

Normalized tables

Students(Student_ID, First_Name, Middle_Name, Last_Name, street, district, state, country, Gender, Date_of_Birth, mail, College_Mail, Password, Enrollment_Year, Graduation_Year, Status)

PhoneNumbers(Student_ID, Phone)

Courses(Course_ID, Course_Name, Semester, Credits, Price)

Enrollment(Student_ID, Course_ID, Enrollment_On)

Fees(Fee_ID, Student_ID, Exam_ID, Course_ID, Amount, Issued_Date, Payment_Date, Type, Status, payment_ID)

Exams(Exam_ID, Course_ID, Exam_Date, Exam_Duration, Exam_Type, Venue, Status)

Takes_Exam(Student_ID, Exam_ID, Status)

Results(Result_ID, Exam_ID, Student_ID, Course_ID, Marks_Obtained, Grade, Status)

Department(Department_ID, Department_Name, Head_Of_Department)

Faculty(Faculty_ID, First_Name, Middle_Name, Last_Name, Date_Of_Joining, Designation, Mail, Official_Mail, Password, Status, Course_ID, Department_ID)

FacultyPhone(Faculty_ID, Phone)

Admin(Admin_ID, User_Name, Password, Email, Password)

Corrections Need to be addressed in the ER Table:

1. Fees exist when there is student, not student exists when fee exists so the relation is wrong, Fees participate Totally and student will participate partially , so there cardinality of Student pays fees is 1: N nor N :1)
2. One Course can be taken by many students, and many students can get enrolled in One course so the relation is wrongly cardinalated. The cardinality of students enrolled in courses relation is N:M.
3. One student can give multiple exams in which he had enrolled and one exam can be given by multiple students who had been enrolled in the same course so the relation is wrongly cardinalated. The Cardinality of Takes relation is also N:M.
4. There is no relation between courses and results as courses publish the result. Since one course can conducts multiple exams and there will be corresponding results so there the cardinality of courses publish result will be 1:N.

Summary

S. No.	Relation	Cardinality	Tables Involved	Participations
1.	Students Enroll in Courses	N:M	Students, Courses, Enrollment	Students (Partial) and Courses (Total)
2.	Courses Conduct Exams	1:N	Courses, Exams	Courses (Partial), Exams(Total)
3.	Students take Exams	N:M	Students, Exams, Takes_Exam	Students (Partial), Exams(Total)
4.	Students receive Results	1:N	Students, Results	Students (Partial), Results (Total)
5.	Courses Publish Results	1:N	Courses, Results	Courses (Partial), Results(Total)
6.	Students Pay Fees	1:N	Students, Fees	Fees (Total), Students (Partial)
7.	Faculty Belongs to Departments	N:1	Faculty, Departments	Faculty (Total), Department (Total)
8.	Faculty Teaches Courses	N:1	Faculty, Courses	Faculty (Total), Courses (Total)
9.	Courses Belongs to Departments	N:1	Courses, Departments	Courses (Total), Departments (Total)

9.	Admin Manages University	N:M	Admin	Admin (Total), All Tables(Total)
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