

## Lab1 CheckMyGrade Application Report

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### 1. Identify Classes/Data Members/Member Function

Sno	Class	Data Member	Member Functions
1	Student	student_id first_name last_name courses	display_all_students_records() display_chosen_student_records() display_professor_student_records() display_student_himself_records() check_my_grades() check_my_marks() add_new_student() delete_student() modify_student_records()
2	Course	course_id course_name description	display_all_courses_records() display_chosen_course_records() display_course_taught_by_professor_records() modify_course() add_new_course() add_new_course_professor() delete_course()
3	Professor	professor_id name rank courses	display_all_professors_records() display_chosen_professor_records() display_professor_himself() add_new_professor() delete_professor() modify_professor_details() show_course_details_by_professors()
4	Grades	student_id course_id grade_input marks_input	display_all_grades_records() display_chosen_grade_records() display_professor_grades() display_professor_chosen_grades() add_new_grade() delete_grade() modify_grade() grade_report_student() grade_report_professor() grade_report_course()
5	LoginUser	email_id password	login() logout() change_password()

### 2. CSV file

I adjusted the four CSV files in the question to become five CSV files, as follows (The table only shows partial data; for details, **please refer to the CSV files in the Main Code file.**).

Student.csv

Email_address	First_name	Last_name	Course_ids
<a href="mailto:lindsay.blair@myscu.edu">lindsay.blair@myscu.edu</a>	Lindsay	Blair	DATA217
<a href="mailto:amanda.dudley@myscu.edu">amanda.dudley@myscu.edu</a>	Amanda	Dudley	DATA202

Course.csv

Course_id	Course_name	Description
DATA200	Introduction to Artificial Intelligence	Learn the basics of AI and machine learning.
DATA201	Data Structures and Algorithms	Understand fundamental data structures and algorithms for programming.

Professor.csv

Professor_id	Professor Name	Rank	Course_id
<a href="mailto:jeffery.wagner@myscu.edu">jeffery.wagner@myscu.edu</a>	Jeffery Wagner	Senior Professor	DATA214, DATA204, DATA215
<a href="mailto:anthony.gonzalez@myscu.edu">anthony.gonzalez@myscu.edu</a>	Anthony Gonzalez	Senior Professor	DATA212, DATA218

Login.csv

User_id	Password	Role
<a href="mailto:danielle.johnson@myscu.edu">danielle.johnson@myscu.edu</a>	3hez("@nShzA	admin
<a href="mailto:jeffery.wagner@myscu.edu">jeffery.wagner@myscu.edu</a>	~35#<+ailey_	professor
<a href="mailto:lindsay.blair@myscu.edu">lindsay.blair@myscu.edu</a>	""}oQK=cwVSF	student

Grades.csv

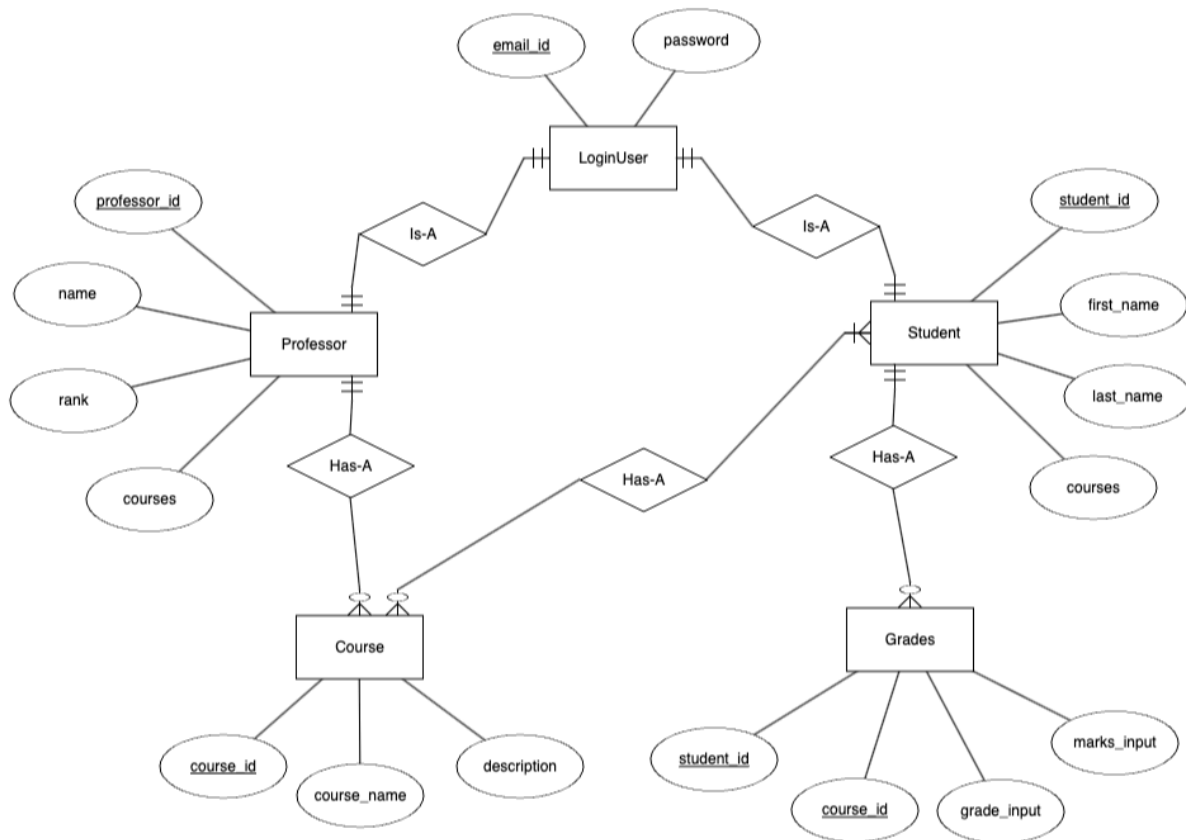
Email_address	Course_id	Grades	Marks
<a href="mailto:lindsay.blair@myscu.edu">lindsay.blair@myscu.edu</a>	DATA217	F	56
<a href="mailto:nicholas.arnold@myscu.edu">nicholas.arnold@myscu.edu</a>	DATA211	A	97

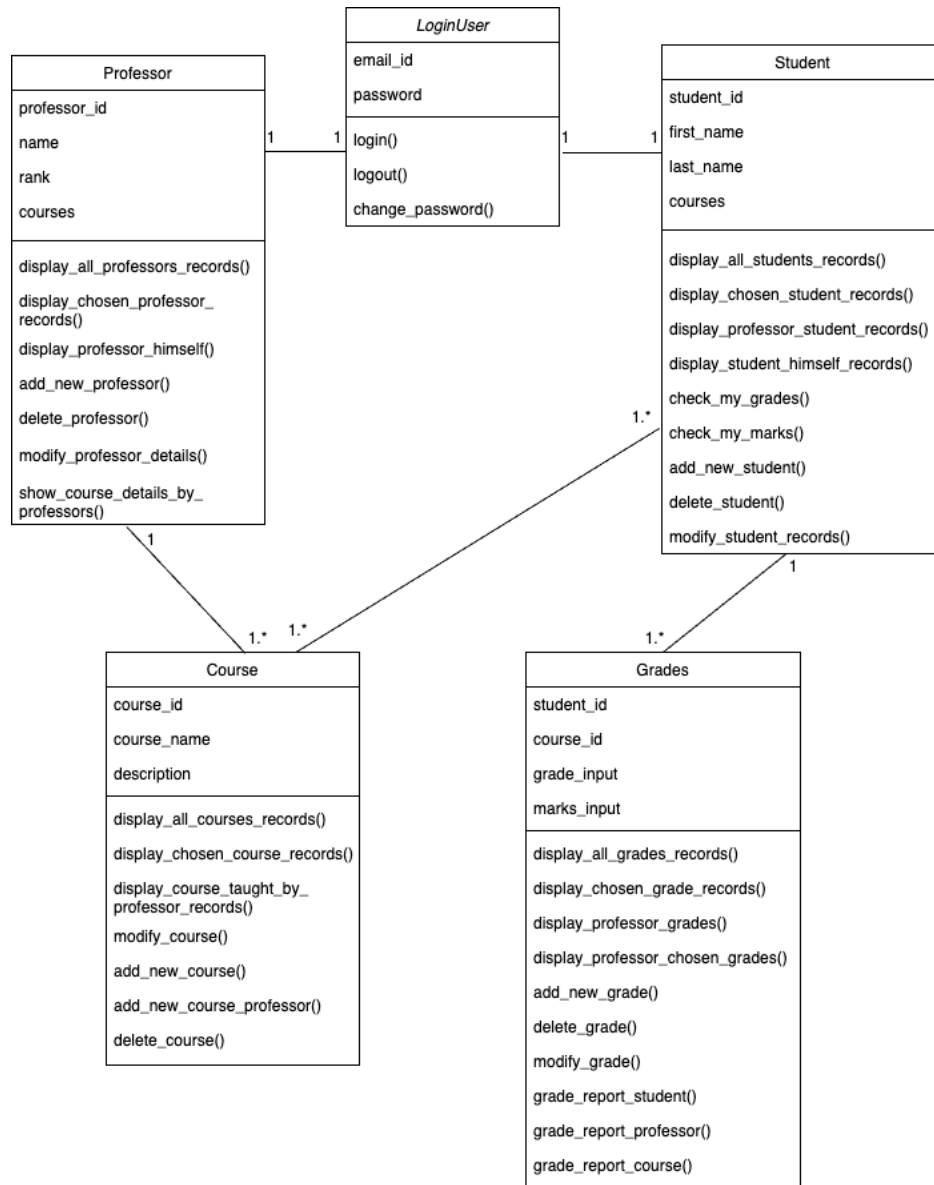
Reason for the adjustment: The original Student.csv was split into Student.csv and Grades.csv.

Student.csv now contains data fields: email\_address, first\_name, last\_name, and course\_id. Grades.csv contains data fields: email\_address, course\_id, grades, and marks.

The primary key of Student.csv is email\_address. If a student selects multiple courses and we want to retain grades and marks, email\_address would need to appear twice, which conflicts with the primary key constraint of email\_address. Therefore, a separate Grades.csv was created, where the primary key is a composite key consisting of (email\_address, course\_id).

### 3. Object Oriented Design (OOD) for CheckMyGrade Application





#### 4. Implement CheckMyGrade Application

The specific python files and csv files can be found in the Main Code file, which includes the following:

- `main.py`
- `common.py`
- `login_user.py`
- `encdyc.py`
- `data_simulate.py`
- `Student.csv`
- `Course.csv`
- `Professor.csv`

- Grades.csv
- Login.csv
- Login\_decrypted.csv (Established for the purpose of testing the code.)

All test results can be found in the **Code Terminal Output**.

## 5. Test the Code

The specific python files and csv files can be found in the Test Code file, which includes the following:

- common.py
- data\_simultae.py
- encdyc.py
- test\_add\_student.py
- test\_delete\_student.py
- test\_modify\_student.py
- test\_search\_student.py
- test\_search\_course.py
- test\_search\_professor.py
- test\_search\_grade.py
- test\_sort.py
- test\_sort2.py
- test\_add\_course.py
- test\_delete\_course.py
- test\_modify\_course.py
- test\_add\_professor.py
- test\_delete\_professor.py
- test\_modify\_professor.py

All test results can be found in the **Test Code Report**.

## 6. GitHub

[https://github.com/Ashley96yy/DATA200\\_Lab1\\_CheckMyGradeApplication](https://github.com/Ashley96yy/DATA200_Lab1_CheckMyGradeApplication)