# Exercise 1

- The following relations are given (primary keys are underlined):
  - STUDENT(<u>StudentCode</u>, Name, Surname, Birthdate)
  - EXAM(<u>StudentCode</u>, <u>CourseExam</u>, <u>Date</u>, Score)
- Assume the following cardinalities:
  - card(STUDENT) ≈ $10^4$ tuple
  - card(EXAM) ≈ $3 * 10^5$ tuple
    - MIN(EXAM.Score) = 1
    - MAX(EXAM.Score) = 30
  - Reduction factor HAVING AVG(Score) ≥ 26 ≈ $\frac{1}{50}$

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# Query 1

SELECT E.StudentCode, Name, AVG(Score)

FROM EXAM E, STUDENT S

WHERE E.StudentCode = S.StudentCode

and Score ≥ 18

GROUP BY E.StudentCode, Name

HAVING AVG(Score) ≥ 26

ORDER BY E.StudentCode;

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# Exercise 2

- The following relations are given (primary keys are underlined):
  - EMPLOYEE (EmpId, EmpName, BirthDate)
  - PROJECT(ProjCode, ProjName, StartDate, EndDate, Centre, Budget)
  - WORK_ON(EmpId, ProjCode, StartDate, EndDate, Status)
- Assume the following cardinalities:
  - card(EMPLOYEE) ≈ $10^4$ tuples
    - MIN(EMPLOYEE.BirthDate) = 1/1/1950
    - MAX(EMPLOYEE.BirthDate) = 31/12/1990
  - card(PROJECT) ≈ $10^3$ tuples
    - PROJECT.Centre has 10 distinct values
  - card(WORK_ON) ≈ 5 *$10^4$ tuples
  - Reduction factor HAVING COUNT(*) > 10 $\approx \frac{1}{10}$

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# Query 1

SELECT ProjName, COUNT(*)

FROM EMPLOYEE E, PROJECT P, WORK_ON W

WHERE W.EmpId = E.EmpId

and W.ProjCode = P.ProjCode

and Centre = 'Torino'

and BirthDate ≥ 1970

GROUP BY P.ProjCode, ProjName

HAVING COUNT(*) > 10;

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