Database Homework No. 4 (100점 만점)

Building a school information system using Python & MySQLdb Module

- Develop a school information system using the data from University Database in the previous projects using MySQL DBMS
- Use Python and MySQLdb Module
- Due:

Please read the following direction of what information system should offer. The system should connect to the school's database using MySQLdb Module.

1. Log in process

```
Welcome

Please sign in
ID      :
Name    :
```

User ID and name will be asked for log in. The system should distinguish whether the user is student or instructor.

1-1. Incorrect authentication scenario

If an exact match of ID and name was not given, ask for ID and name again.

```
Welcome

Please sign in
ID      : 12121
Name    : WrongName

Wrong authentication.
Please sign in
ID      :
Name    :
```

2. Student menu

If a user is the member of student, student can view either student report or time table of the courses he or she takes.

```
Please sign in
ID      : 12345
Name    : Shankar

Please select student menu
1) Student report
2) View time table
0) Exit
>>
```

3. Student report

Student report should clarify user's basic information such as name, department, and total credits the student has taken. The report should also show each semester's report with GPA in reverse time order. Since the original data consists letter grade only, you should figure out how to calculate the GPA. But, you should not create a new table. **Usage of DDL is forbidden by the database administrator.**

GPA Calculation

$$\text{GPA} = \frac{\sum(\ GP\ \times Credit\ )}{\sum(\ Credit\ )}$$

Letter grade to grade point conversion table

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
4.3	4	3.7	3.3	3	2.7	2.3	2	1.7	1.3	1	0.7	0

```
>> 1

Welcome Shankar
You are a member of Comp. Sci.
You have taken total 32 credits

Semester report

2010    Spring  GPA : 4.00000
course_id       title   dept_name       credits grade
CS-315  Robotics        Comp. Sci.      3       A

2009    Fall    GPA : 2.85714
course_id       title   dept_name       credits grade
CS-101  Intro. to Computer Science      Comp. Sci.      4       C
CS-347  Database System Concepts        Comp. Sci.      3       A

2009    Spring  GPA : 4.00000
course_id       title   dept_name       credits grade
CS-190  Game Design     Comp. Sci.      4       A


Please select student menu
1) Student report
2) View time table
0) Exit
>>
```

3.1 In case of Null grade

If a grade is null, GPA should be null.

```
2010    Summer  GPA :
course_id       title   dept_name       credits grade
BIO-301 Genetics        Biology 4
```

4. Time table

A time table should show a list of semester the student took in a reverse time order. When a certain semester is chosen, the according time table should be shown.

```
>> 2

Please select semester to view
1) 2010 Spring
2) 2009 Fall
3) 2009 Spring
>> 2

course_id       title   day     start_time      end_time
CS-101  Intro. to Computer Science      W       10 : 0  12 : 30
CS-347  Database System Concepts        F       8 : 0   8 : 50
CS-347  Database System Concepts        M       8 : 0   8 : 50
CS-347  Database System Concepts        W       8 : 0   8 : 50
```

5. Instructor menu

   If a user is an instructor of the school, instructor menu should be shown instead of student menu. The menu should include a course report and an advisee report.

```
Please sign in
ID      : 12121
Name    : Wu

Please select instructor menu
1) Course report
2) Advisee report
0) Exit
>>
```

6. Course report

   A course report should show information about the instructor's most recent semester. The report should include information of the course the instructor is teaching such as course ID, title, location of classroom, time and students who take the course.

```
>> 1

Course report - 2010 Spring

CS-101  Intro. to Computer Science      [Packard 101] (R, T 14 : 30 - 15 : 45)
ID      name    dept_name       grade
45678   Levy    Physics B+

CS-319  Image Processing        [Watson 100] (F, M, W 9 : 0 - 9 : 50)
ID      name    dept_name       grade
45678   Levy    Physics B
76543   Brown   Comp. Sci.      A
```

7. Advisee report

   The advisee report should show student's basic information who instructor advises.

```
>> 2

ID      name    dept_name       tot_cred
44553   Peltier Physics 56
45678   Levy    Physics 46
```

8. Submission

   Submit your files in zip format like HW4_Team_1.zip to TA.

   a. Source files (must have been commented), ReadMe for compile instruction

      Strongly recommended to check for compilation in prompt. TA may not use IDE.

   b. Report in Word(docx or doc) format

      Observation and explanation on solving each process (Login & 4 menu)

      Each member's contribution

9. Grading policy

   The project will be graded in 3 categories: Test validation, Report, and SQL skill.

   1) The code will be executed with test scenario. **WE WILL NOT GRADE PRETTYNESS OF OUTPUT** as long as the output data is same with TA's output. Please don't spend time on formatting output.

   2) Report should include the requirements listed above.

   3) SQL Skill will be graded on familiarity of query generation