

Relationship Sets

Entity Sets

One (or many): Each entity in our relationship set must be tied to a course or software (otherwise we wouldn't have a row relating that mentor to that material)

to One (or zero):
A course or software may or may not be covered by a mentor

Softwares and Courses.
While it may seem unnecessary to put softwares and Courses in their own tables (as opposed to leaving the information in the teaches tables, as there is no additional attributes), it fits the Entity-Relationship concept more appropriately to have them separated, both from their respective teaches tables and eachother

One (or zero) to one (or many): A mentor may or may not teach a course or a software, but certainly can teach many

Mentors		
PK	last_name	varchar
PK	first_name	varchar
	class_year	integer

One (or zero) to many (or zero): Every mentor can cover multiple shifts, but not every mentor will cover any shifts

Teaches_Software			
PK, FK	m_last	varchar	
PK, FK	m_first	varchar	
PK, FK	s_name	varchar	

Teaches_Courses			
PK, FK	m_last	varchar	
PK, FK	m_first	varchar	
PK, FK	c_id	varchar	

Softwares		
PK	name	varchar

Courses		
PK	id	varchar

Mentees		
PK	id	varchar

Attends_PQRC			
PK, FK	m_id	varchar	
PK, FK	c_id	varchar	
PK, FK	s_day	day_of_week	
PK, FK	s_time	time with time zone	
PK	date	date	

One (and only one) to one (or many):
If a mentee is in our database, they have come into the PQRC for help, and they may attend more than once

One (and only one) to one (or zero): A mentee can only attend the PQRC during a valid shift day and time, but a particular shift day and time may have no mentees come in for help

One (and only one) to one (or many):
Every mentor must work at least one shift. They cannot work zero shifts, but can (and probably do) work many shifts

Works			
PK, FK	m_last	varchar	
PK, FK	m_first	varchar	
PK, FK	s_day	day_of_week	
PK, FK	s_time	time with time zone	

Shifts			
PK	day	day_of_week	
PK	time	time with time zone	

Covers		
PK, FK	m_last_1	varchar
PK, FK	m_first_1	varchar
PK, FK	m_last_2	varchar
PK, FK	m_first_2	varchar
PK, FK	s_dow	varchar
PK, FK	s_time	varchar
PK	date	date

One (and only one) to one (and only one): If a mentor is covering a shift for another mentor, this must be tied to at least one works-entity and cannot be tied to more than one works-entity

One (or many) to one (and only one): Each entity in our relationship set must be tied to exactly one shift, but many different entities can be tied to the same shift.

day_of_week is a custom ENUM type with each day of the week encoded as 'Mon', 'Tue', etc.