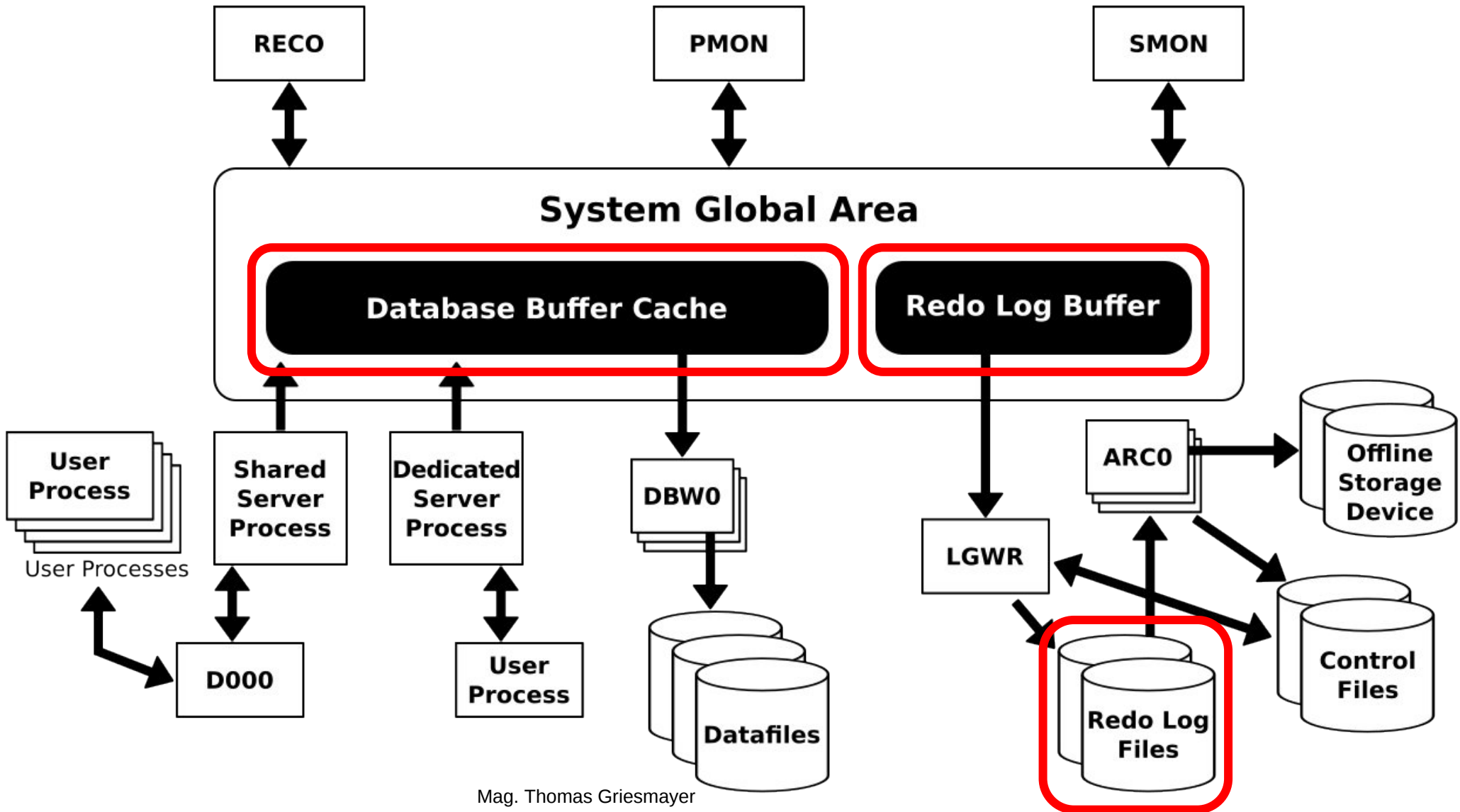


Transaction

Mag. Thomas Griesmayer



Transaction

- At the beginning of a transaction the user has a consistent view of the database.
- A new transaction is assigned with the first DML (data manipulation language), DDL (data definition statement) or the SET TRANSACTION statement.
- Every transaction receives a unique TRANSACTION ID.
- A transaction consists of multiple SQL statements.
- A transaction ends with commit (changes are applied to the database) or rollback (changes are undone from the database).
- At the end of a transaction the user has a consistent view of the database.

Transaction

```
SELECT *  
FROM ACCOUNTS;
```

Consistent view of the database



```
UPDATE ACCOUNTS  
SET AMOUNT=AMOUNT-100  
WHERE ACCOUNT_ID=2;
```

Starts a new transaction



```
INSERT INTO ACCOUNTS VALUES(5, 'Hans', 0);
```

```
DELETE FROM ACCOUNTS  
WHERE ACCOUNT_ID=4;
```

```
SELECT *  
FROM ACCOUNTS;
```

```
COMMIT;
```

Ends the transaction



Consistent view of the database




```
SELECT XID
FROM   V$TRANSACTION;
XID: DGF41Q
```

```
COMMIT;
```

Oracle

ID	NAME	AMOUNT
1	Marion	400
2	Franz	700
3	Andrea	-200
4	Verena	900
5	Susi	0



ID	NAME	AMOUNT
5	Susi	0
1	Marion	400
2	Franz	700

```
SELECT XID
FROM V$TRANSACTION;
XID: D789XQ
```

```
ROLLBACK;
```



Oracle

ID	NAME	AMOUNT
1	Marion	400
3	Andrea	-200
4	Verena	900
5	Susi	0

ID	NAME	AMOUNT
6	Bugö	500
3	Andrea	400
5	Susi	0

```
SELECT XID
FROM V$TRANSACTION;
XID: 7HHWW7
```

```
COMMIT;
```



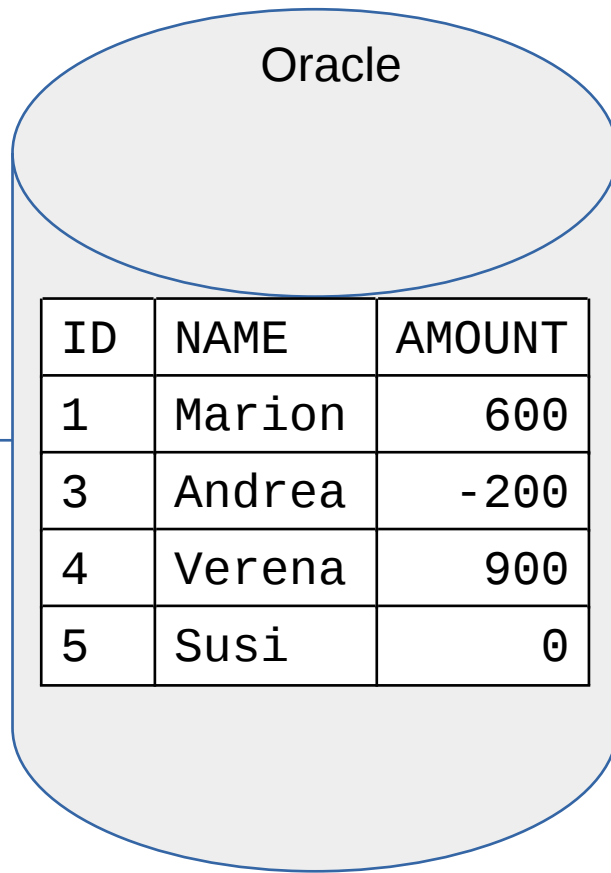
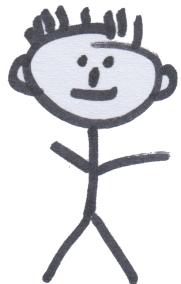
Oracle

ID	NAME	AMOUNT
1	Marion	600
3	Andrea	-200
4	Verena	900
5	Susi	0

ID	NAME	AMOUNT
1	Marion	600

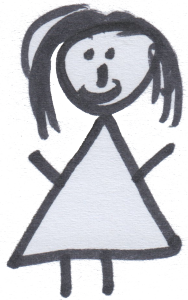
Read committed

- The read committed isolation level is the Oracle default isolation level.
- Every query executed by a transaction sees only data committed before the query began.



ID	NAME	AMOUNT
3	Andrea	-400

```
UPDATE ACCOUNTS  
SET AMOUNT=-400  
WHERE ACCOUNT_ID=3
```



XID: **AAABBB**

ID	NAME	AMOUNT
3	Andrea	-400

Oracle

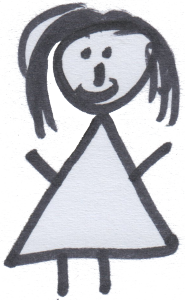
ID	NAME	AMOUNT
1	Marion	600
3	Andrea	-200
4	Verena	900
5	Susi	0

```
SELECT *  
FROM ACCOUNTS  
WHERE ACCOUNT_ID=3
```



ID	NAME	AMOUNT
3	Andrea	-400

XID: **AAABBB**



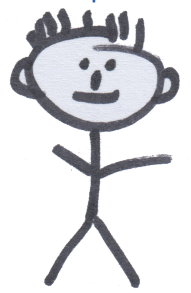
ID	NAME	AMOUNT
5	Susi	-200

ID	NAME	AMOUNT
3	Andrea	-400

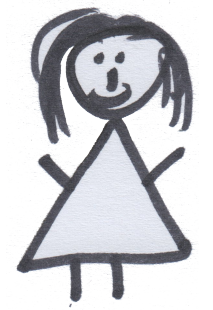
Oracle

ID	NAME	AMOUNT
1	Marion	600
3	Andrea	-200
4	Verena	900
5	Susi	0

```
UPDATE ACCOUNTS  
SET AMOUNT=-200  
WHERE ACCOUNT_ID=5
```



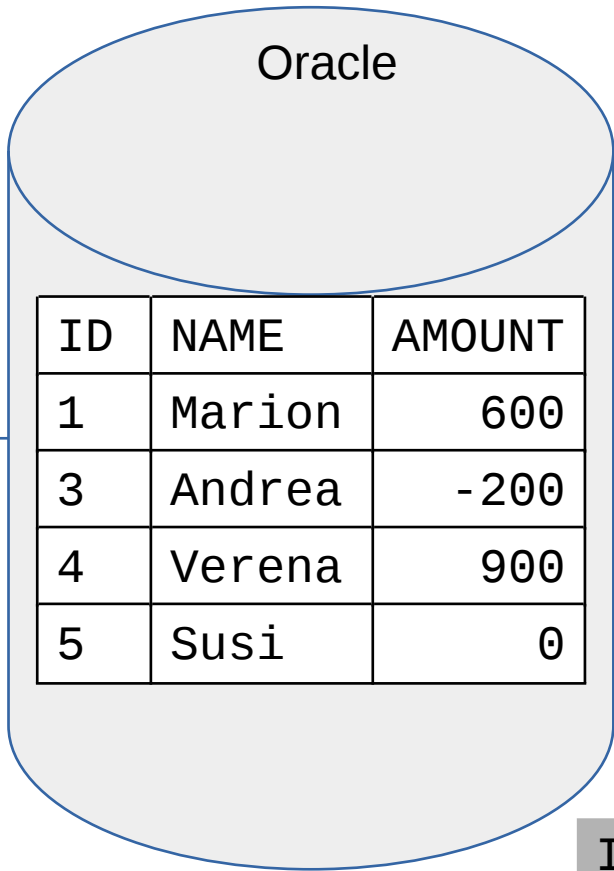
XID: **7HHWW7**



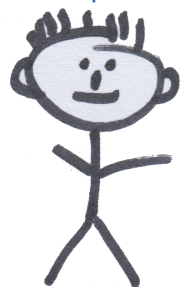
XID: **AAABBB**

ID	NAME	AMOUNT
5	Susi	-200

ID	NAME	AMOUNT
3	Andrea	-400

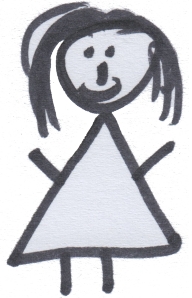


```
SELECT *  
FROM ACCOUNTS  
WHERE ACCOUNT_ID=3
```



XID: **7HHWW7**

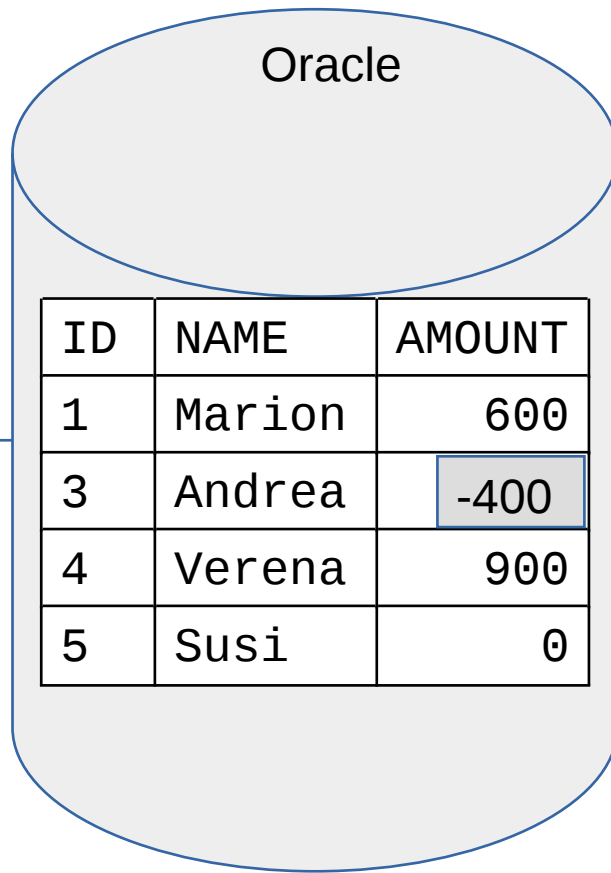
ID	NAME	AMOUNT
3	Andrea	-400



XID: **AAABBB**

ID	NAME	AMOUNT
5	Susi	-200

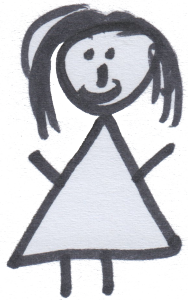
ID	NAME	AMOUNT
3	Andrea	-400



COMMIT

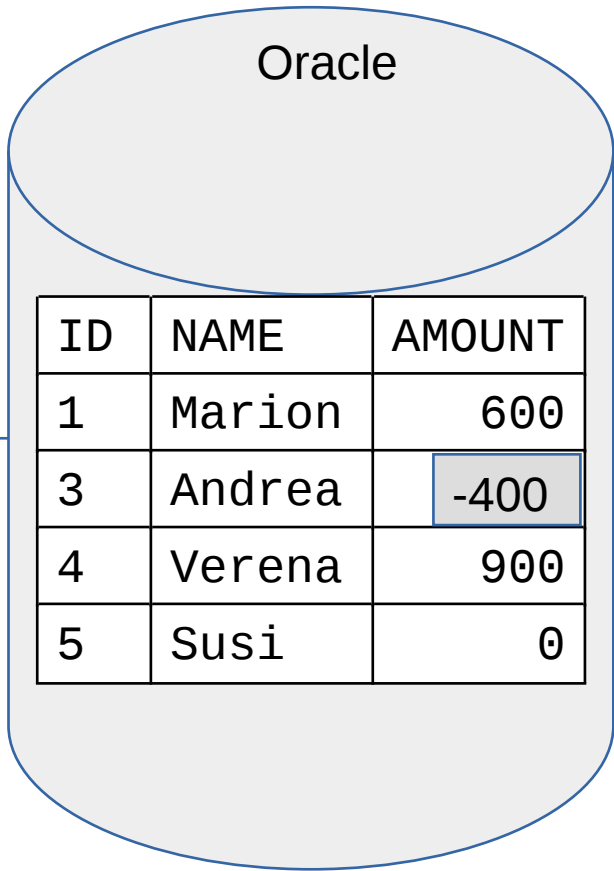


XID: **7HHW7**

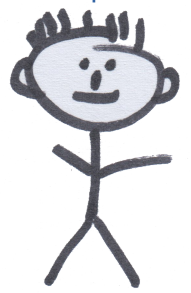


XID: **AAABBB**

ID	NAME	AMOUNT
5	Susi	-200



ROLLBACK



XID: **7HHW7**

