

Database Engine Development Lab

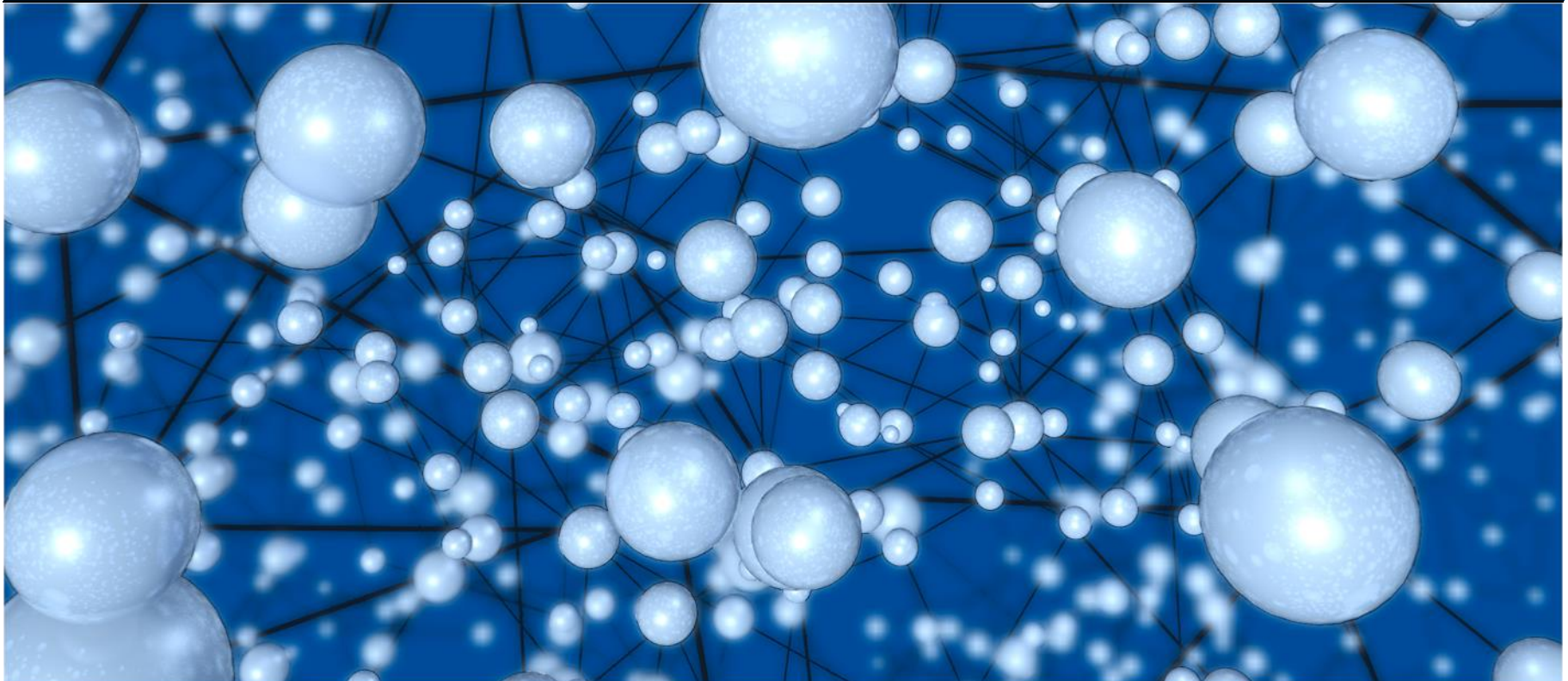
SoSe 2015



TECHNISCHE
UNIVERSITÄT
DARMSTADT

Part II

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Project Schedule

Summer Term (Vorlesungszeit)	April	21.04. (0)	Intro, query language, performance-benchmark
	→	28.04. (1)	Store data on disc / in RAM, execute selection
	May	12.05. (2)	Execute projection, join, sort
		26.05. (3)	Performance benchmark
	June	09.06. (4)	Optimizer / choose most suitable execution plan
		23.06. (5)	Advanced stuff
	July	14.07. (6)	Advanced stuff
August	04.08. (7)	Final demonstration	

Next Steps

- Import data ([example1.zip](#))
- Store data on disc (maybe in your own format?, make assumptions, e.g. max string length)
- Read data from disc into main memory

- Implement *selection* query/operator (feel free to already implement a filter, e.g. only data from a certain experiment)
- Provide the result as datastructure or simply print it
- How long does a selection take?



Do not assume a fix data schema!
There will be more files/additional
columns in the next weeks!

Next Steps

These steps imply design decisions regarding:

- Logical data structures
- Physical data/storage structures
- Buffer management
- Query processing

Blueprint of the Solution

Query language
for data retrieval

Performance benchmark



Parse expression

Generate execution plans

Choose most suitable execution plan

Execute plan (projection, selection, join, aggregation...)

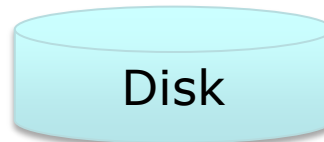
Please allow the configuration of the maximum RAM consumption!

RAM

CPU

Store data on disk / in RAM

Inter- and intra-query parallelization



CSV

Import data

Example

▪ Input > SELECT * FROM simDb
Output > Spalte A | Spalte B | Spalte C
wert wert wert
...

▪ Alternativ

```
// open DB
val db = new SimDB("myDB");
// read data cube
val ds = new ExperimentDBSourceDataCube(db)
// make query
// val ds2 = ds.filter().equals("Experiment", 320).avg("Node",
// "Time").rotate("Statistic").orderBy("Time")

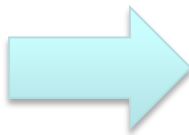
// materialize
val result = ds.evaluate()
println(result.get(0))
```

Time Schedule



What's next?

- Meeting in **A313**,
- You will
 - present your results
- We will give you
 - feedback on your results & implementation idea



Be prepared to present your results!

Questions?

