RELATIONAL ALGEBRA

1)

Π s_id, s_name, c_id, c_id (Student ⋈ S.s_id = E.s_id Enroll ^ Enroll ⋈ E.c_id = C.c_id Course ^
(c_name= 'Database' ^ c_name = 'FrontEnd')(Student, Course, Enroll))

2)

Π s_id, name, address (σ address = 'Kazakhstan' (Student))

3)

Π s_id, s_gpa, m_name (Student ⋈ S.s_id = M.s_id Major ^ S.gpa = 3 (Student, Major))

4)

Π s_name, c_name (Student ⋈ S.s_id = E.s_id Enroll ^ Enroll ⋈ E.c_id = C.c_id Course ^ c_name=
'Database'(Student, Course, Enroll))

5)
MAX := Y Max(Gpa)(Student)
σ gpa = MAX(Student)

6)
Π s_id, name, age (σ age < 18 (Student))

7)
Counter := Y COUNT(GPA)
σ gpa = (Counter(Student) < 1)

8)
Π p_name, c_name (Professor ⋈ P.p_id = S.p_id Section ^ Section ⋈ S.c_id = C.c_id Course ^
c_name = 'FrontEnd'(Professor, Section, Course))

9)
T age, gpa (Student)

10)
Π p_name, a_name (Assistant ⋈ A.dept_id = P.dept_id Professor(Assistant, Professor))

11)
Course ← (Course - σ name 'Django' (Course) U Π name(σ name = "Java" (Course)))

12)
MAX := MAX(experience)
Π p_name, Y MAX(experience)(Professor)

13)

σ Assistant(Assistant ⋈L A.dept_id = P.dept_id Professor(Assistant, Professor))

  ∪

σ Professor(Professor ⋈R P.dept_id = P.dept_id Assistant(Professor,Assistant))

14)

π b_name, b_genre (Borrow ⋈ B.book_id = B.book_id Book(Borrow, Book))

15)

(π name, age (Assistant)) ∩ (π experience > 18 (Professor))