Lecture 10B (Wednesday, March 14)

Logistics

- HW4 questions?

Let's work with the Charity database for a while.

What Is Integrity?

ACID

- Atomic
- Consistent
- Isolated
- Durable

We've seen Consistent - referential integrity!

These are implemented in the context of a **transaction**: a group of statements that function as a single unit.

Let's look at them:

Atomic

The entire transaction happens, all at once, or none of it does. It is impossible to witness an incomplete transaction.

Consistent

After the transaction, the database is in a consistent state (all integrity checks pass)

Isolated

One transaction-in-progress cannot affect or be affected by another.

Durable

When a transaction is committed, it is persistent across failures. The data is actually written.

How do we use these?

- Start transaction (disable auto-commit and do anything)
    - Some DB APIs disable auto-commit by default! (Python)
- Do things
- Commit or roll back

What if commit fails?

- Depends on the application - abort, try again, etc.

We need to get keys for multi-table inserts!

- Execute with RETURN_GENERATED_KEYS
- Get the generated keys