

*Martin B. Nielsen, MBNDATA*

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# SQLDeveloper, Low Code and APEX Applications

DOAG, Nürnberg, 2017

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This repository

Search

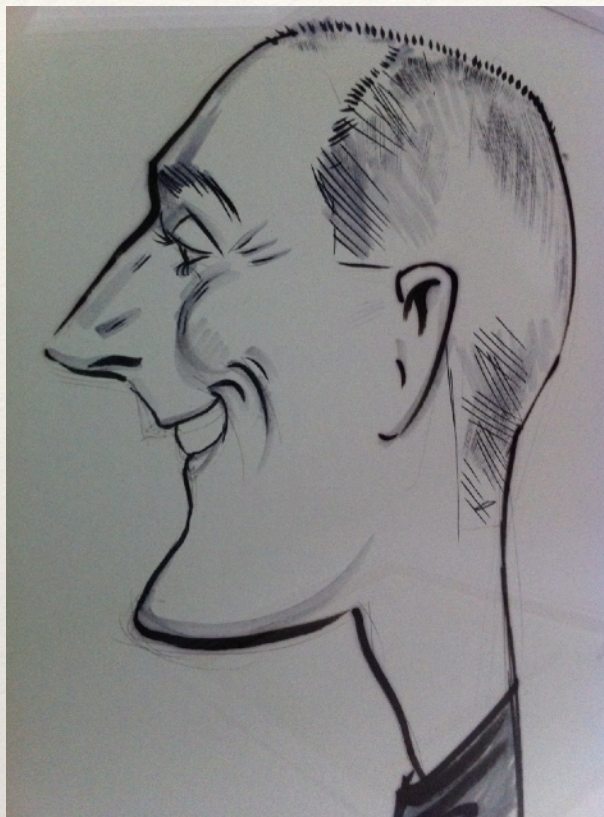
Pull requests



[martinbnielsen](#) / [apex-sqldeveloper-lowcode](#)



# Profile

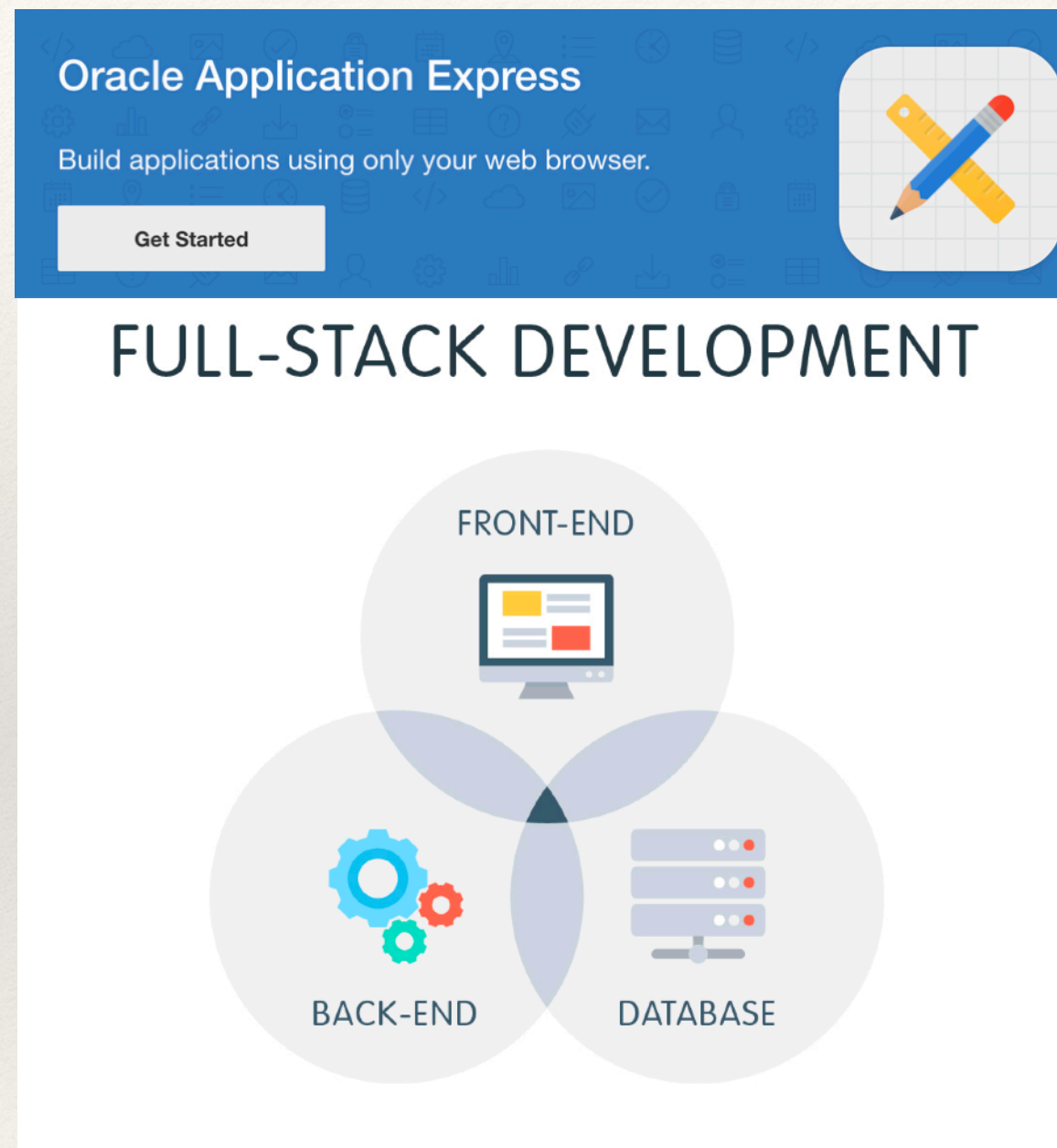


Martin B. Nielsen



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ORACLE APEX SPECIALISTERNE



- Development
- Education
- Mentoring
- Consultancy

Local (DK) / Worldwide



**MBNDATA**



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# Credits to

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**Marc de Oliveira**

Simplify Systems (tidligere PYTHIA Information)

\* Inventor of the Datamodeller artefacts re-use idea:

[http://media.simplifysys.dk/images/pythia/articles/SDDM\\_UnderTheCovers.pdf](http://media.simplifysys.dk/images/pythia/articles/SDDM_UnderTheCovers.pdf)



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# How to lowCode

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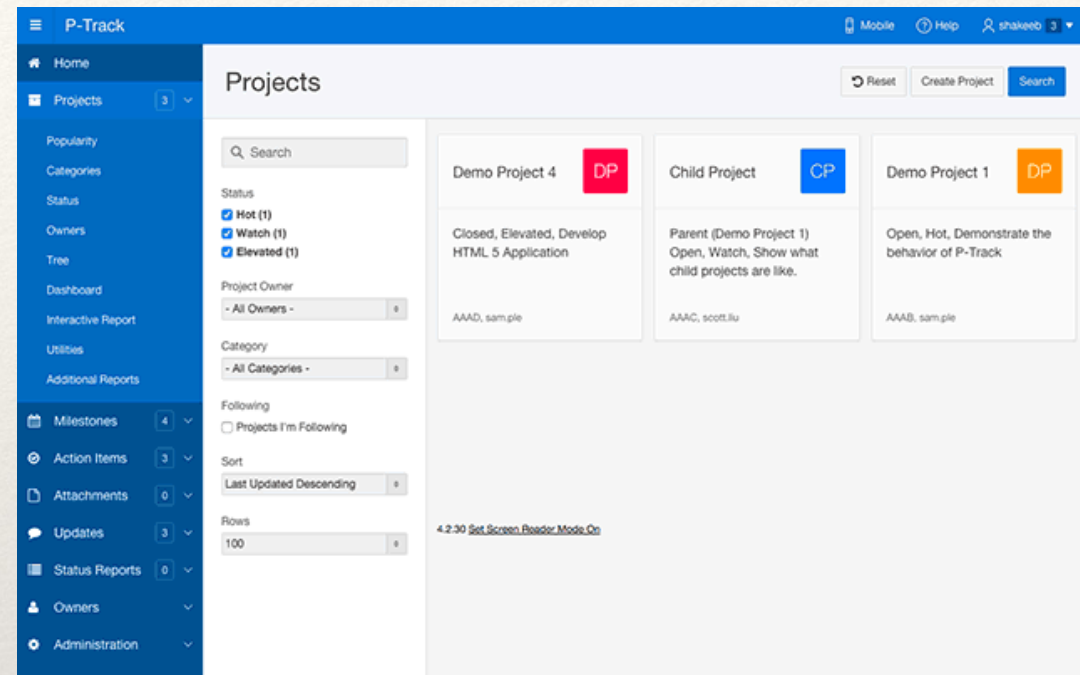
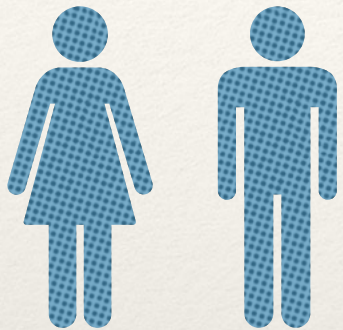
- ❖ Generate as much as possible
- ❖ Use the tools which can help you generate your application artefacts.
- ❖ Do NOT repeat your work (type once, use many times)
- ❖ The less coding, the less bugs :-)
- ❖ Encourage keeping documentation up to date, by making it part of the application.



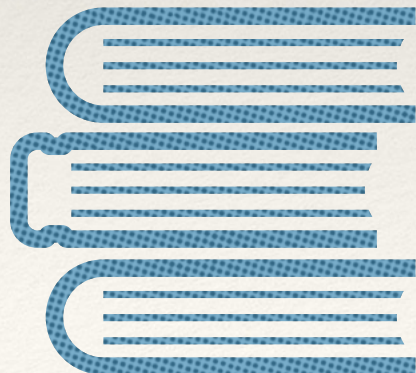


# Application Artifacts

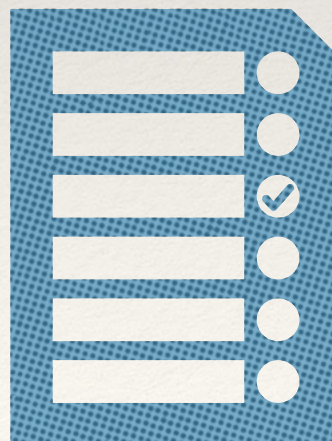
Developers



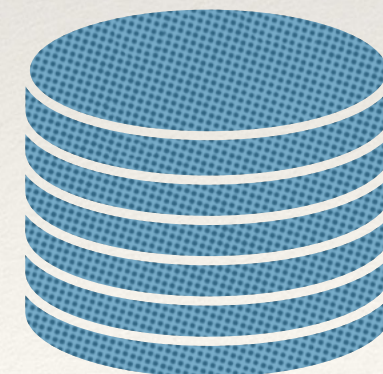
Application



Documentation



Project Plan

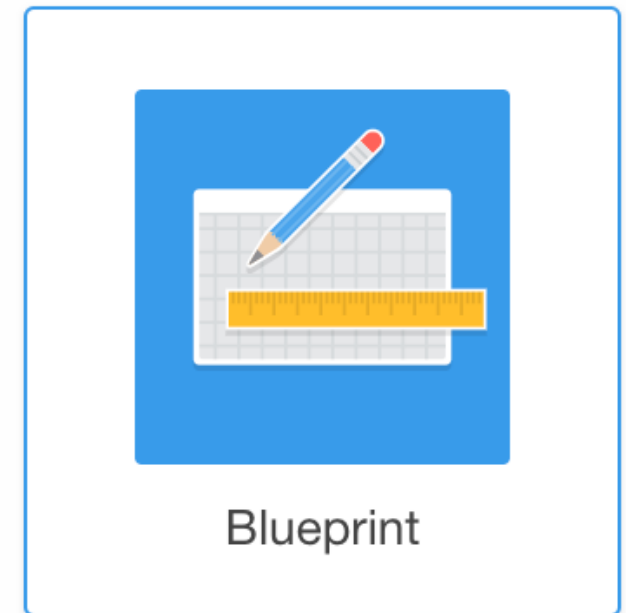


Database



# lowCode Landscape

Cloud Computing  
**ORACLE**  
SQL Developer  
17.3



Blueprint

**Oracle Application Express**

Build applications using only your web browser.






[Get Started](#)



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# lowCode - Overall steps

1. **Model the application Data and Process models** 
2. Use Datamodeller to generate the physical datamodel 
3. Generate DDL and other scripts for the database 
4. Export model artefacts to the reporting scheme 
5. Use the reporting scheme to build an APEX Application 





# lowCode - Detail steps

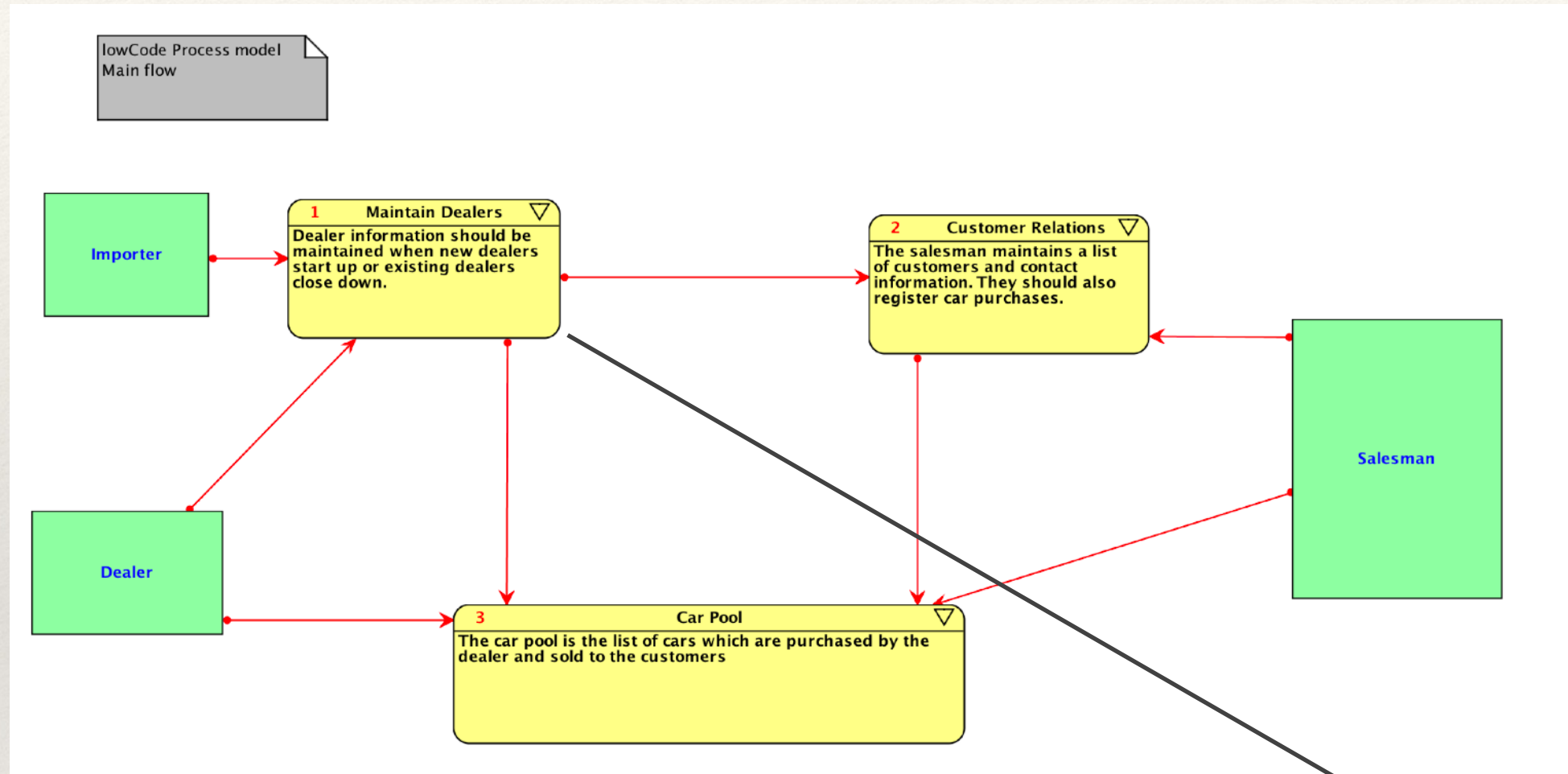
- Create process model
- ER model -> Relational model
  - Resolve Many-to-Many relations
  - Generate primary keys
  - Generate constraints
- Transformations
  - Index on foreign keys
  - RDBMS comments
  - Generating sequences
  - Generating triggers for PK
  - Generating triggers for auditing
  - ...
- Relational model -> DDL

Cloud Computing  
**ORACLE**  
SQL Developer  
17.3

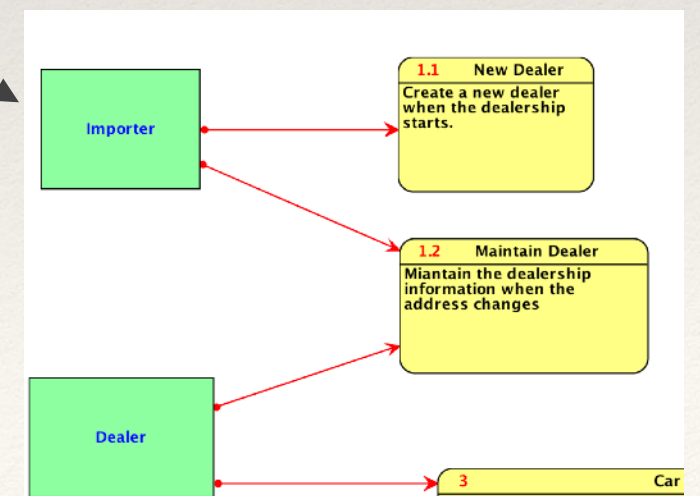




# SQLDeveloper Process Model



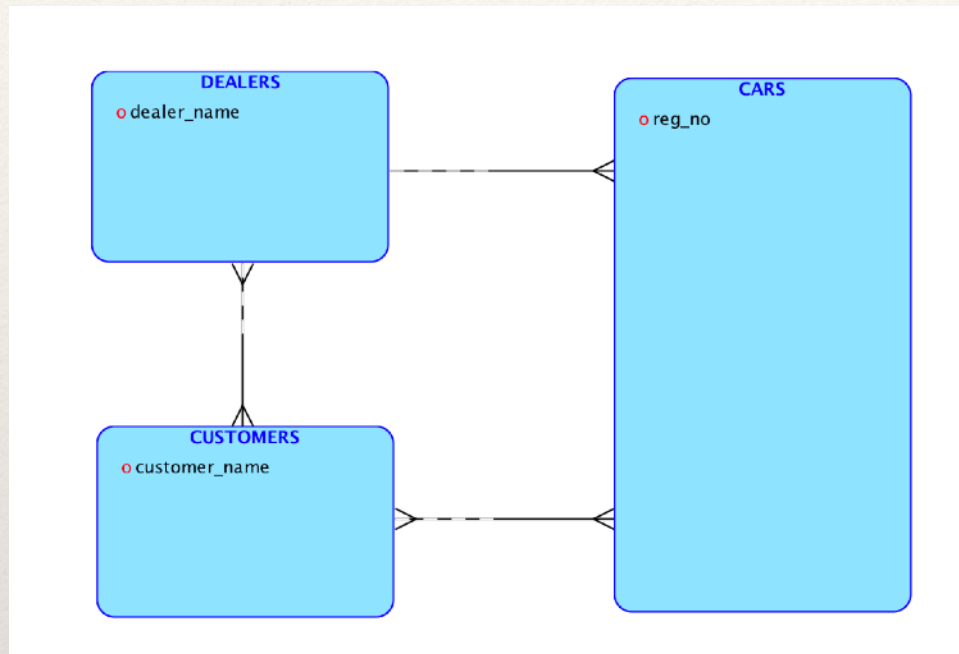
Composite processes



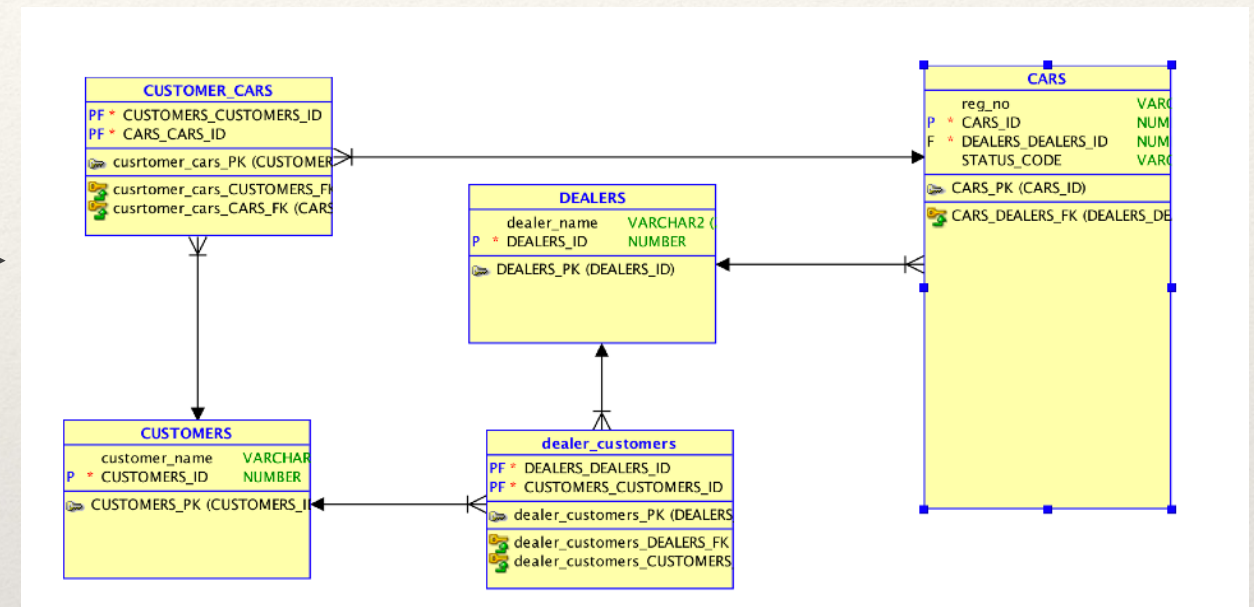


# SQLDeveloper Modelling

## ER Model



## Relational Model



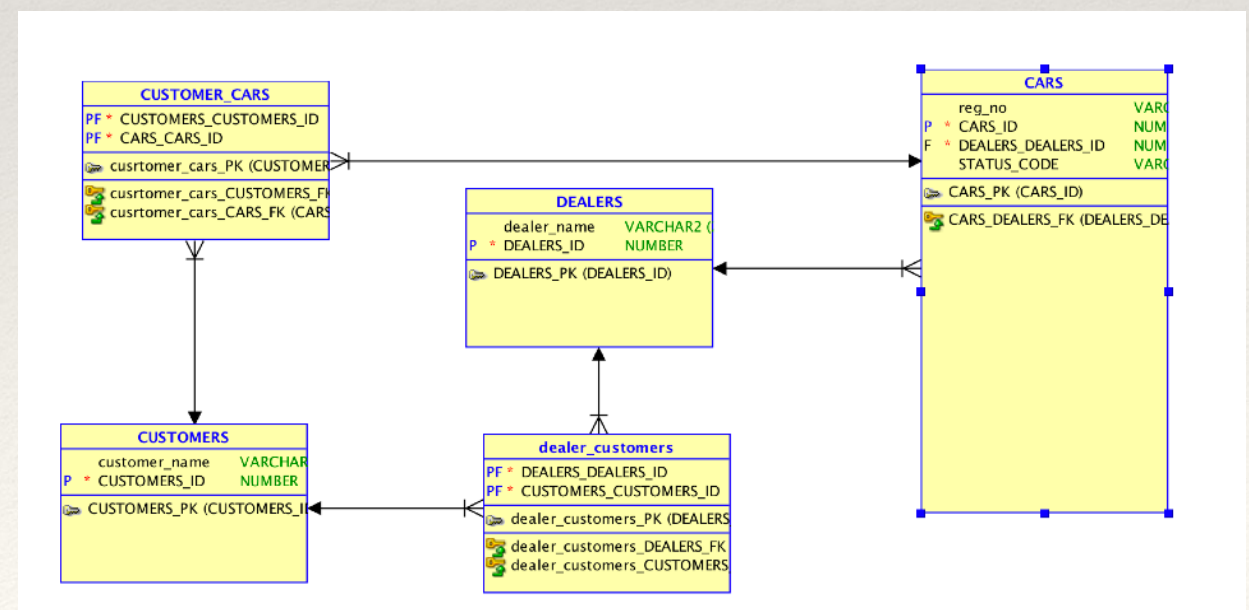
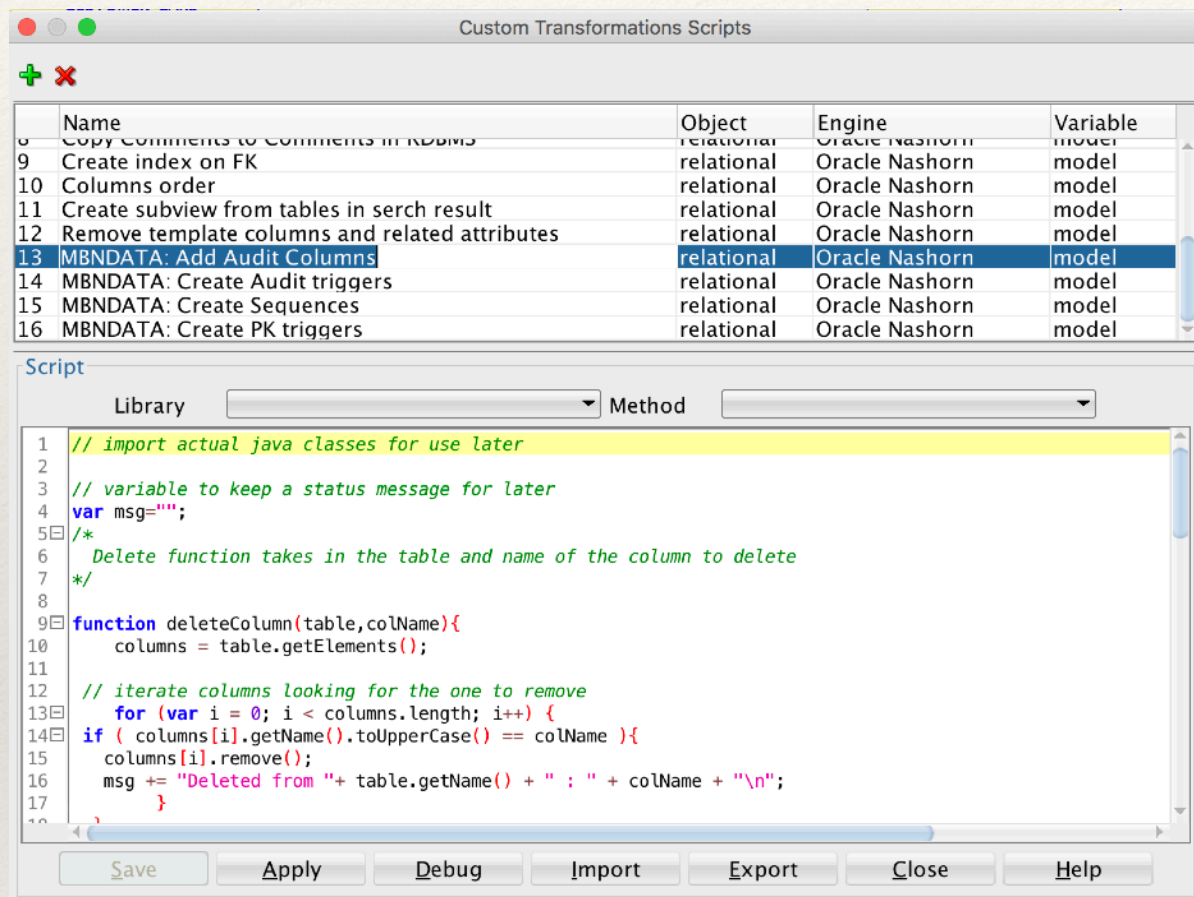
## DDL

```
DDL File Editor - Oracle Database 11g
Oracle Database 11g Car Dealer Example Generate Clear
1 -- Generated by Oracle SQL Developer Data Modeler 17.2.0.188.1104
2 -- at: 2017-10-17 11:50:54 CEST
3 -- site: Oracle Database 11g
4 -- type: Oracle Database 11g
5
6
7
8 CREATE TABLE cars (
9     reg_no VARCHAR2(60),
10    cars_id NUMBER NOT NULL,
11    dealers_dealers_id NUMBER NOT NULL,
12    status_code VARCHAR2(1)
13 );
14
15 ALTER TABLE cars
16 ADD CHECK (
17     status_code IN (
18         'A','D','I','X'
19     )
20 );
21
22 COMMENT ON COLUMN cars.reg_no IS
23     'The car registration number';
24
25 ALTER TABLE cars ADD CONSTRAINT cars_pk PRIMARY KEY ( cars_id );
26
27 CREATE TABLE customer_cars (
28     customers_customers_id NUMBER NOT NULL,
29     cars_cars_id NUMBER NOT NULL
```



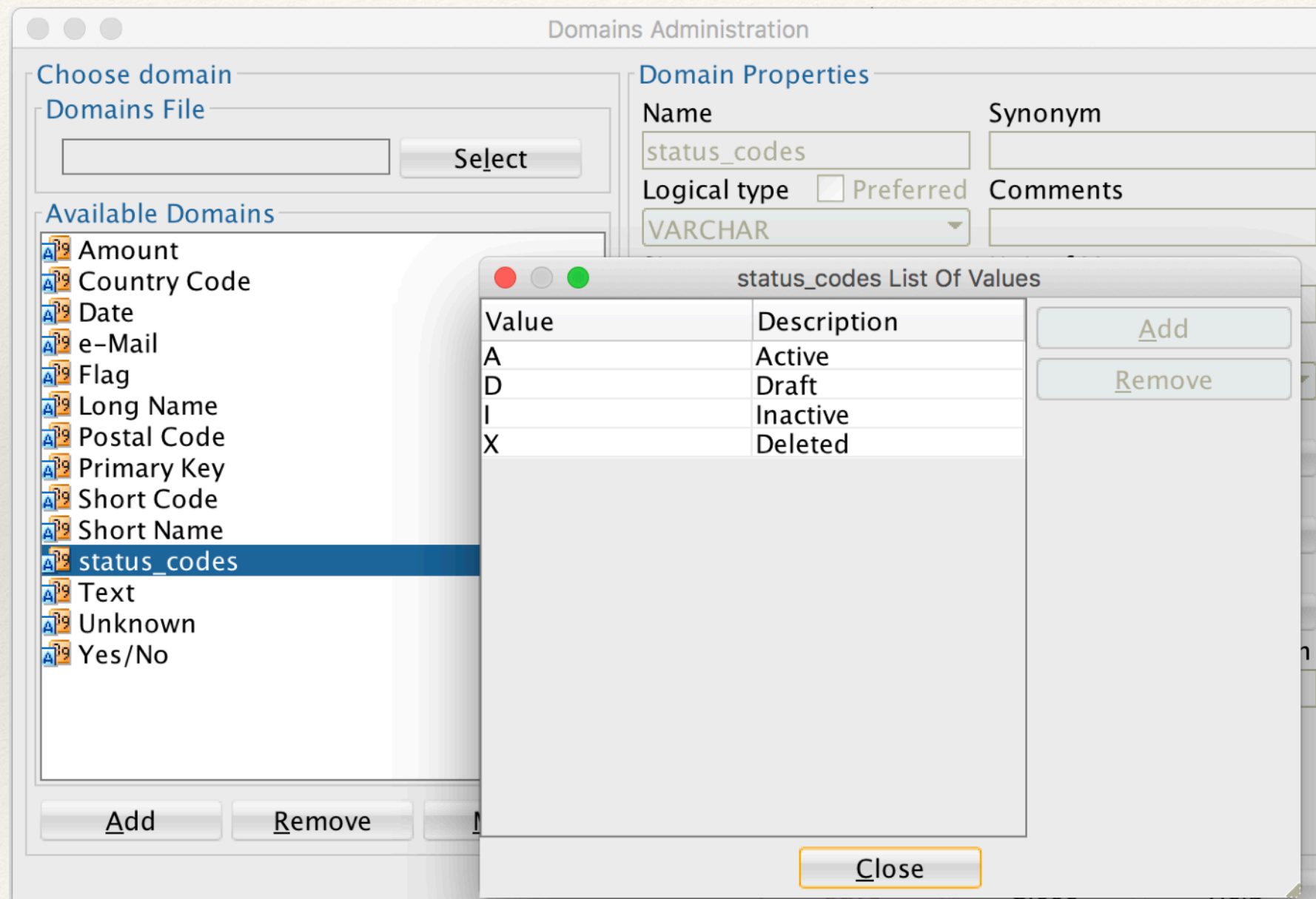


# SQLDeveloper Transformations





# SQLDeveloper Domains





# SQLDeveloper Modeller Demo





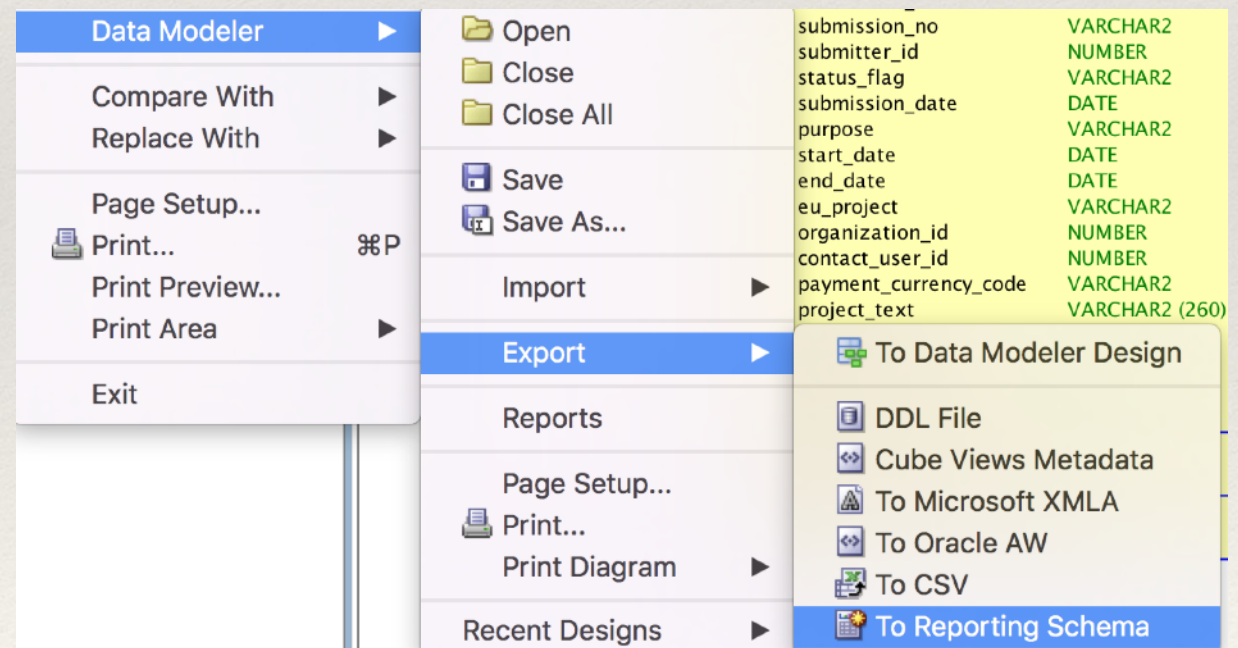
# SQLDeveloper Reporting Scheme

Create the reporting scheme once

```
REM Create a user for the reporting schema
```

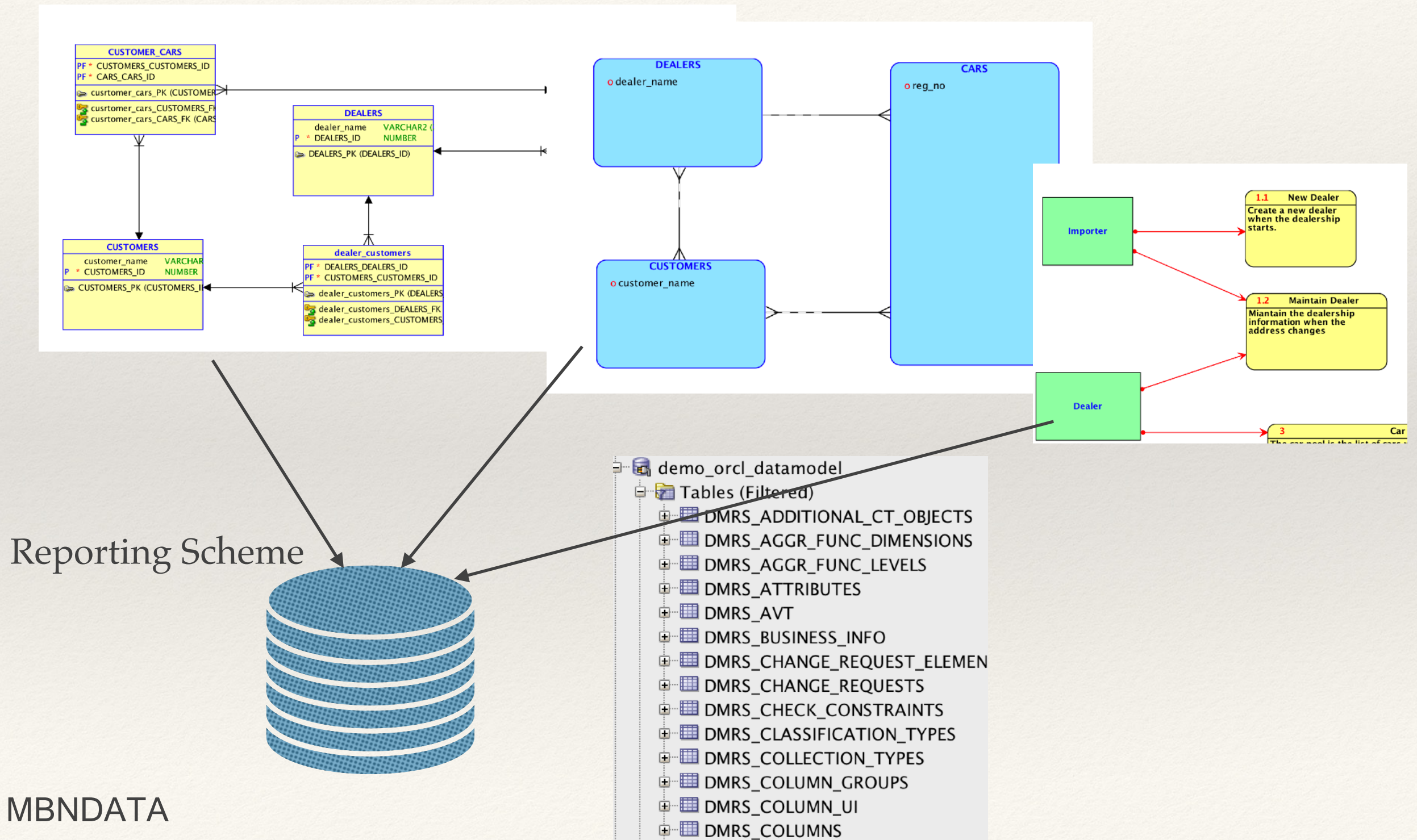
```
create user datamodel identified by oracle;  
grant create session, create table, create view to datamodel;  
alter user datamodel quota unlimited on users;
```

Export to the reporting scheme when the model changes





# SQLDeveloper Reporting Scheme





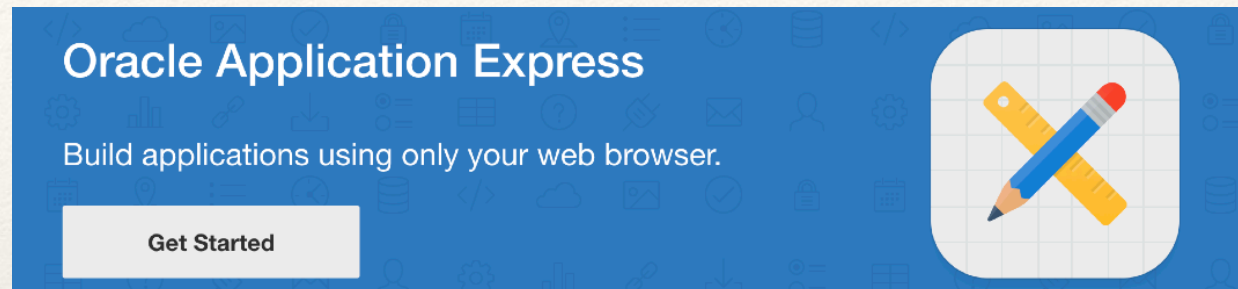
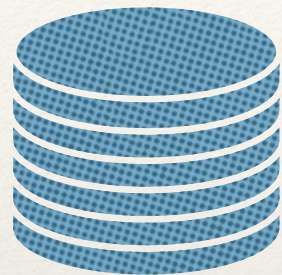
# Reporting Scheme Demo





# Using the Reporting Scheme

Reporting Scheme



Reporting Schema	APEX
Domains	List of values
Process Model	Menu, Features, Developer assistance, Help Text
Datamodel	User interface defaults, Help
All Models	APEX Blueprint

**APEX 5.2 !**



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*(But you can use [apex.oracle.com](https://apex.oracle.com) and export to 5.1)*



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# APEX Application Demo

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- ❖ Blueprint (JSON) from the Process model
- ❖ Dynamic menu using the Process Model
- ❖ Help Text from Entities and Processes
- ❖ Domain data in List of Values (LOV)
- ❖ Features from Processes





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# How do I start lowCoding ?

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- ❖ Download SQL Developer
- ❖ Download examples from Github
- ❖ Download database VM or use [apex.oracle.com](https://apex.oracle.com)

<https://github.com/martinbnielsen/apex-sqldeveloper-lowcode>





# Questions ?

