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| **Lab Week 13 Report** | | | |
| **Class** | DataBase | **Group ID** | 11 |
| **Student ID** | 12151302 | **Name** | LEE HAESEONG |
| **Student ID** | 12151310 | **Name** | JANG HYOJUN |
| **Student ID** | 12171479 | **Name** | KIM HYUNJIN |
| **Student ID** | 12181465 | **Name** | KIM JAEWUK |
| **Lab Topic** | SQL Exercises | | |

* Each student should submit a report after this Lab.
* Report must include:
  + Student ID & Name & Lab group ID
  + SQL code for group exercises
  + A brief explanation
  + Reports must be submitted on learn.inha.ac.kr by the next week Monday 2020-11-30, 6:00 pm
* One person from each group can upload the Report in E-class.

Task 1: **Calculate the GPA for each student who have taken any course in 2008, Spring semester**

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| * Result   텍스트이(가) 표시된 사진  자동 생성된 설명   * SQL code   SELECT ID, sum(grade\_value\*credits)/sum(credits) as GPA  FROM (select ID, credits,  case when grade='A+' then 4.3  when grade='A' then 4.0  when grade='A-' then 3.7  when grade='B+' then 3.3  when grade='B' then 3.0  when grade='B-' then 2.7  when grade='C+' then 2.3  when grade='C' then 2.0  when grade='C-' then 1.7  when grade='D+' then 1.3  when grade='D' then 1.0  when grade='D-' then 0.7  when grade='F' then 0.0  ELSE NULL END as grade\_value  FROM (takes natural left outer join course)  where semester="Spring" and year=2009)a  group by ID;   * Analysis   There was no result on Spring, 2008 so we changed the date as 2009. There were 3 students as you can see above who have taken courses open on Spring, 2009. In SQL code, GPA is calculated by an API, sum(grade\_value\*credits)/sum(credits). ‘grade\_value’ is a kind of virtual column that is made by ‘case’ phrase converting ‘grade’ which is a value of ‘takes’ table to ‘grade\_value’ and this value is made joining two tables ‘takes’ and ‘course’. Thus, we get 3 students and GPA of each. |

Task 2: Find the number of students according to category:

• If GPA is between 3.75 and 4.50 then A

• If GPA is between 3.00 and 3.75 then B

• If GPA is between 2.00 and 3.00 then C

• If GPA is between 1.50 and 2.00 then D

• If GPA is below 1.50 then F

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| * Result   텍스트이(가) 표시된 사진  자동 생성된 설명   * SQL code   SELECT ID, case  when GPA>=3.75 then 'A'  when GPA>=3.00 and GPA<3.75 then 'B'  when GPA>=2.00 and GPA<3.00 then 'C'  when GPA>=1.50 and GPA<2.00 then 'D'  ELSE 'F' END as GRADE  FROM ( SELECT ID, sum(grade\_value\*credits)/sum(credits) as GPA  FROM (select ID, credits,  case when grade='A+' then 4.3  when grade='A' then 4.0  when grade='A-' then 3.7  when grade='B+' then 3.3  when grade='B' then 3.0  when grade='B-' then 2.7  when grade='C+' then 2.3  when grade='C' then 2.0  when grade='C-' then 1.7  when grade='D+' then 1.3  when grade='D' then 1.0  when grade='D-' then 0.7  when grade='F' then 0.0  ELSE NULL END as grade\_value  FROM (takes natural left outer join course)  where semester="Spring" and year=2009)a  group by ID)b group by ID;   * Analysis   We’ve used two sub queries to get ‘Grade’ value that is made by ‘case’ phrase as shown above SQL code. Again, there is no result on Spring, 2008 so we changed the date to 2009. Similar result on the Task 1 but GPA is soon converted to ‘Grade’. |