

Database System: Machine Problem 1

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Project Information

(1) Function Description

Implement a student management database.
Support add, query, delete operations.

(2) Program Introduction

Table 1:

Function	Introduction
<code>void connectStudentsDB()</code>	Connect to mp1.db, create student database
<code>void addStudent(const char* stuID, const char* stuName, const char* stuGPA, const char* stuAge)</code>	Add a student to the database
<code>void deleteStudentByID(const char* stuID)</code>	Delete a student according to ID
<code>void deleteStudentByName(const char* stuName)</code>	Delete a student according to Name
<code>void findStudentByID(const char* stuID)</code>	Find the Information of the student with given ID
<code>void viewStudents()</code>	Show all the students in the database
<code>void closeDatabase()</code>	Close the database

(3) Test Environment

Table 2:

CPU	Intel(R) Core(TM)i7-9750H CPU @ 2.6Ghz 6 Core 12 Thread
GPU	NVIDIA GeForce RTX2070
RAM	DDR4 16G+16G
Operating System	Microsoft Windows 10 (OS 18362.1016)
Compiler	MSVC++ 14.24

Project Test

(1) Add a student

Test statements in the program are as follow:

```
addStudent("114", "Sunset", "4.0", "19");
addStudent("514", "yanQval", "4.0", "20");
addStudent("250", "krydom", "1.3", "19");
```

```
Success add student: Sunset
Success add student: yanQval
Success add student: krydom
```

```
viewStudents();
```

```
All students in the database are as follow:
ID = 114, Name = Sunset, GPA = 4.0, Age = 19,
ID = 514, Name = yanQval, GPA = 4.0, Age = 20,
ID = 250, Name = krydom, GPA = 1.3, Age = 19,
```

(2) Delete a student

Test statements in the program are as follow:

```
deleteStudentByID("514");
viewStudents();
```

```
Success delete student: ID = 514
All students in the database are as follow:
ID = 114, Name = Sunset, GPA = 4.0, Age = 19,
ID = 250, Name = krydom, GPA = 1.3, Age = 19,
```

```
deleteStudentByName("Sunset");
viewStudents();
```

```
Success delete student: Name = Sunset
All students in the database are as follow:
ID = 250, Name = krydom, GPA = 1.3, Age = 19,
```

(3) Give the ID, find the information of the student

Test statements in the program are as follow:

```
findStudentByID("250");
```

```
The information of the student whose ID = 250:
Name = krydom, GPA = 1.3, Age = 19,
```

In order to verify that the previously deleted data has no effect on the database,
So add another student with student ID 114 to test:

```
findStudentByID("114");
addStudent("114", "YMDragon", "4.0", "20");
findStudentByID("114");
```

```
The information of the student whose ID = 114:
Success add student: YMDragon
The information of the student whose ID = 114:
Name = YMDragon, GPA = 4.0, Age = 20,
```