

# Overview Database Challenges

**What is your and your business expectation to a well performing database?**

**Develop abstract strategies to satisfy demands, by example!**

03 June, 2019 DOAG DB



Powering. Reliable. Future.

**RWE**

# Whoami?

**Martin Schmitter** (Solutions Architect – Database)

**RWE Supply & Trading GmbH**

- Information Scientist, application development, Jan 2001
- ~20y in professional IT (~30y non professional)
- HAM radio amateur (14y)
- My first Oracle version = v7.3
- DOAG member >2010
- Local Representative DOAG Regio NRW >2016

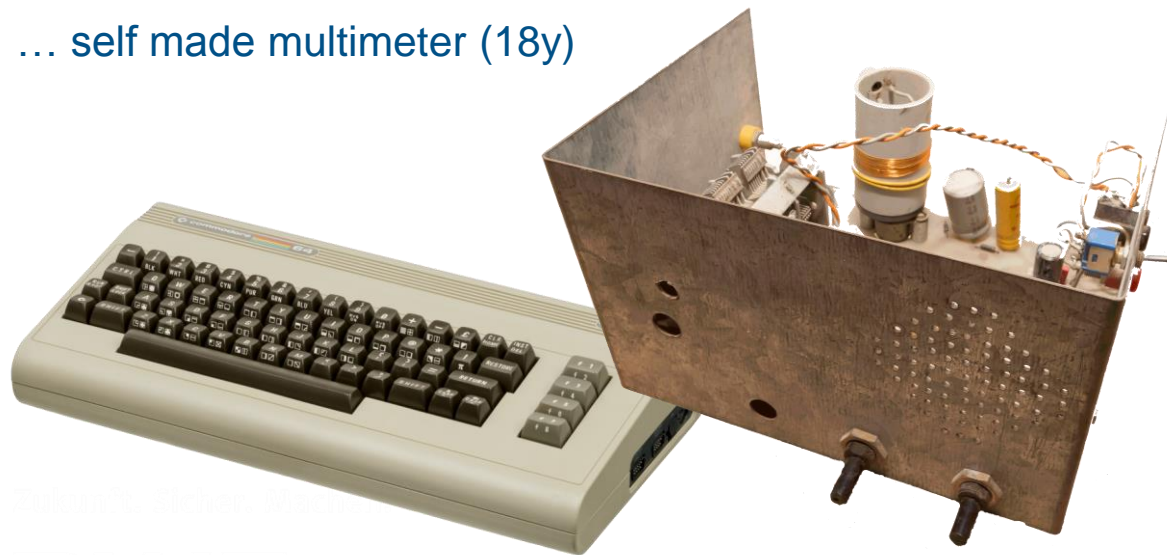


Powering. Reliable. Future.

**RWE**

# My first...

- ... computer (8y)
- ... self made shortwave radio receiver (13y)
- ... self made multimeter (18y)



Powering. Reliable. Future.

# RWE

# Agenda

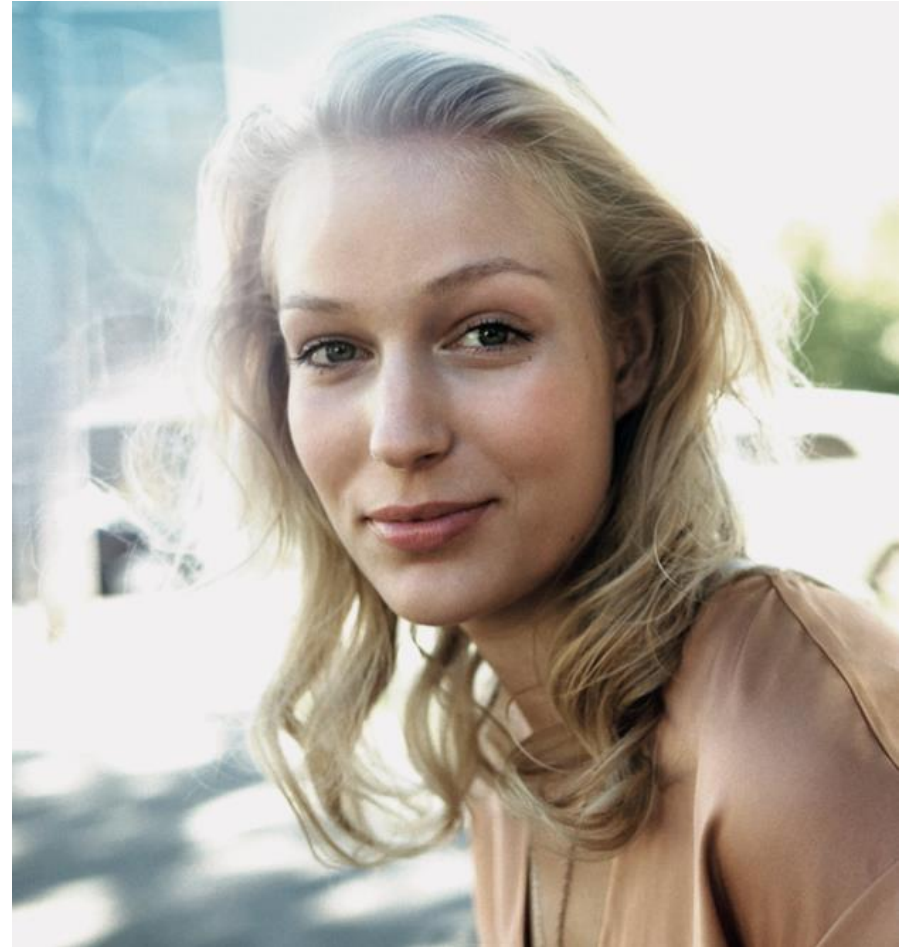
- **Demonstrate the major challenge of a database**

...and understand business requirements!

- **Develop abstract strategies to satisfy demands, by example!**

# Demonstrate the major challenge of a database

...and understand business requirements!



# Find queen of spades!



# User accepted response time

## Test from Google:

- A page with 10 results took 0.4 seconds to generate
- A page with 30 results took 0.9 seconds to generate
  - **“Half a second delay caused a 20% drop in traffic.”**

## Test from Amazon:

- “We tried delaying the page in increments of 100 milliseconds and found that even very small delays would result in substantial and costly drops in revenue.”

Half a second delay  
killed user satisfaction!



A few milliseconds delay  
killed  
business opportunities!



foobar



Alle Bilder News Videos Maps Mehr Einstellungen Tools

Ungefähr 2.170.000 Ergebnisse (0,40 Sekunden)



Hinweise zum Datenschutz bei Google

SPÄTER ERINNERN ANSEHEN

### foobar2000

<https://www.foobar2000.org/> [Diese Seite übersetzen](#)  
2018-07-24. foobar2000 v1.4 final is now available. Get foobar2000 v1.4. 2018-07-20. foobar2000 v1.4 beta 21. This is the last beta, and the last moment to ...  
[Download](#) · [Components](#) · [Screenshots](#) · [Support](#)

### foobar 2000 - Download - CHIP

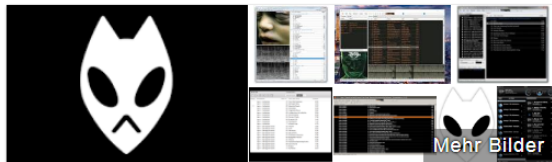
<https://www.chip.de> > [Downloads](#) > [Audio & Video](#) > [Mediaplayer](#) [▼](#)  
★★★★★ Bewertung: 4,7 - 3.153 Abstimmungsergebnisse - Kostenlos - Windows - Multimedia  
24.07.2018 - foobar 2000 v1.4 Englisch: foobar 2000 ist ein kostenloser Audioplayer mit einem enormen Funktionsumfang.

### Fubar – Wikipedia

<https://de.wikipedia.org/wiki/Fubar> [▼](#)  
Fubar (auch foobar) ist ein Wort aus dem anglo-amerikanischen Sprachraum, mit dem zum Beispiel schlimme Situationen, verheerende Unfälle, schreckliche ...  
[Wortherkunft](#) · [Foo, Bar und Fubar im ...](#) · [Beispiele von Fubar in ...](#)

### foobar2000 – Wikipedia

<https://de.wikipedia.org/wiki/Foobar2000> [▼](#)  
foobar2000 ist ein Freeware-Audioplayer für Windows, Android, iOS, Windows Phone und Windows 10 Mobile. Entwickler ist Peter Pawlowski, ein früherer ...



## foobar2000

Mediaplayer

foobar2000 ist ein Freeware-Audioplayer für Windows, Android, iOS, Windows Phone und Windows 10 Mobile. Entwickler ist Peter Pawlowski, ein früherer freiberuflicher Mitarbeiter von Nullsoft. [Wikipedia](#)

**Lizenz:** proprietär, BSD-Lizenz

**Entwickler:** Peter Pawlowski

**Kategorie:** Audioplayer

**Programmiersprachen:** Java, C++, C#, Objective-C

**Plattformen:** Android, iOS, Microsoft Windows Phone, Microsoft Windows NT, macOS

Andere suchten auch nach

Über 10 weitere ansehen



Winamp



AIMP



VLC media player



Free Lossless Audio Co...



MusicBee

Fearthark

# User accepted response time

**Will your user be able to flee?**

**If not, listen carefully! They might be secretly cursing, wishing it were faster!**

# Response times: The 3 important limits

## 0.1 second

- **Reacting instantaneously**

## 1.0 seconds

- **User's flow of thought** - to stay uninterrupted

## 10 seconds

- Limit for **keeping the user's attention**

by [Jakob Nielsen](#) on January 1, 1993

# Conclusion - The Challenge

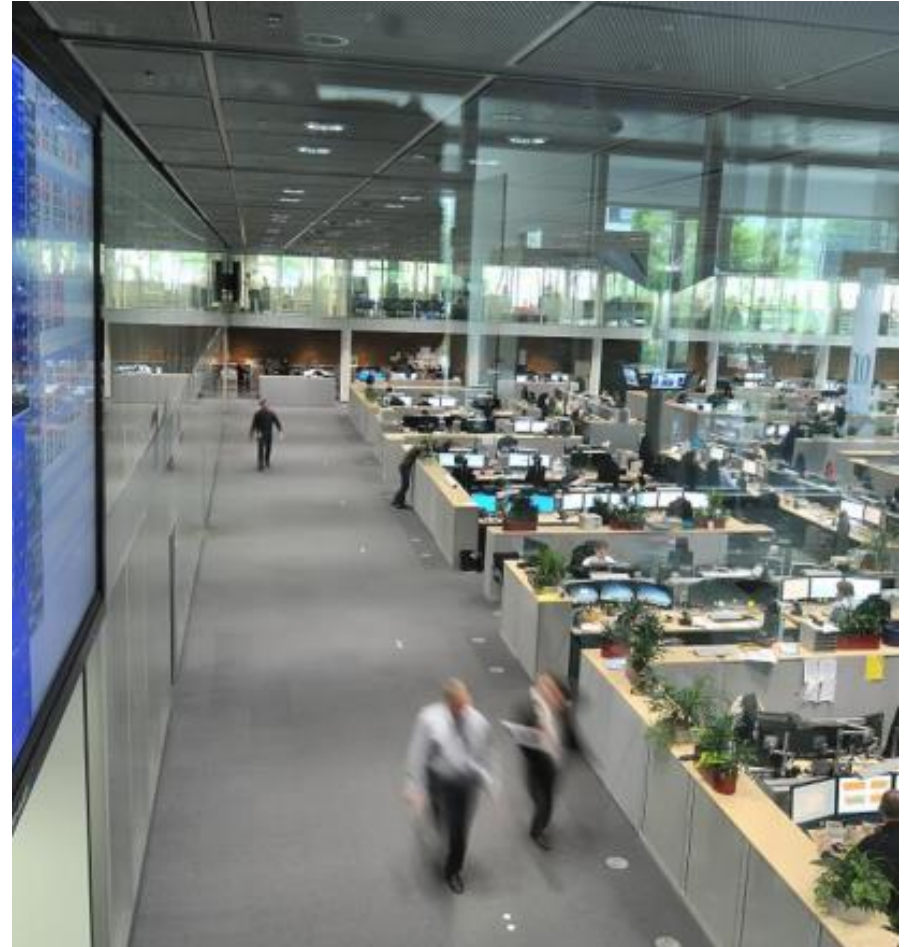


- Data is the new capital of your enterprise
- Getting out most of your data will be your business advantage
- If you drive your data well, you probably win the competition

# Develop abstract strategies to satisfy demands

... by example

## Playing Cards!



# Use an index

Write down all positions of kings, queens and jacks:

Image	Row
Kings	2,5,9,13
Queens	3,6,7,11
Jacks	15,18,22,30

# Use a two column index

Write down all positions of kings, queens and jacks:

Image		♣, ♠, ♥, ♦	
Kings	2,5,9,13	♣	13
		♠	5
		♥	9
		♦	2



# Use an index

Prevent cheating

Image	♣, ♠, ♥, ♦		
As	2,5,9,13,	♣	13
	10	♠	5, 10
		♥	9
		♦	13

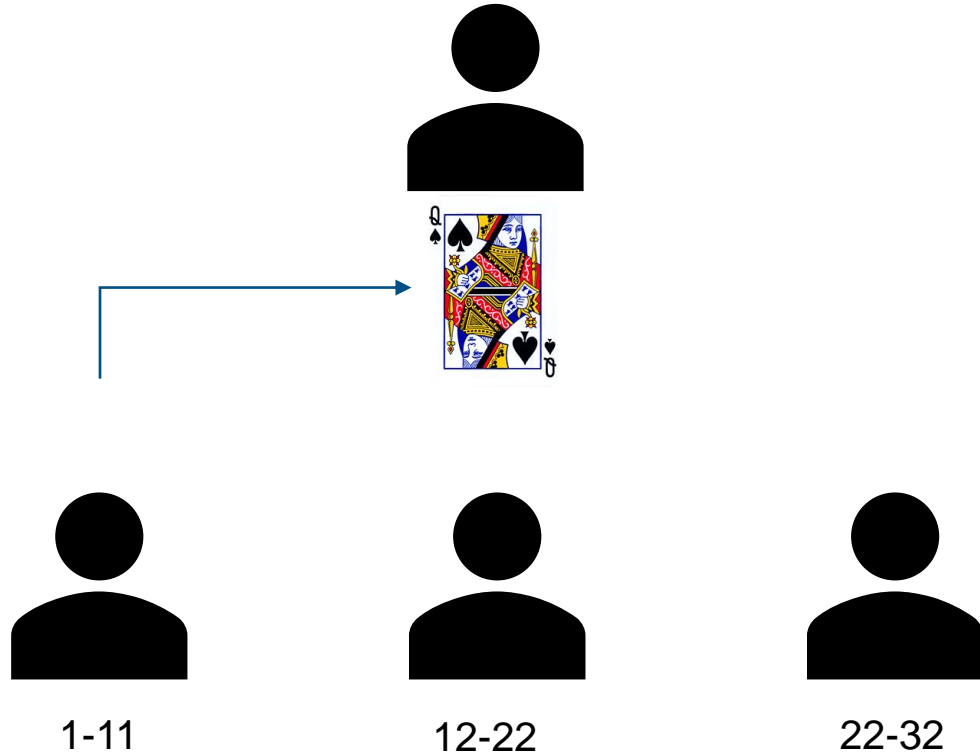
Unique Key Constraint

# Using huge cards

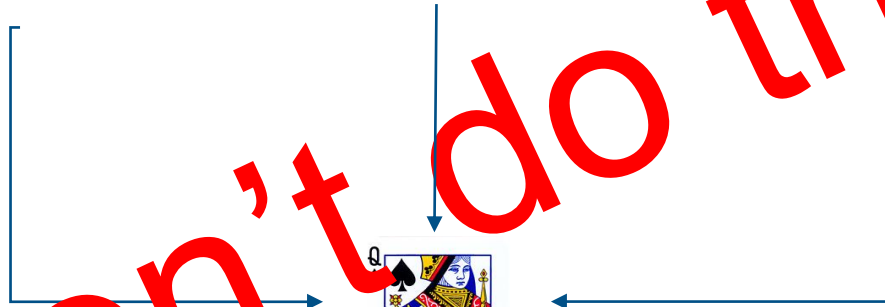
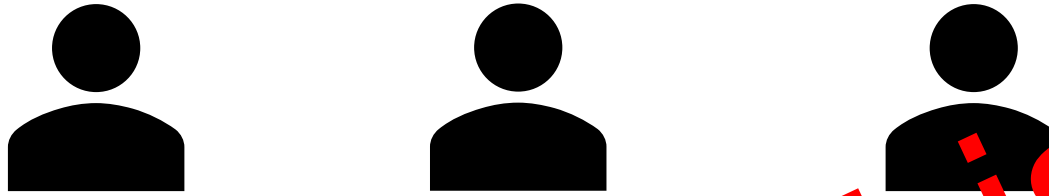




# Make read faster – striping



# Make read faster – striping



1-32

**Don't do this!**

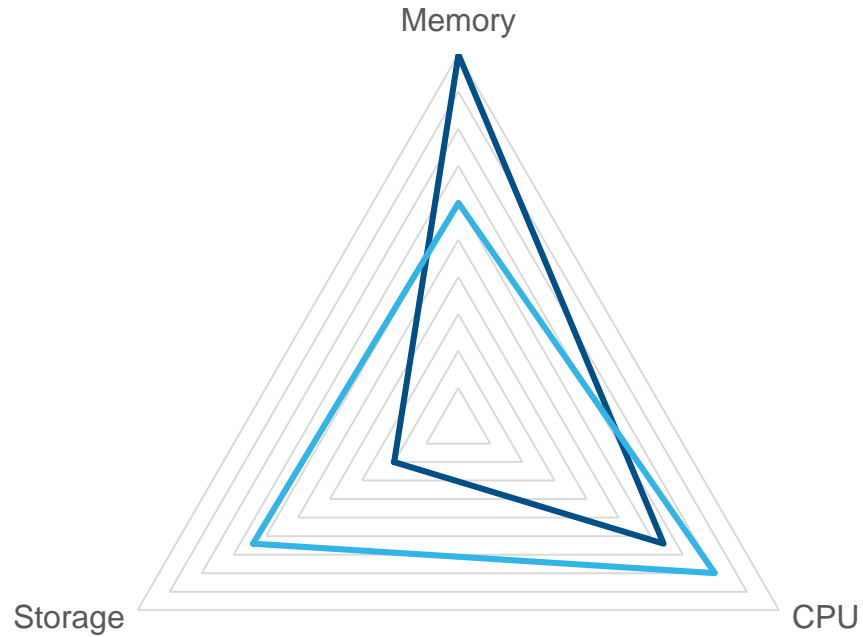
## Memorise cards

In memory  
database?



Im Studium (Gemälde von [Nikolaus Gysis](#), Öl auf Holz, 1883) - Gemeinfrei

# Dependency of CPU, RAM and Storage



**Thank you very much  
for your attention**

Powering. Reliable. Future.

**RWE**