*QAP 2 - Databases*

*Exercise 5 - Students and Classes*

***Location:***

Attributes: **location\_id** (PK), **street\_address**, **unit\_number**, **postal \_code**, **city\_id** (FK), **province\_id** (FK).

Associations: One-to-One relationship with University (each university has one location), Many-to-One relationship with City and Province (many locations can belong to one city and one province).

***University:***

*Attributes:* ***university\_id*** *(PK),* ***university\_name****,* ***university\_head****,* ***university\_email****,* ***location*** *(FK).*

*Associations: One-to-One relationship with Location (each university has one location), One-to-Many relationship with Department (each university can have multiple departments).*

***Department:***

*Attributes:* ***department\_id*** *(PK),* ***department\_name****,* ***department\_head****,* ***department\_email****,* ***university\_id*** *(FK).*

*Associations: Many-to-One relationship with University (each department belongs to one university), One-to-Many relationship with Faculty (each department can have multiple faculty members), Many-to-Many relationship with Student (each department can have multiple students, and each student can be enrolled in multiple departments).*

***Faculty:***

*Attributes:* ***faculty\_id*** *(PK),* ***faculty\_first\_name****,* ***faculty\_last\_name****,* ***faculty\_email****,* ***university\_id*** *(FK),*

***department\_id*** *(FK).*

*Associations: Many-to-One relationship with University (each faculty member belongs to one university), Many-to-One relationship with Department (each faculty member belongs to one department), One-to-Many relationship with FacultySemesterClass (each faculty member can teach multiple classes in multiple semesters).*

***Student:*** *Attributes:* ***student\_id*** *(PK),* ***student\_first\_name****,* ***student\_last \_name****,* ***student\_email****,*

***university\_id*** *(FK). Associations: Many-to-One relationship with University (each student belongs to one university), Many-to-Many relationship with Department (each student can be enrolled in multiple departments, and each department can have multiple students), Many-to-Many relationship with SemesterClass (each student can be enrolled in multiple classes in multiple semesters).*

***Class:***

*Attributes:* ***class\_id*** *(PK),* ***class\_name****.*

*Associations: Many-to-Many relationship with Semester (each class can be offered in multiple semesters, and each semester can have multiple classes), One-to-Many relationship with SemesterClass (each class can have multiple instances in different semesters).*

***Semester:***

*Attributes:* ***semester\_id*** *(PK),* ***semester\_name****.*

*Associations: Many-to-Many relationship with Class (each semester can have multiple classes, and each class can be offered in multiple semesters), One-to-Many relationship with SemesterClass (each semester can have multiple class instances).*

***SemesterClass:***

*Attributes:* ***semester\_id*** *(FK),* ***class\_id*** *(FK),* ***semester\_class\_id*** *(PK).*

*Associations: Many-to-One relationship with Semester (each semester class belongs to one semester), Many-to-One relationship with Class (each semester class belongs to one class), One-to-Many relationship with StudentSemesterClass and FacultySemesterClass (each semester class can have multiple enrolled students and faculty members).*

***StudentSemesterClass***

*Attributes:* ***student\_id*** *(FK),* ***semester\_class\_id*** *(FK),* ***student\_semester\_class\_id*** *(PK).*

*Associations: Many-to-One relationship with Student (each record belongs to one student), Many-to-One relationship with SemesterClass (each record belongs to one semester class), One-to-Many relationship with ExamStudentGrade (each student semester class can have multiple exam grades).*

***FacultySemesterClass:***

*Attributes:* ***faculty\_id*** *(FK),* ***semester\_class\_id*** *(FK).*

*Associations: Many-to-One relationship with Faculty (each record belongs to one faculty member), Many-to-One relationship with SemesterClass (each record belongs to one semester class).*

***ExamStudentGrade:***

*Attributes:* ***exam\_type\_id*** *(PK),* ***exam\_type****,* ***grade****,* ***student\_semester\_class\_id*** *(FK).*

*Associations: Many-to-One relationship with StudentSemesterClass (each exam grade belongs to one student semester class).*