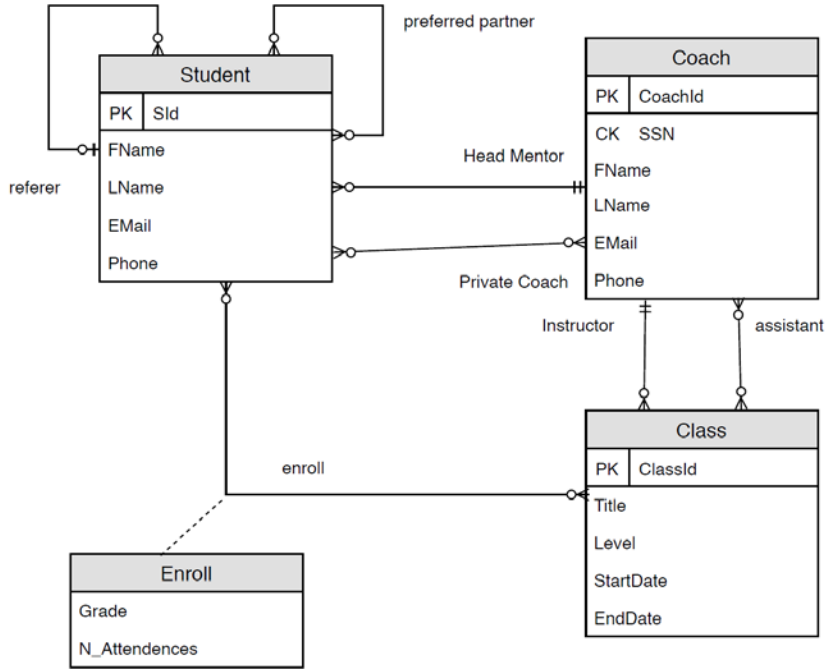


ITEC 3335 Database Development
Fall 2019
Suggested Solution to Examination #1

(1) For example: it is acceptable to model 'enroll' as a class.



(2) For example:

Relation P(<u>A</u> , B, C, RId)	Relation Q(<u>D</u> , E, RId, A)
[CK] A [FK] [1] RId references R(RId) [Nullable] [Note]	[CK] D [FK] [1] RId references R(RId), [2] A references P(A) [Nullable] A [Note]
Relation R(<u>RId</u> , F, G)	Relation W(<u>WId</u> , A, D)
[CK] RId [FK] [Nullable] [Note] RId is created as the surrogate key.	[CK] [1] WId, [2] A, D [FK] [1] A references P(A), [2] D references Q(D). [Nullable] [Note] WId is created as the surrogate key.
Relation Z(<u>ZId</u> , RId_1, RId_2)	Relation
[CK] [1] ZId, [2] RId_1, RId_2 [FK] [1] RId_1 references R(RId), [2] RId_2 references R(RId) [Nullable] [Note] ZId is created as the surrogate key.	[CK] [FK] [Nullable] [Note]

(3) For example: (You may use simple select instead.)

```
-- a.
SELECT DISTINCT f.fname, f.lname, d.deptCode
FROM faculty f INNER JOIN department d ON (f.deptCode = d.deptCode)
WHERE d.schoolCode = 'CSE';

-- b.
SELECT DISTINCT s.fname, s.lname,
       s.advisor AS `advisor facID`
FROM student s
WHERE s.major = 'CSCI'
AND s.minor <> 'ITEC';

-- c.
SELECT DISTINCT s.fname,
       s.lname,
       co.name as course,
       c.semester,
       c.year,
       e.grade
FROM student s INNER JOIN enroll e ON (s.stuId = e.stuId)
       INNER JOIN class c ON (e.classId = c.classId)
       INNER JOIN course co ON (c.courseId = co.courseId)
WHERE s.major = 'CSCI';

-- d.
SELECT DISTINCT s.fname,
       s.lname,
       d.deptName AS `minor department`,
       sc.schoolName AS `minor school`
FROM student s INNER JOIN department d ON (s.minor = d.deptCode)
       INNER JOIN school sc ON (d.schoolCode = sc.schoolCode)
WHERE s.minor IS NOT NULL;
-- Note that in this case, the where condition is actually not needed.
```

(4)

(a)	T	(b)	F	(c)	T	(d)	F	(e)	F	(f)	F
(g)	F	(h)	T	(i)	F	(j)	T	(k)	T		

(5) (a) Only 5

(b) AB, ABC, ABD, ABE, ABCD, ABCE, ABDE, and ABCDE.

(c)

```
SELECT DISTINCT s.lname,
       s.fname,
       d.deptName AS `major department`
FROM student s INNER JOIN department d ON (s.major = d.deptCode)
WHERE s.credits > 30;
```