



Lab Task: 02

Course Code: CL2005

Course Title: Database Systems - Lab

Semester: Spring 2026

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Guidelines

- Please review the lab manual before starting the task to ensure you fully understand the requirements.
- You may use **only the concepts covered in the lab manual** to complete this task.
- Your submission must be a **single PDF file** that includes:
 - The source code (in plain text)
 - Screenshots of the corresponding outputs
- Name your file using the following format: **rollno_name_tasknumber.pdf**
Example: *24p-1234_ozair_labtask02.pdf*
- Unethical use of AI tools will result in a **deduction of 5 marks**.
- Late submissions will incur a penalty of **-1 mark per day**.

Tasks

You are provided with a database file named **tech_survey.db**, which contains a simplified, real-world subset of the **Stack Overflow Developer Survey** dataset.

Open the given database in SQLite and perform **all the specified database operations** on the given dataset.

Part 1: ALTER TABLE

1. Add a column **education_level**.
2. Rename table **developers** to **dev_survey**.
3. Rename column **salary_usd** to **annual_salary**.
4. Drop column **education_level**.

Part 2: INSERT

1. Insert **all columns** for one record.



2. Insert **specific columns only** for one record.
3. Insert **3 rows in one statement**.

Part 3: UPDATE

4. Update salary of developers from Pakistan by +10%.
5. Update framework to **NULL** where database_used is **NULL**.
6. Change the primary language of dev_id = 5 to **Python**.

Part 4: DELETE

7. Delete developers with experience < 2 years.
8. Delete developers whose salary is **NULL**.

Part 5: SELECT

1. Display all developer records.
2. Display only **country, primary_language, annual_salary**.
3. List developers earning more than 50,000 USD.
4. List developers with experience between 3 and 8 years.
5. Show developers from Pakistan earning less than 20,000 USD.
6. Show developers who use Python **and** PostgreSQL.
7. Show developers from USA **or** Germany earning above 60,000 USD.
8. Show developers who do **not** use JavaScript.
9. Show developers with experience between 5 and 10 years.



10. Show developers whose primary language is either one of **Python, Java, C++, PHP**.
11. Show developers whose framework starts with **S**.
12. Show developers whose database contains the word **SQL**.
13. Show the top 5 highest-paid developers.
14. Show the lowest-paid developers sorted by salary.
15. Show the only developer with the most experience.
16. Show developers who **use both primary and secondary languages**.
17. Show developers where salary is not provided.
18. Rank developers by salary within each country (sort based on two columns).