

Transactions

A **transaction** is a set of statements that are executed *atomically* wrt. to recovery. Often a group of statements need to be considered as a single transaction on a DB.

- **E.g.** Need to transfer balance from **checking** to **savings** relation. A single **update** statement will not update both relations, so two separate **update** statements are needed.

```
update checking
set balance = balance - 2000
where account_id = 212;
```

and

```
update savings
set balance = balance + 2000
where account_id = 212;
```

- MySQL by default does not support transactions. Every statement is a transaction
- Also the default storage engine does not handle transactions. Use **InnoDB** etc.

```
create table players(name char(20))
    engine=innodb;
describe players;
begin;
insert into players values('Verne');
select * from players;
rollback;
```

- Can also change the engine for a relation

```
ALTER TABLE EMPLOYEE ENGINE='innodb';
```

Join operations

- **Theta Joins**

```
select name, dept_name
from employee inner join department
on employee.dept_id = department.dept_id;
```

- **Left or Right joins**

```
select name, dept_name
from employee left join department
on employee.dept_id = department.dept_id;
```

- **Natural Join**

```
select name, dept_name  
from employee natural join department;
```

- **Joins with condition.** E.g.: employees in 'Management'

```
select name, dept_name  
from (employee natural join department)  
where dept_name='Management';
```