**Lab 9 COIS 3400 Relational Algebra Query**

Consider the relations Courses1, Courses2, Enrollment and Students.

|  |  |  |
| --- | --- | --- |
| **Courses1** | **Courses2** | **Enrollment** |
| |  |  |  | | --- | --- | --- | | **cid** | **cname** | **Location** | | A1 | Calculus | L1 | | A2 | Algebra | L2 | | A5 | English | L3 | | |  |  |  | | --- | --- | --- | | **cid** | **name** | **Classroom** | | A5 | English | L3 | | B1 | History | L4 | | B2 | Computing | L5 | | |  |  | | --- | --- | | **sid** | **cid** | | 101 | A1 | | 102 | A5 | | 103 | B1 | | 102 | A1 | | 102 | A2 | |

**Student(**sid, sname, age, level**)**

Write the following query in **Relational Algebra.** You do **not need to show the results** just the **Query.**

1. Find the sids of students who have enrolled in course Calculus.

π\_sid(σ\_cname='Calculus' (Courses1) ⨝ Enrollment)

1. Find the names of students who have enrolled in course Calculus.

π\_sname((σ\_cname='Calculus'(Courses1)⨝\_)⨝\_Enrollment X Students)

1. Find the names of students who have enrolled at least one course.

π\_sname(Students ⨝\_= Enrollment)

1. Find the names of students who have enrolled in Calculus or Algebra.

π\_sname((σ\_cname='Calculus' ∨ cname='Algebra' (Courses1)) ⨝\_Courses1.cid= Enrollment ⨝\_Enrollment.sid= Students)

1. Find the sids of students who have enrolled in all courses (both Courses1 and Courses2).

π\_sid(Enrollment) ÷ π\_cid(Courses1 ∪ Courses2)