

Cao An

Assignment 2 homework.

1. Database tables:

- Students table:

Table name: student

Column:

- id (int): student id. This is primary key of the table. In the python file, it is a key of students dictionary.
- name (string): student name
- major (string): student major
- course (list): a list of courses that student attend
- date_of_birth (date): date of birth of student
- gpa (float): student gpa

- Course table:

Table name: courses

Column:

- course_code (string): course code. This also the primary key of the table. In the python file, it is a key of courses dictionary.
- course_name (string): course name
- instructor (string): courses instructor name
- location (string): location of the course
- students (list): list of student take the course

- Tables are implements as dictionaries, where the keys are column names.

2. Menu commands

- “add” or “a”: open the add menu
- “add student” or “as”: Add a new student
- “add course” or “ac”: Add a new course
- “remove” or “r”: open the remove menu
- “remove student” or “rs”: Remove a student record
- “remove course” or “rc”: Remove a course record
- “remove all student” or “ras”: Remove all students

- “remove all course” or “rac”: Remove all courses
- “print” or “p”: open the print menu
- “print student” or ‘ps’: Print a specific student record.
- ‘print course’ or ‘pc’: Print a specific course record.
- ‘print all students’ or ‘pas’: Print all student records.
- ‘print all courses’ or ‘pac’: Print all course records.
- “update” or “u”: open the update menu
- ‘update student’ or ‘us’: Update a specific student record.
- ‘update course’ or ‘uc’: Update a specific course record
- “name” or “n”: Update a student name or course name
- “major” or ”m”: Update a student major
- “course” or “c”: Update a student course
- “delete” or “d”: Update a student course by removing the course
- “add” or “a”: Update a student course by adding the course
- “dob” or ”d” :Update a student date of birth
- “gpa” or “g”: Update a student gpa
- “student” or “s”: Update a course student
- “delete” or “d”: Update a course student by removing the course
- “add” or “a”: Update a course student by adding the course
- ”instructor” or “i”: Update a course instructor
- “location” or ”l” : Update a course location
- “description” or “d”: Update a course description
- ‘quit’ or ‘q’: Exit the program.

I also use number as a option for user to get their choices

- Error Handling:
 - If an invalid command is entered, the program will display an informative error message and ask for the right command
 - If the record ID specified for removal or update is wrong, the program will provide a context-specific error message
 - If enter ctrl+C to interrupt, the program will provide a context messenger and ask for another input.

- If the input need to conver from other characters to integer and the input is not valid, print an error message and ask for another input.
- When adding student course. Check if the course appears in the dictionary or not, if not print the error, if does append the course.
- When enter student date of birth, if the date of birth is not valid. Print the error.

3. Examples of usage:

1. printPrint Menu:
 - ps: Print student information by ID.
 - pac: Print all courses and their details.
2. Remove Menu:
 - rs: Remove a student by ID.
 - rac: Remove all courses.
3. Add Menu:
 - as: Add a new student.
 - ac: Add a new course.
4. Update Menu:
 - us: Update student information.
 - uc: Update course information.
5. Main Menu:
 - a: Enter the Add Menu.
 - q: Quit the program.

4. Adding information:

- I use five python files for five different purposes:
 - cao_an_students.py: python file for all function related to students table.
 - cao_an_courses.py: python file for all function related to courses table.
 - cao_an_database.py: python file for all main functuon for both table: students and courses
 - cao_an-dummy.py: python file for dummy variables
 - cao_an_error.py: python file included all function print out if catching errors.

5. Other function:

- When delete an student-id the course students is update by it self

- When add a student, ask for student course, the course table will auto update with that student id
- When add a course, ask for student id who in the course, the student table will auto update with the course code.