The Power of SQL-PL

By:

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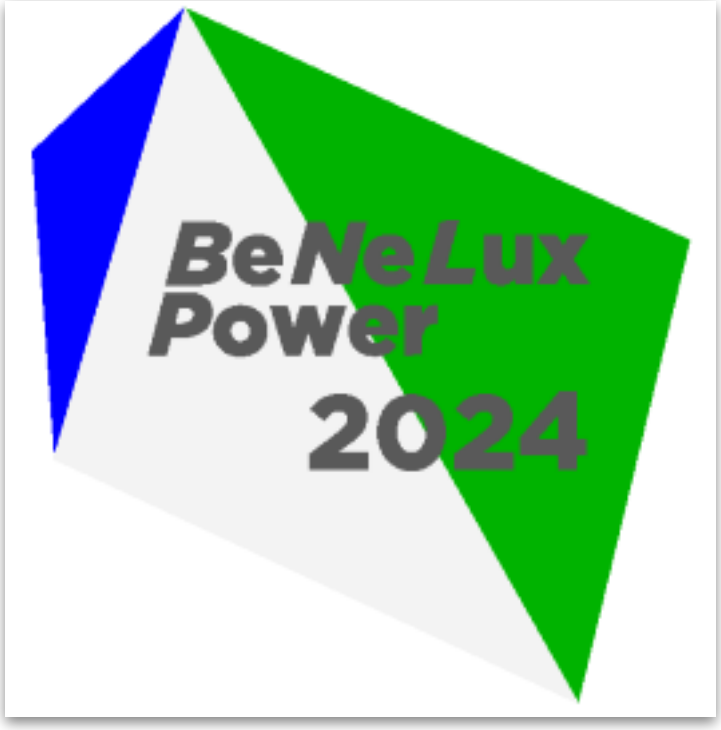
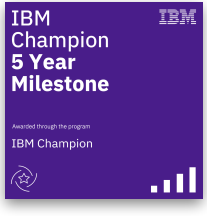
Copenhagen

Denmark

BeNeLux Power 2024





Who is Niels Liisberg?

- Chief architect - System & Method A/S – Denmark
- IBM Power evangelist
- “The doctor” – modernization consultant
- Father to **IceBreak™** – Application server for ILE / RPG
- Architect of **Sitemule™** – Web and microservice platform for IBM i
- CEAC – Common Europe Advisory Council member
- Devoted to open source:
  - My stuff https://github.com/NielsLiisberg
  - ILEastic https://github.com/sitemule/ILEastic
  - noxDB https://github.com/sitemule/noxdb
  - Gist https://gist.github.com/NielsLiisberg
  - VSCode RPG/SQL/Debugger
- Founder of **IBM Power CPH**
- IBM Champion 2019, 2020, 2021, 2022, 2023, 2024

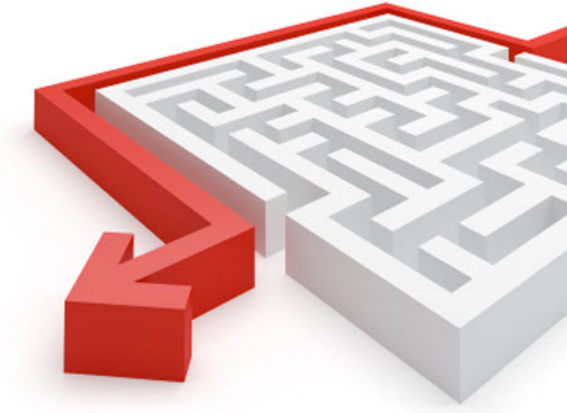
Follow me at tweeter, github, linkedin , gluf, clap, clup or what ever…

The Power of SQL-PL

- Why is this important?
- Functions
- User defined table functions
- Procedures
- Introduction to SQL-PL
- Let's do some magic
- All the typical pitfalls
- Questions – Simply ask !!

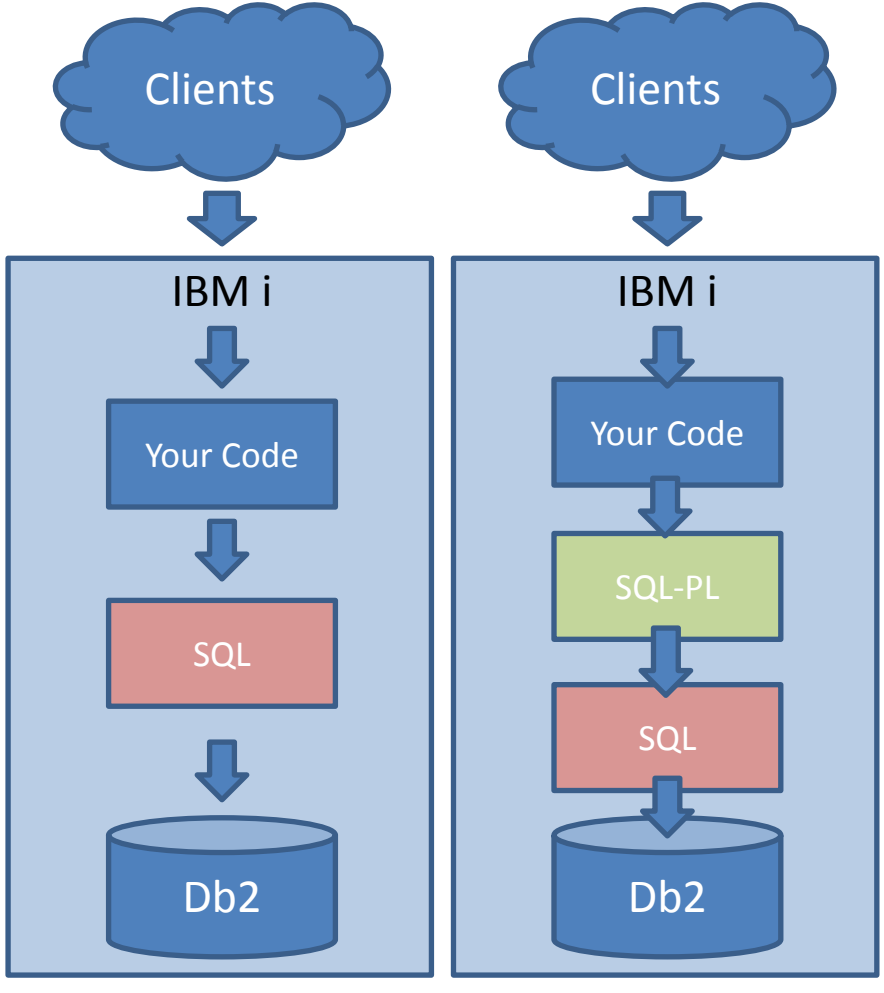

Why would a fly land on something like this?
Rats should be ashamed for falling in this trap
@medschool_life
BEARS!! This is ridiculous!
This must be fun!
Niels!! I bet You can't write this algorithm in SQL

Procedures Functions SQL Why?



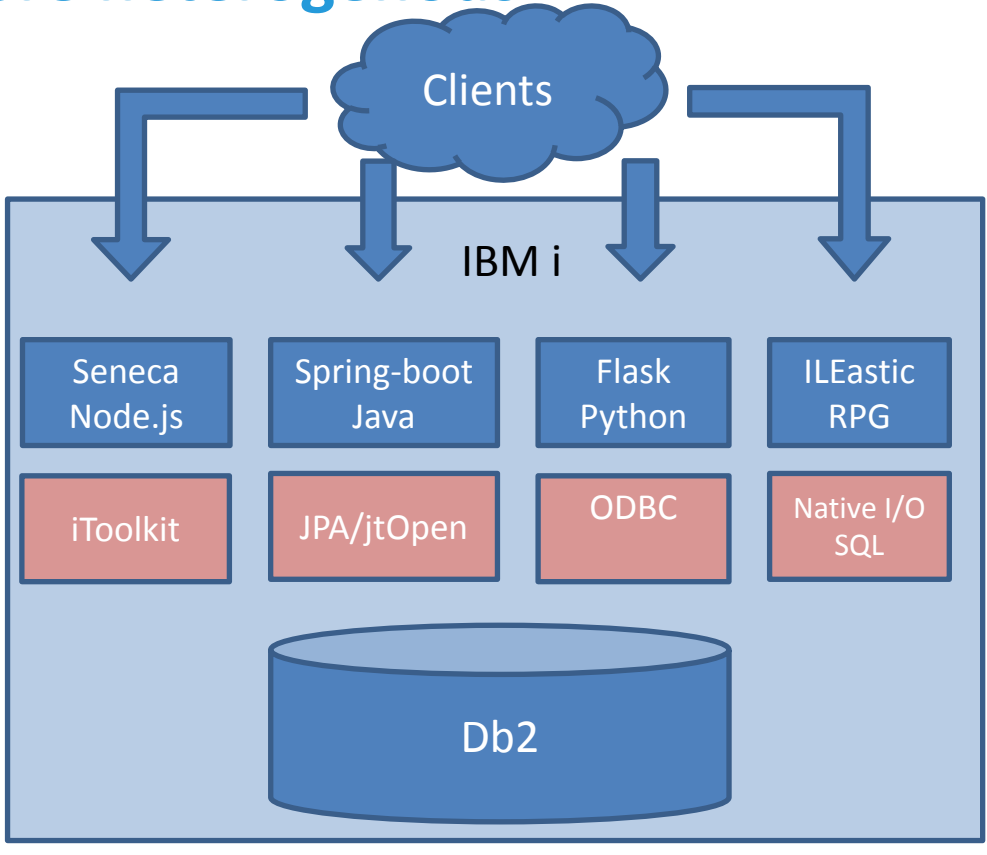
Why is this important?

- I am a big fan of microservices !
- I am not a stored procedure fan by nature!
- I love simplicity !
- Why introduce extra disturbing layer?



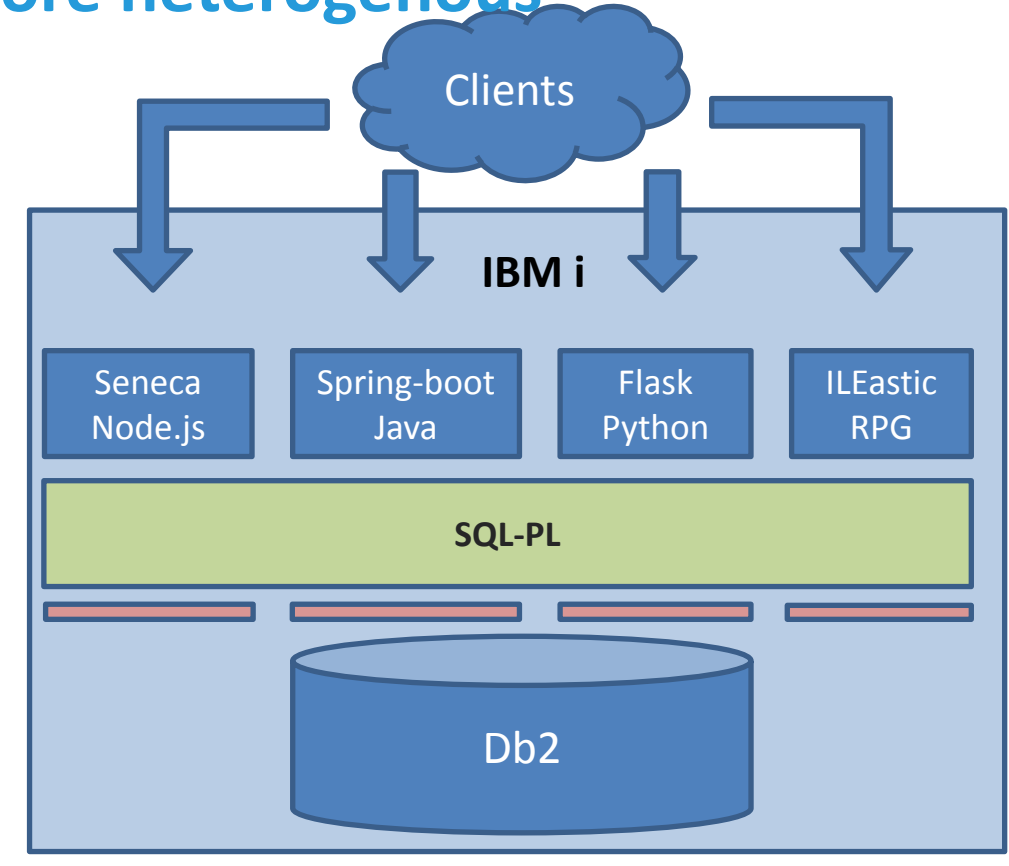
Applications are getting more heterogenous

- Spreading I/O and logic over different environments
- Hard to test
- Hard to migrate to other language
- Entanglement to database
- No easy DevOps
  - Hard to deploy



Applications are getting more heterogenous

- Everybody knows SQL
- Reuse H-R everywhere
- Easy implementation in microservices
- I/O and SQL stays in same environment
- Store SQL-PL in git
- Unit test SQL-PL
- Easy to deploy



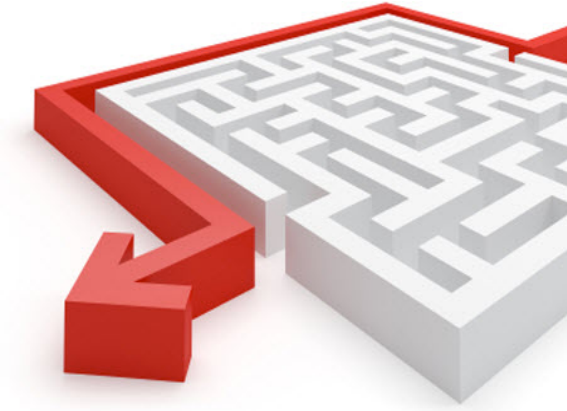
It’s demo time !!

- The tutorial is on my gist – simply google:
  - Gist liisberg intro udtf
  - Click “raw” on the gist
- Copy / paste the raw gist into ACS SQL
- Run through all the examples

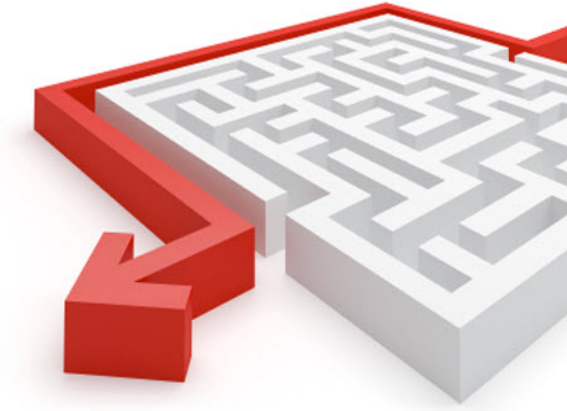
It’s demo time ☺

gist liisberg
udtf-intro.sql

https://gist.github.com/NielsLiisberg



SQL-PL?



SQL-PL –

… Is SQL com

/Users/nli/prj/sql-examples/Compound FOR statement.sql - Run SQL Scripts - dksrv133(Dksrv133)

File Edit Search View Connection Run Explain Monitor Tools Help

```
cl: rmvlnk '/tmp/demo.txt';

begin
    for select *
        from user_info
        where status = '*DISABLED'
        and authorization_name not like 'Q%'
    do
        call qusrsys.bash ('echo "' concat text_description concat '" >> /tmp/demo.txt');
    end for;
end;
```

TEXT_DESCRIPTION
Andreas Louv
Grith tester IceQuery
Joern Holm
Niels Liisberg tysk

Done: 4 rows retrieved. 10/31/2021, 10:03:55 PM

select text_description from user_info where status = '*DISABLED' and authorization_name not li

Connected to relational database Dksrv133 on dksrv133 as NLI – 628325/QUSER/QZDASOINIT using JDBC configura Lines: 19 Ln: 1 Col: 1

SQL-PL – Procedural Language SQL

IBM SQL-PL

IBM: Control

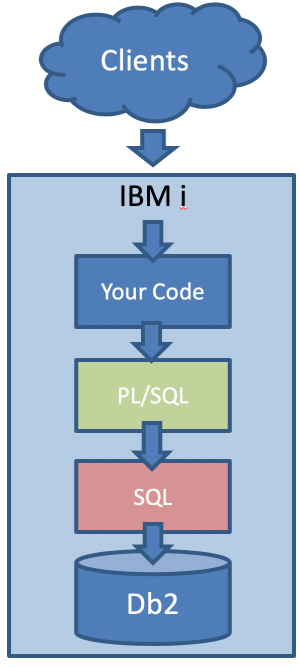
FOR statement

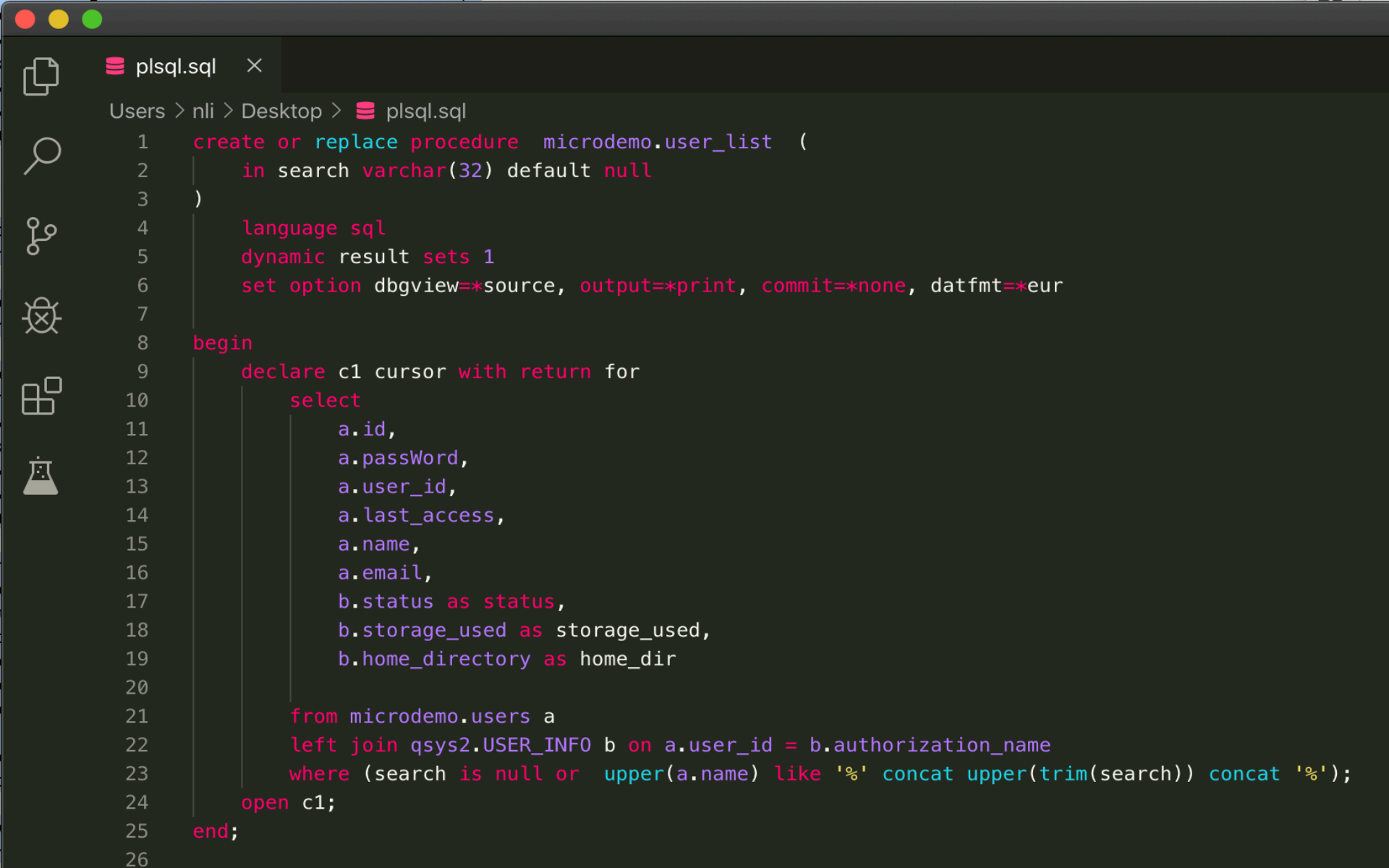
- Is SQL compound statements
  - IF/THEN/ELSE FOR/REPEAT/LOOP CALL etc
- You build:
  - Stored procedures
  - User defined table functions
  - SQL scripts
  - … Which end up in*PGM or *SRVPGM in you schema
- Input: Scalar values, rows, tables
- Output: Scalar value, rows, tables (cursors)

- ACS SQL prompt is the best development tool (imho)

Decoupling with SQL-PL

- Create the abstraction layer between data and services
- “Hide” ugly SQL and expose clean interface
- Get external access to business (controlled)
- Data centric




plsql.sql
Users > nli > Desktop > plsql.sql
create or replace procedure microdemo.user_list (
in search varchar(32) default null
)
language sql
dynamic result sets 1
set option dbgview=*source, output=*print, commit=*none, datfmt=*eur
begin
declare c1 cursor with return for
select
a.id,
a.passWord,
a.user_id,
a.last_access,
a.name,
a.email,
b.status as status,
b.storage_used as storage_used,
b.home_directory as home_dir
from microdemo.users a
left join qsys2.USER_INFO b on a.user_id = b.authorization_name
where (search is null or upper(a.name) like '%' concat upper(trim(search)) concat '%');
open c1;
end;

Named and un-named parameters

```
1   -- List all user with name containing 'sen'
2   call microdemo.user_list (
3       search => 'sen'
4   );
5
6   -- List all
7   call microdemo.user_list ();
```

Questions?

By:

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https://github.com/NielsLiisberg
https://github.com/sitemule
https://gist.github.com/NielsLiisberg

https://github.com/sitemule/noxDbApi