Group Assignment 1

```sql
1   -- Question 1
2   SELECT id, name,
3       CASE
4           WHEN grade = 'A+' then 4.5
5           WHEN grade = 'A' then 4.0
6           WHEN grade = 'B+' then 3.5
7           WHEN grade = 'B' then 3.0
8           WHEN grade = 'C+' then 2.5
9           WHEN grade = 'C' then 2.0
10          WHEN grade = 'D+' then 1.5
11          WHEN grade = 'D' then 1.0
12          WHEN grade = 'F' then 0
13      END AS grade_point,
14      SUM(grade_point * credits)/SUM(max_grade * credits) AS GPA
15  FROM student;
```

First the grade is converted to grade points, then obtained grades for all courses is calculated and divided by maximum grades possible for all courses which is also calculated in advance. So, the result is a GPA of each student.

```sql
17  -- Question 2
18  SELECT
19      CASE
20          WHEN GPA > 3.75 and GPA < 4.5 then 'A'
21          WHEN GPA > 3.0 and GPA < 3.75 then 'B'
22          WHEN GPA > 2.0 and GPA < 3.0 then 'C'
23          WHEN GPA > 1.5 and GPA < 2.0 then 'D'
24          WHEN GPA < 1.5 then 'F'
25      END AS category,
26      COUNT(id)
27  FROM student
28      GROUP BY category;
```

Since we already calculated GPAs of all students, we just use it right away. The data is categorized based on the GPA requirements given. The categories get created and the number of students belonging to each category is counted. At last, the response is grouped by categories.