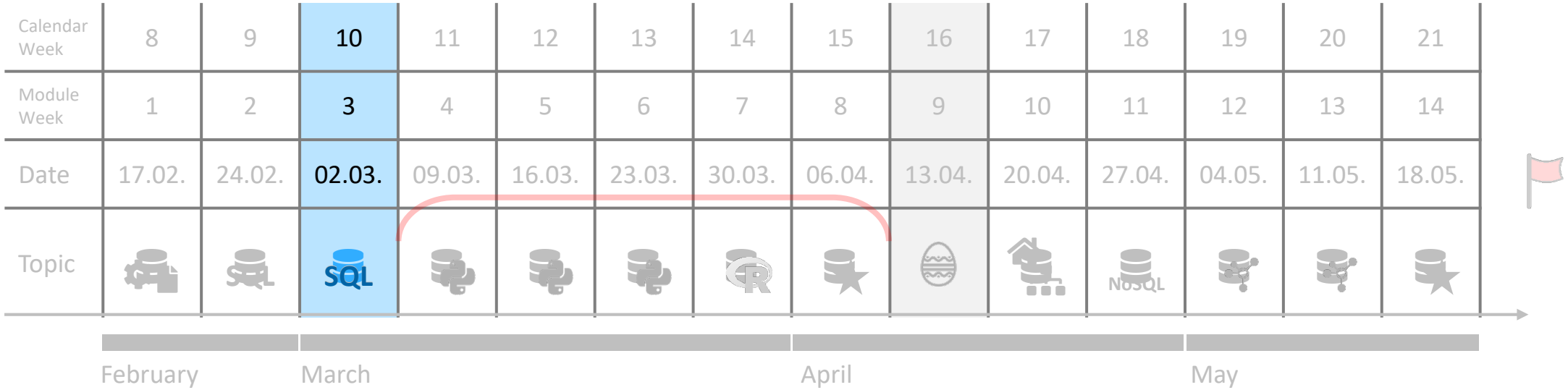
ACLS

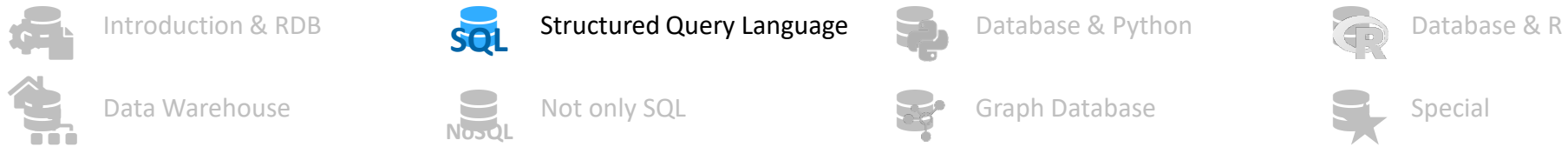
Databases

SS 2020 – Week 3

March 2

Schedule


Calendar Week
8
9
10
11
12
13
14
15
16
17
18
19
20
21
Module Week
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Date
17.02.
24.02.
02.03.
09.03.
16.03.
23.03.
30.03.
06.04.
13.04.
20.04.
27.04.
04.05.
11.05.
18.05.
Topic
SQL
NoSQL
February
March
April
May


Introduction & RDB
Structured Query Language
Database & Python
Database & R
Data Warehouse
Not only SQL
Graph Database
Special

Content

• Review + Scripts		10’
• JOINS	🎓	35’
• Nested Queries	🎓	25’
• Views - Procedures	🎓	20’
• SQLite	🎓	20’
• Exercises	🔧	25’
• Exercises	🔧	90’

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Review (1/3)

SQL

Many Systems* – one Language

*DataBase-Management-Systems (DBMS)

There aren't any alternatives to SQL for speaking to relational databases, but there are many alternatives to writing SQL in your applications.

- SchemeQL and CLSQL
- LINQ (in .Net)
- ScalaQL and ScalaQuery (in Scala)
- SqlStatement
- ActiveRecord
- HaskellDB
- Hibernate
- …

⚠ obviously not exhaustive

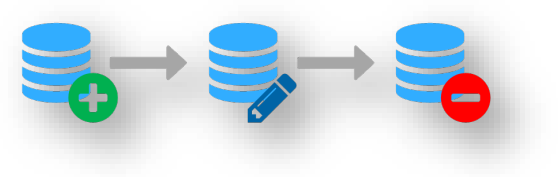
```
//Query syntax:
IEnumerable<int> numQuery1 =
    from num in numbers
    where num % 2 == 0
    orderby num
    select num;

//Method syntax:
IEnumerable<int> numQuery2 = numbers.Where(num => num % 2 == 0).OrderBy(n => n);
```

MySQL

- Open-source relational database management system (RDBMS)
- Server software itself and the client libraries use dual-licensing distribution

Review (2/3)

CREATE – MODIFY – DELETE



Databases

CREATE DATABASE *databasename*;
SHOW DATABASES;
DROP DATABASE *databasename*;

Tables

CREATE TABLE *tablename*(…); **SHOW TABLES**;
ALTER TABLE *tablename* **ADD**|**MODIFY**|**DROP** …;
DROP DATABASE *tablename*;

Records

INSERT INTO *tablename*(…) **VALUES** (…);
UPDATE *tablename* **SET** … **WHERE** …;
DELETE FROM *tablename* **WHERE** …;

Review (3/3)

RETRIEVE

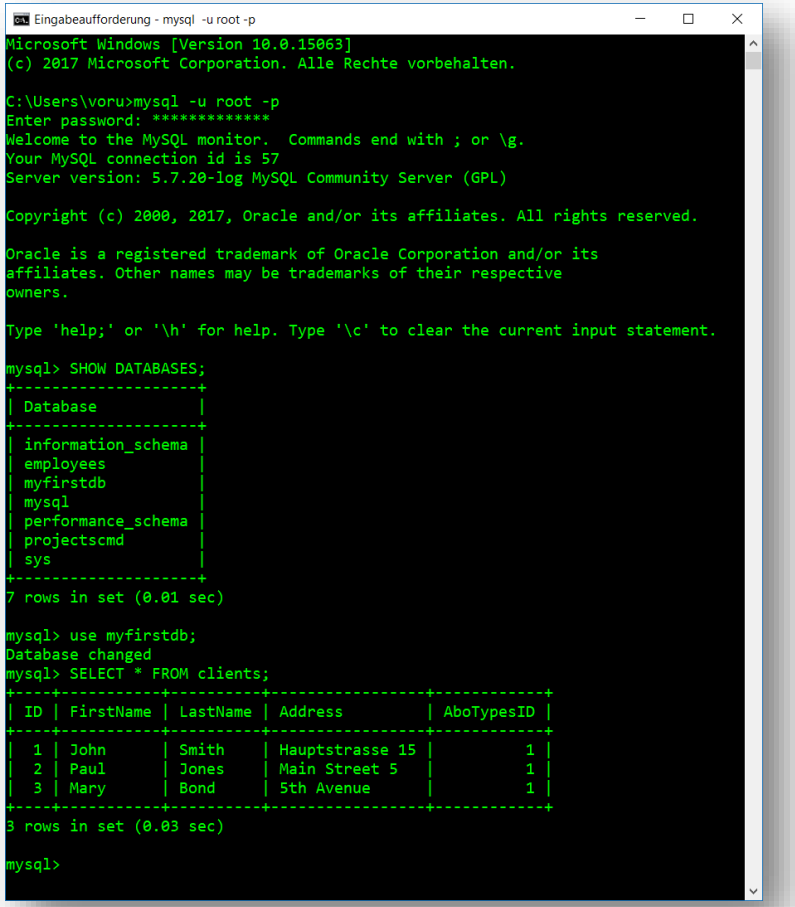
SELECT … **FROM** *tablename* **WHERE** …;

Scripts (1/3)

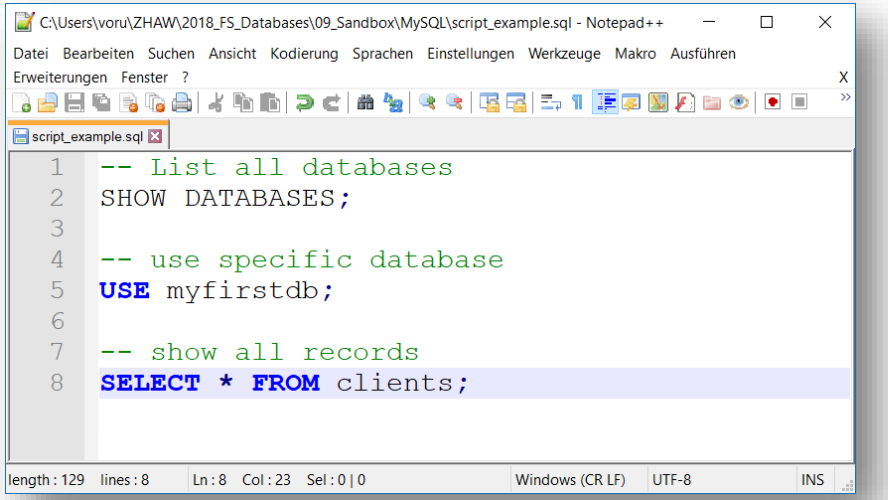
SQL statements:

- SHOW DATABASES;
- USE myfirstdb;
- SELECT * FROM clients;

Command prompt



Script file



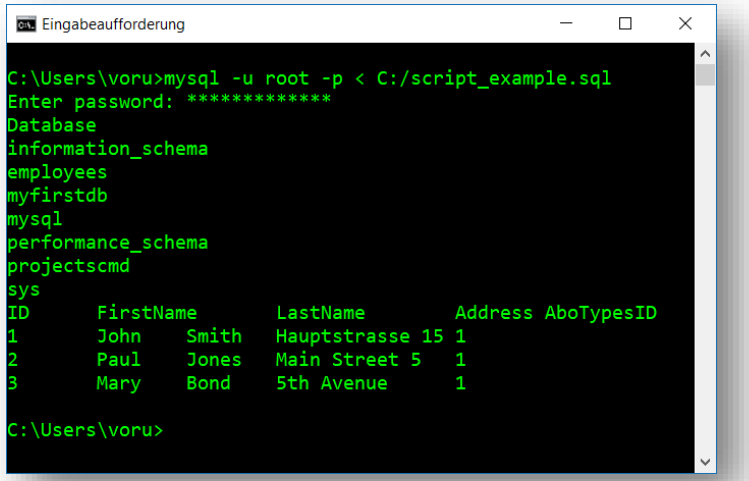
How to execute?

Scripts (2/3)

Option 1

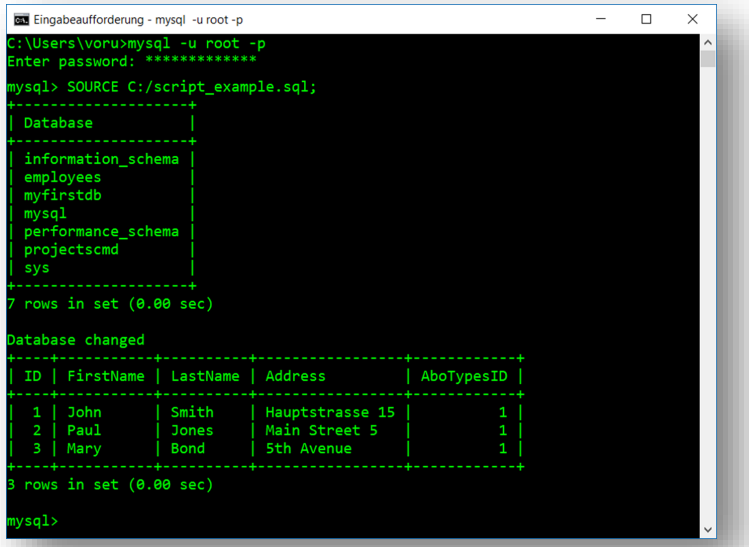
```
> mysql -u root -p < path-to-file/my_script.sql
```

```
> mysql -u root -p -t < path-to-file/my_script.sql
```

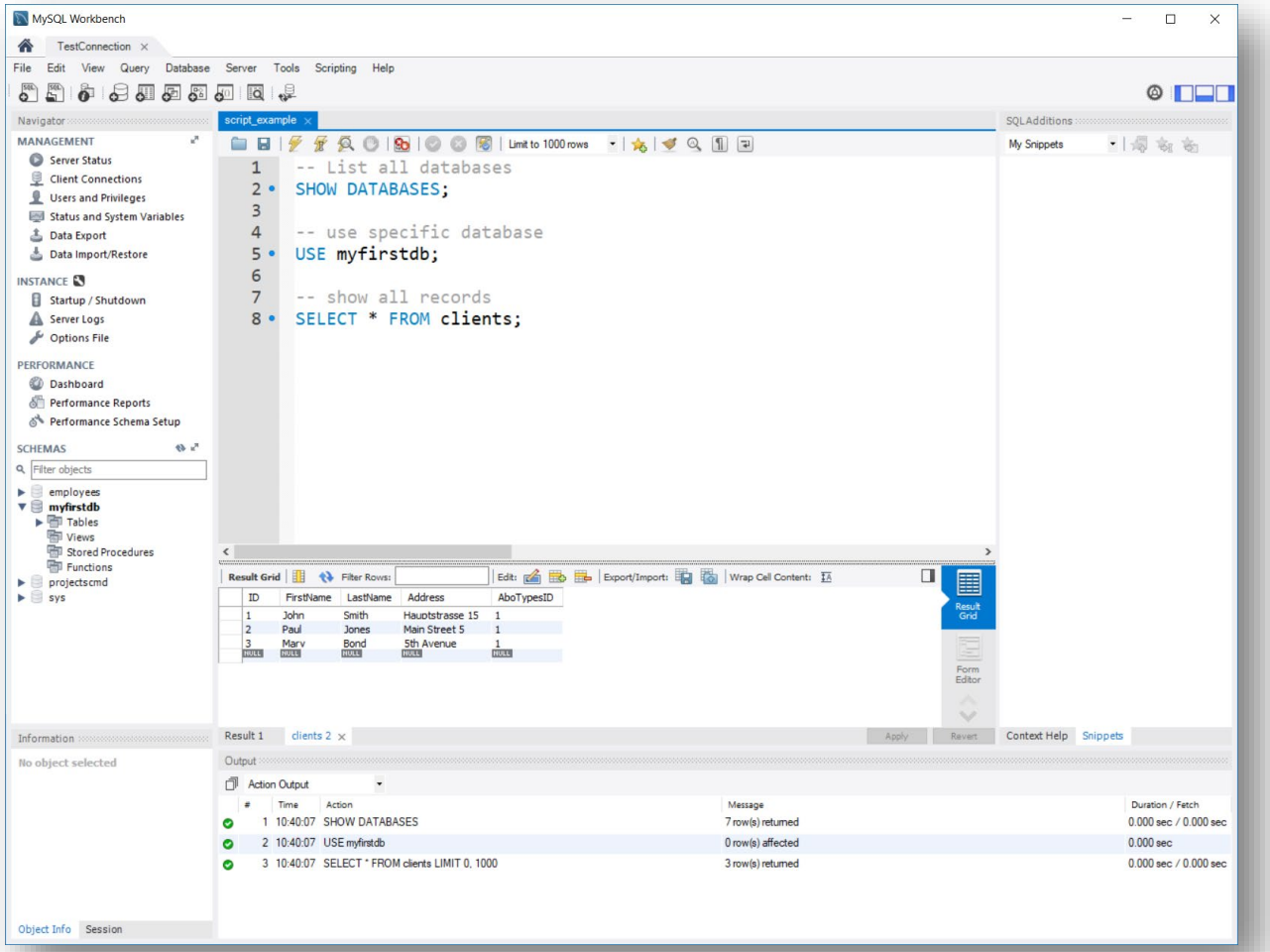


Option 2

```
> mysql -u root -p
Enter password: *********
mysql> SOURCE path-tofile/my_script.sql;
```



Scripts (3/3)


MySQL Workbench
TestConnection
File Edit View Query Database Server Tools Scripting Help
Navigator
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
SCHEMAS
Filter objects
employees
myfirstdb
Tables
Views
Stored Procedures
Functions
projectscmd
sys
Information
No object selected
Object Info
Session
script_example
Limit to 1000 rows
1 -- List all databases
2 SHOW DATABASES;
3
4 -- use specific database
5 USE myfirstdb;
6
7 -- show all records
8 SELECT * FROM clients;
SQLAdditions
My Snippets
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
ID FirstName LastName Address AboTypesID
1 John Smith Hauptstrasse 15 1
2 Paul Jones Main Street 5 1
3 Mary Bond 5th Avenue 1
Form Editor
Result 1
clients 2
Apply
Revert
Context Help
Snippets
Output
Action Output
Time Action Message Duration / Fetch
1 10:40:07 SHOW DATABASES 7 row(s) returned 0.000 sec / 0.000 sec
2 10:40:07 USE myfirstdb 0 row(s) affected 0.000 sec
3 10:40:07 SELECT * FROM clients LIMIT 0, 1000 3 row(s) returned 0.000 sec / 0.000 sec

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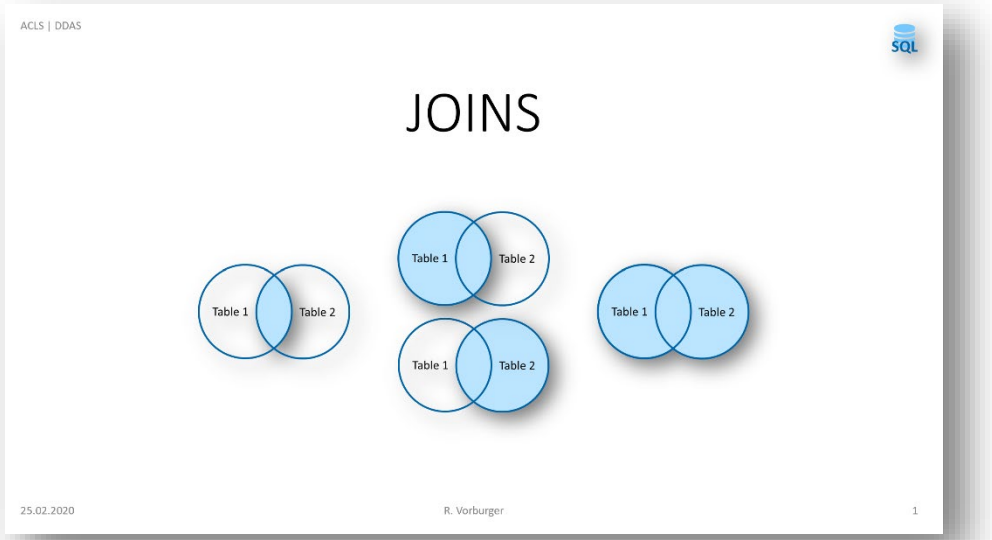

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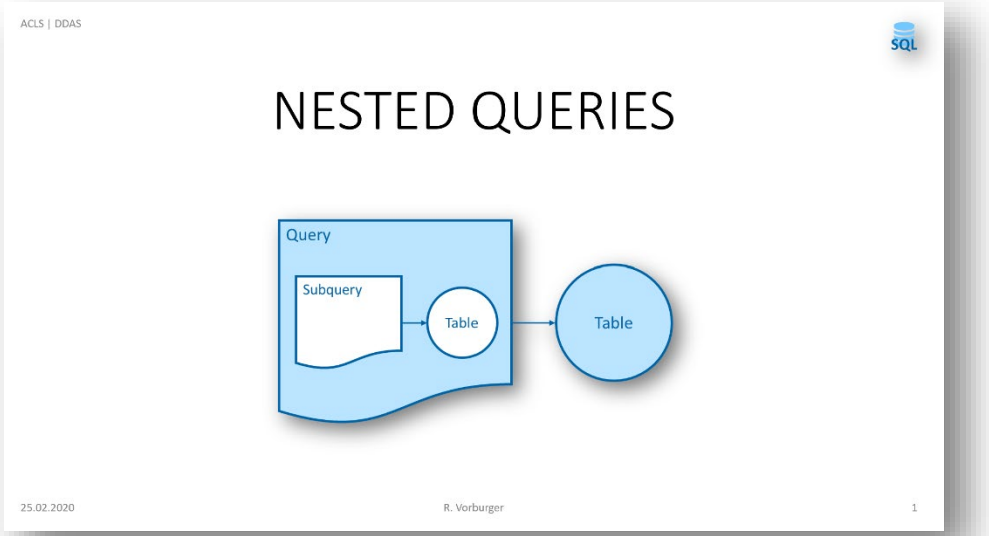

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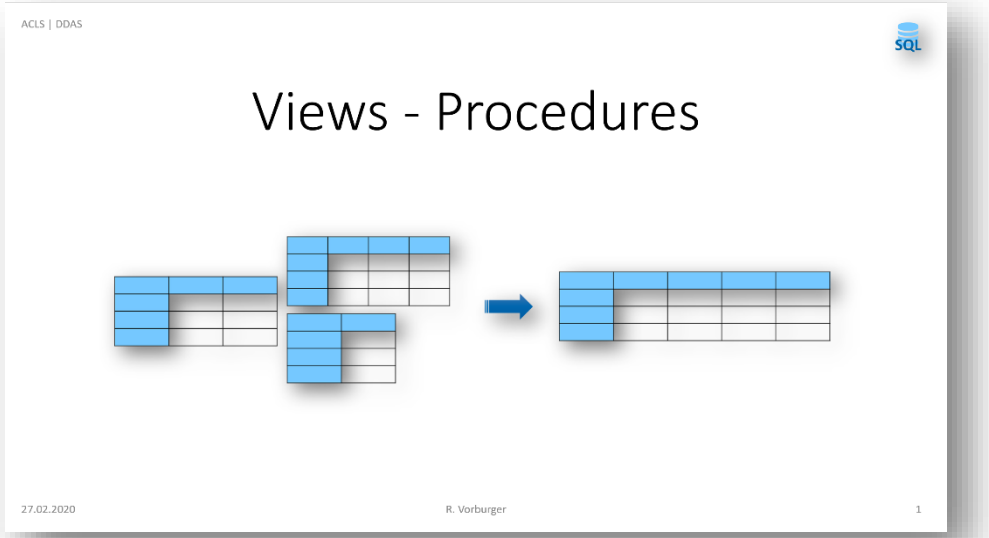

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