Automating Database Schema Changes and Implementing CI/CD

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# Question 1: Automating Database Schema Changes

1. Created a SQL script `schema\_changes.sql` that creates a `projects` table and adds a `budget` column to it.

2. Wrote a Python script `apply\_schema\_changes.py` that connects to the MySQL database, reads the SQL script, executes each command, and commits the changes. Errors are caught and printed if they occur.

# Question 2: CI/CD Pipeline for Database Deployment

## 2.1 Azure MySQL Setup

• Created a MySQL Flexible Server on Azure named `mysql-company-server`.

• Chose public access, set username/password, and created the `companydb` database.

• Noted the connection details for use in GitHub secrets.

📸 Insert screenshot here of Azure MySQL creation.

## 2.2 GitHub Actions Setup

• Created a `.github/workflows/ci\_cd\_pipeline.yml` file that runs on every push to the main branch.

• Sets up Python, installs `mysql-connector-python`, and runs a script that executes SQL scripts.

📸 Insert screenshot of GitHub Actions tab showing the CI/CD run.

## 2.3 Workflow Testing

• Added `add\_departments.sql` to the repo. The workflow picked it up and executed it.

• Verified that the `departments` table was created in Azure MySQL.

📸 Insert screenshot of database with new table, and GitHub Actions success.