

Crash Recovery

Dealing Gracefully with Failures

Transaction Processing

A **transaction** is an atomic unit of work in a DBMS

Example: transfer 100 Euro from bank account A to bank account B

Must satisfy the **ACID** properties:

- Atomic
- Consistent
- Isolated
- Durable

Transaction processing consists of two parts: **Crash recovery** and **Concurrency control**

Crash recovery

Is responsible for:

- Atomicity: transactions that are unexpectedly aborted (e.g., due to a system crash) are rolled back and optionally re-executed
- Consistency: by means of atomicity
- Durability: once a transaction is committed its data is persistent through archiving and logging

Several approaches:

- Undo logging
- Redo logging
- Undo/redo logging

See book chapter 17