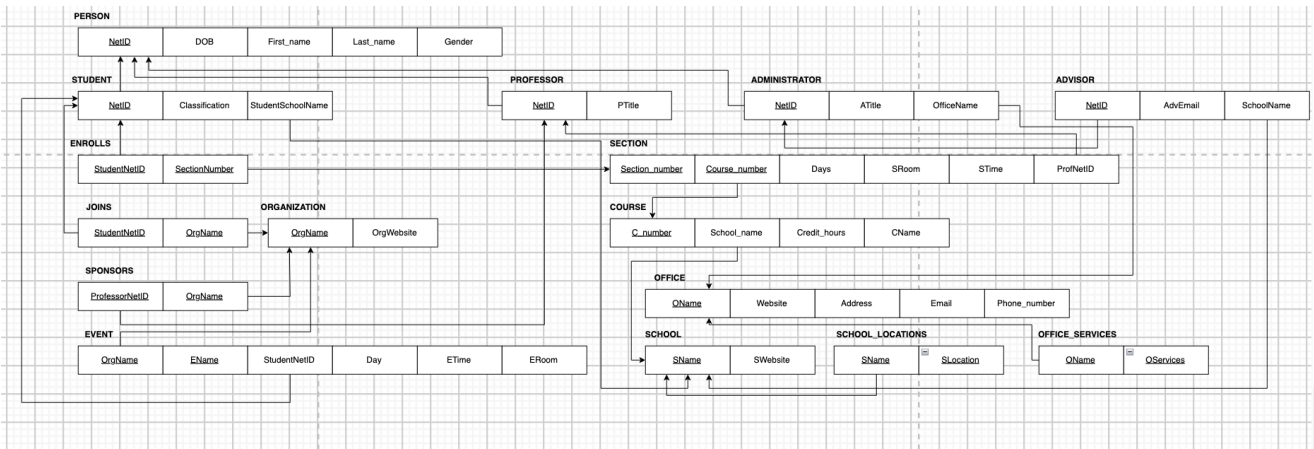Description: Administrators work at offices.

Entities: Administrator, Office

Cardinality: N:1 (Many-to-One)

Participation: Administrator-Total, Office-Total

UTDIsTheWorld: Schema Diagram

PERSON

NetID	DOB	First_name	Last_name	Gender

STUDENT

NetID	Classification	StudentSchoolName

PROFESSOR

NetID	PTitle

ADMINISTRATOR

NetID	ATitle	OfficeName

ADVISOR

NetID	AdvEmail	SchoolName

ENROLLS

StudentNetID	SectionNumber

SECTION

Section_number	Course_number	Days	SRoom	STime	ProfNetID

JOINS

StudentNetID	OrgName

ORGANIZATION

OrgName	OrgWebsite

COURSE

C_number	School_name	Credit_hours	CName

SPONSORS

ProfessorNetID	OrgName

OFFICE

OName	Website	Address	Email	Phone_number

EVENT

OrgName	EName	StudentNetID	Day	ETime	ERoom

SCHOOL

SName	SWebsite

SCHOOL_LOCATIONS

SName	SLocation

OFFICE_SERVICES

OName	OServices

UTDIsTheWorld: Schema Dictionary

Name: Administrator

Description: People who work at the university and manage tasks in their respective offices

- **NetID:** VARCHAR(20), a unique identification for the administrator
- **ATitle:** VARCHAR(180), the administrator's title
- **OfficeName:** VARCHAR(120), the name of the office that the administrator works at
- **Primary Key:** NetID
- **Foreign Key:** NetID references Person(NetID)
- **Foreign Key:** OfficeName references Office(OName)

Name: Advisor

Description: The advisor is an administrator who manages a group of students.

- **NetID:** VARCHAR(20), a unique identifier for the advisor
- **AdvEmail:** VARCHAR(120), the advisor's contact email
- **SchoolName:** VARCHAR(80), the name of the school that the advisor is part of
- **Primary Key:** NetID references Administrator(NetID)
- **Foreign Key:** SchoolName references School(SName)

Name: Course

Description: A part of a school that allows students to fulfill their degree plan, and professors to perform their job.

- **C_number:** INTEGER, a unique 6-digit integer signifying the course.
- **School_name:** VARCHAR(80), The school that the course stems from, such as ATEC, ECS, etc.
- **Credit_hours:** INTEGER, an identifier for how many hours of a student's degree plan the course satisfies.
- **CName:** VARCHAR(60), the name of the course
- **Primary Key:** C_number
- **Foreign Key:** School_name references School(SName)

Name: Enrolls

Description: Student enrolls in section

- **StudentNetID:** VARCHAR(20), the student's unique identification
- **SectionNumber:** VARCHAR(6), a unique string signifying the section number.
- **Primary Key:** {StudentNetID, SectionNumber}
- **Foreign Key:** StudentNetID references Student(NetID)
- **Foreign Key:** SectionNumber references Section(Section_number)

Name: Event

Description: Organizations hold events

- **OrgName:** VARCHAR(120), the name of the organization holding the event
- **StudentNetID:** VARCHAR(20), the unique identification of the student attending the event
- **EName:** VARCHAR(120), the name of the event
- **ETime:** VARCHAR(40), the time in which the event is happening
- **Day:** DATE, the date in which the event is happening in YYYY-MM-DD format
- **ERoom:** VARCHAR(20), the room that the event is being held in
- **Primary Key:** {EName, OrgName}
- **Foreign Key:** OrgName references Organization(OrgName)
- **Foreign Key:** StudentNetID references Student(NetID)

Name: Joins

Description: Students join organizations

- **StudentNetID:** VARCHAR(20), a unique identification for the student
- **OrgName:** VARCHAR(120), the name of the organization the student joined

- **Primary Key:** {StudentNetID, OrgName}
- **Foreign Key:** StudentNetID references Student(NetID)
- **Foreign Key:** OrgName references Organization(OrgName)

Name: Office

Description: Holds information about the offices at UTD (departments that provide services in various areas)

- **OName:** VARCHAR(120), name of the office
- **Website:** VARCHAR(120), the office's website
- **Address:** VARCHAR(120), the office's physical address
- **Email:** VARCHAR(120), the office's contact email
- **Phone_number:** VARCHAR(20), the office's phone number
- **Primary Key:** OName

Name: Office_Services

Description: Offices offer service(s)

- **OName:** VARCHAR(120), name of the office
- **OServices:** SET, a list of the services that the office offers
- **Primary Key:** {OName, OServices}
- **Foreign Key:** OName references Office(OName)

Name: Organization

Description: People who work at the university and manage tasks in their respective offices

- **OrgName:** VARCHAR(120), the name of the organization
- **OrgWebsite:** VARCHAR(120), the organization's website
- **Primary Key:** OrgName

Name: Person

Description: A person is anyone who exists at UTD

- **NetID:** VARCHAR(20), a unique identification for people at UTD

- **DOB:** DATE, the person's date of birth in YYYY-MM-DD form
- **First_name:** VARCHAR(80), the person's first name
- **Last_name:** VARCHAR(80), the person's last name
- **Gender:** VARCHAR(20), the person's gender
- **Primary Key:** NetID

Name: Professor

Description: Professors are people at UTD who teach courses or do research for the university.

- **NetID:** VARCHAR(20), a unique identification for the professor
- **PTitle:** VARCHAR(180), the professor's title
- **Primary Key:** NetID
- **Foreign Key:** NetID references Person(NetID)

Name: School

Description: Schools are specialized departments in the university.

- **SName:** VARCHAR(80), the school's name
- **SWebsite:** VARCHAR(120), the school's website
- **Primary Key:** SName

Name: School_Locations

Description: Schools have buildings in one or multiple location(s).

- **SName:** VARCHAR(80), the school's name
- **SLocation:** SET, a list of addresses of the school's buildings
- **Primary Key:** {SName, SLocation}
- **Foreign Key:** SName references School(SName)

Name: Section

Description: A section is a specific instance of a course.

- **Section_number**: VARCHAR(6), a unique string signifying the section number.
- **Course_number**: INTEGER, the course number that the section is a part of.
- **ProfNetID**: VARCHAR(10), netID of the professor teaching the course.
- **STime**: VARCHAR(20), the time that the section starts and ends.
- **Days**: VARCHAR(10), abbreviated days that the course is taught, such as MoWeFr.
- **SRoom**: VARCHAR(10), the room that the section is located.
- **Primary Key**: {Section_number, Course_number}
- **Foreign Key**: Course_number references Course(C_number)
- **Foreign Key**: ProfNetID references Professor(NetID)

Name: Sponsors

Description: Professors sponsor organizations

- **ProfessorNetID**: VARCHAR(20), a unique identification for the professor
- **OrgName**: VARCHAR(120), the name of the organization the professor sponsors
- **Primary Key**: {ProfessorNetID, OrgName}
- **Foreign Key**: ProfessorNetID references Professor(NetID)
- **Foreign Key**: OrgName references Organization(OrgName)

Name: Student

Description: A person at UTD who is a student

- **NetID**: VARCHAR(20), a unique identification for the student
- **Classification**: VARCHAR(20), the student's classification/year
- **StudentSchoolName**: VARCHAR(80), the school that the student belongs to
- **Primary Key**: NetID
- **Foreign Key**: NetID references Person(NetID)
- **Foreign Key**: StudentSchoolName references School(SName)