

Python_Activity45

CRUD Operations and Querying a Normalized Database

Goal:

Students will practice performing **Create, Read, Update, and Delete (CRUD)** operations on their database using SQL within Python. They'll also write more advanced queries involving **joins, aggregations, and filters**.

Key Concepts Covered:

- INSERT, SELECT, UPDATE, DELETE
 - JOIN (Inner and Left)
 - WHERE, GROUP BY, HAVING
 - Aggregates: COUNT, AVG, MAX, MIN
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Instructions:

1. Continue from your `enrollment.db` schema (from Activity 2)
2. Write Python functions for each of the following:

Create

- Add a new student
- Add a new course
- Enroll a student in a course

Read

- List all students and their enrolled courses
- Show all instructors with the courses they teach
- Count the number of students per course
- List courses with average grades

Update

- Update a student's name or program
- Update a student's final grade in a course

Delete

- Remove a student (and ensure enrollments are also removed)
 - Delete a course
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Deliverables:

- Python file **DB_Activity45.py**, save to Folder: **DATABASE**
 - Console output showing each CRUD function working
 - Optional: Menu-style interface to let user choose operation
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Bonus Challenge:

Implement a simple **text-based CLI** (Command Line Interface) that allows the user to:

- View data
- Add records
- Update records