Advanced Database Labs

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None

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1. Advanced Database Labs

Welcome to the Advanced Database Lab course. This site provides hands-on labs to help you learn and simulate key concepts in **concurrency control** and **database recovery techniques**.

1.1 What You Will Learn

- How to install and use **MySQL**, **Python**, and **Visual Studio Code**
- An understanding of **transaction management** and **SQL implementation**
- Understanding concurrency control mechanisms (**2PL**, **Timestamp ordering**)
- Understanding Database recovery techniques (**ARIES**)
- An introduction to **database security** practices:
- **Role-Based Access Control (RBAC)**
- **Data encryption**

1.2 Tutorial Support video

Many labs include **video walkthroughs** that demonstrate how to solve key theoretical examples step by step.

- Transaction schedules and conflicts
- Concurency Control mechanisms
- Database recovery Techniques

Be sure to watch them alongside the written material for deeper understanding.

1.3 Labs Overview

Each lab builds on the previous one. Please complete them in sequence:

1. **Lab 0:** Environment Setup Download!
2. **Lab 1:** Basics of Transaction Management and Its Properties
3. **Lab 2:** Concurrency Control Mechanisms
4. **Lab 3:** Database Recovery Techniques (ARIES)
5. **Lab 4:** Database Security Measures

1.4 What You Should Do

> ℹ Each lab includes an assignment that you are expected to complete as part of the learning process. **Please submit the assignments on time.**