Assignment 1: **Analyse a given business scenario and create an ER diagram that includes entities, relationships, attributes, and cardinality. Ensure that the diagram reflects proper normalization up to the third normal form.**

Scenario:

A university wants to develop a student management system to keep track of students, courses, and enrolment information. Each student can enroll in multiple courses, and each course can have multiple students enrolled. Each course is taught by a faculty member, and a faculty member can teach multiple courses. Additionally, each student has personal information such as name, student ID, and contact details. Each course has a course code, title, and credit hours. Faculty members have a unique faculty ID, name, and contact information.

Entities:

1. Student:
   - Attributes: Student ID (Primary Key), Name, Contact Details
2. Course:
   - Attributes: Course Code (Primary Key), Title, Credit Hours
3. Faculty:
   - Attributes: Faculty ID (Primary Key), Name, Contact Information

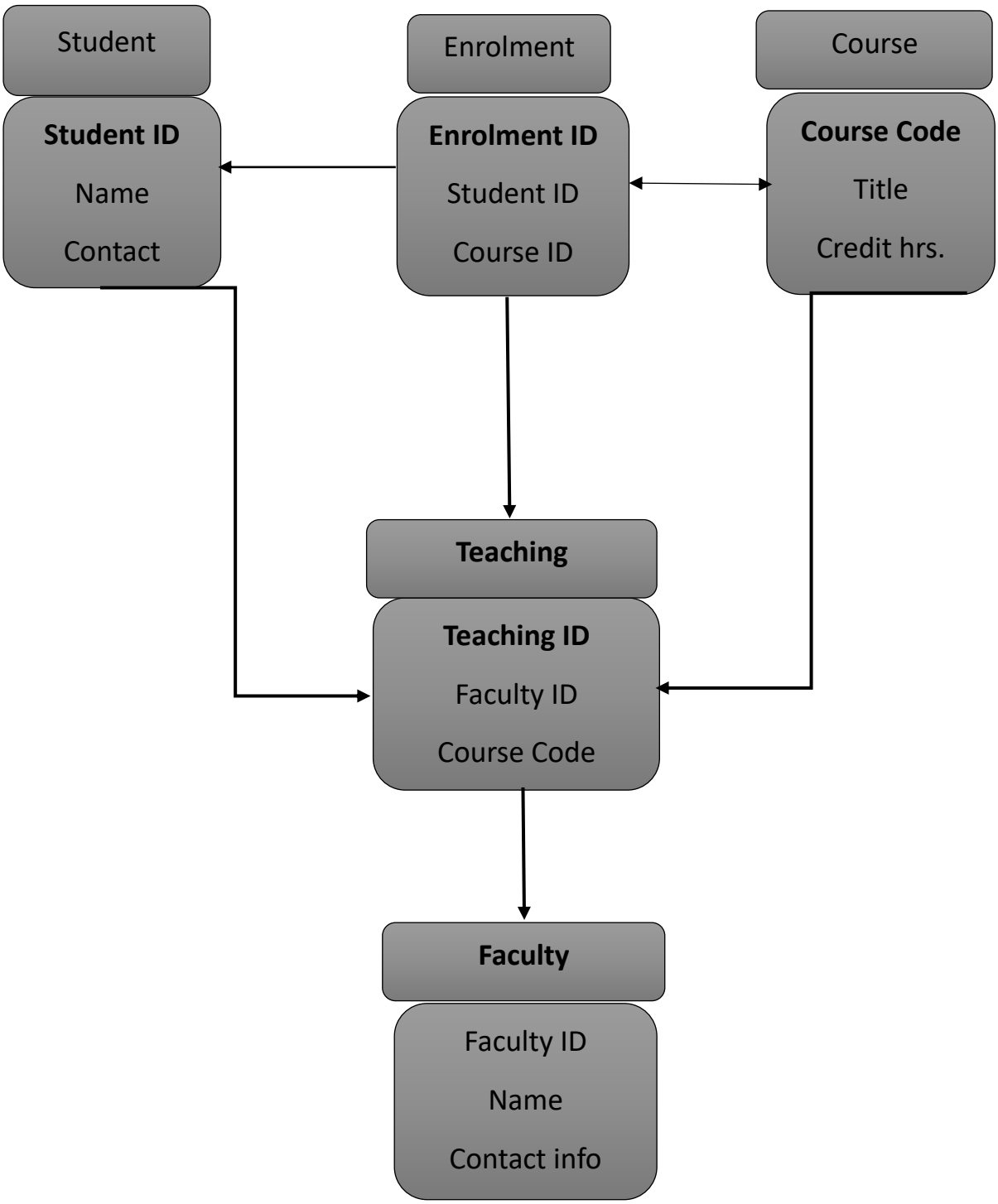
Relationships:

1. **Enrolment**:
   - Connects Student to Course
   - Each student can be enrolled in multiple courses, and each course can have multiple students enrolled.
   - Attributes: Enrolment ID (Primary Key), Student ID (Foreign Key), Course Code (Foreign Key)
2. **Teaching:**
   - Connects Faculty to Course
   - Each faculty member can teach multiple courses, and each course is taught by a single faculty member.
   - Attributes: Teaching ID (Primary Key), Faculty ID (Foreign Key), Course Code (Foreign Key)

Cardinality:

- One student can enrol in many courses, and each course can have many students enrolled. (Many-to-Many relationship between Student and Course)
- Each course is taught by only one faculty member, but a faculty member can teach multiple courses. (One-to-Many relationship between Faculty and Course)

ER Diagram:


Student
Enrolment
Course
Student ID
Name
Contact
Enrolment ID
Student ID
Course ID
Course Code
Title
Credit hrs.
Teaching
Teaching ID
Faculty ID
Course Code
Faculty
Faculty ID
Name
Contact info