**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() |

1. **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** |
| [**lindsay.blair@myscu.edu**](mailto:lindsay.blair@myscu.edu) | Lindsay | Blair | DATA217 |
| [**amanda.dudley@myscu.edu**](mailto:amanda.dudley@myscu.edu) | 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** |
| [**jeffery.wagner@myscu.edu**](mailto:jeffery.wagner@myscu.edu) | Jeffery Wagner | Senior Professor | DATA214, DATA204, DATA215 |
| [**anthony.gonzalez@myscu.edu**](mailto:anthony.gonzalez@myscu.edu) | Anthony Gonzalez | Senior Professor | DATA212, DATA218 |

Login.csv

|  |  |  |
| --- | --- | --- |
| **User\_id** | **Password** | **Role** |
| [**danielle.johnson@myscu.edu**](mailto:danielle.johnson@myscu.edu) | 3hez("@nShzA | admin |
| [**jeffery.wagner@myscu.edu**](mailto:jeffery.wagner@myscu.edu) | ~35#<+aiIey\_ | professor |
| [**lindsay.blair@myscu.edu**](mailto:lindsay.blair@myscu.edu) | '"}oQK=cwVSF | student |

Grades.csv

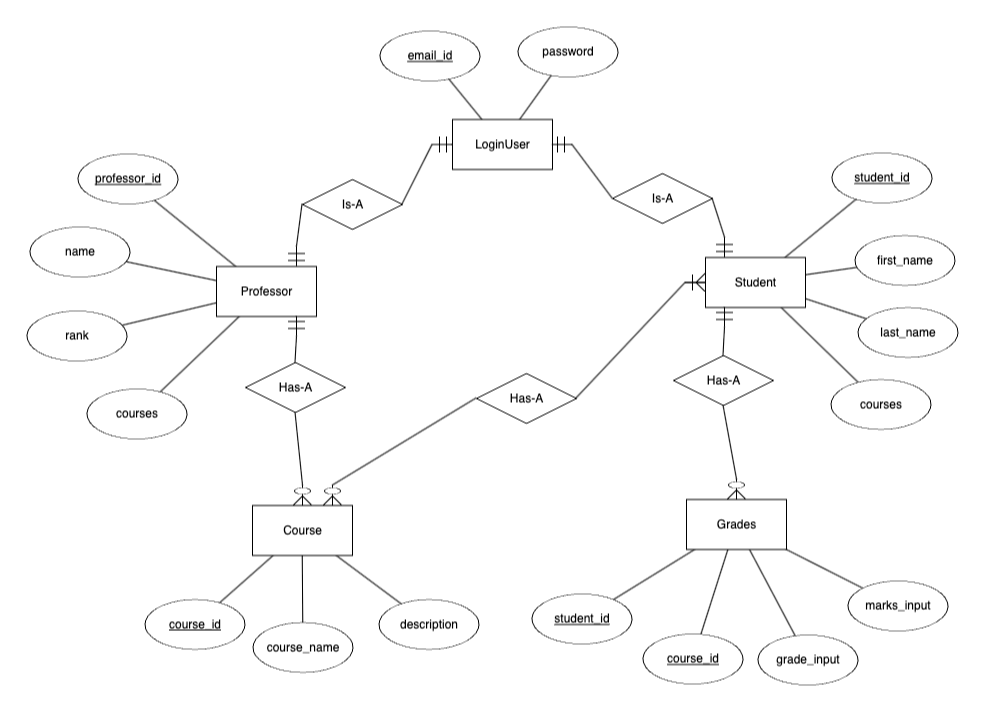
|  |  |  |  |
| --- | --- | --- | --- |
| **Email\_address** | **Course\_id** | **Grades** | **Marks** |
| [**lindsay.blair@myscu.edu**](mailto:lindsay.blair@myscu.edu) | DATA217 | F | 56 |
| [**nicholas.arnold@myscu.edu**](mailto:nicholas.arnold@myscu.edu) | DATA211 | A | 97 |

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).

1. **Object Oriented Design (OOD) for CheckMyGrade Application**



A diagram of a course

AI-generated content may be incorrect.

1. **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**.

1. **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**.

1. **GitHub**

https://github.com/Ashley96yy/DATA200\_Lab1\_CheckMyGradeApplication