

Автоматическая генерация интерфейса пользователя по бизнес МОДЕЛИ



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DIGITAL BANKING / ISSUING / ACQUIRING
OMNI-CHANNEL / SWITCH / E-MONEY / WALLETS

Цели

Проектирование



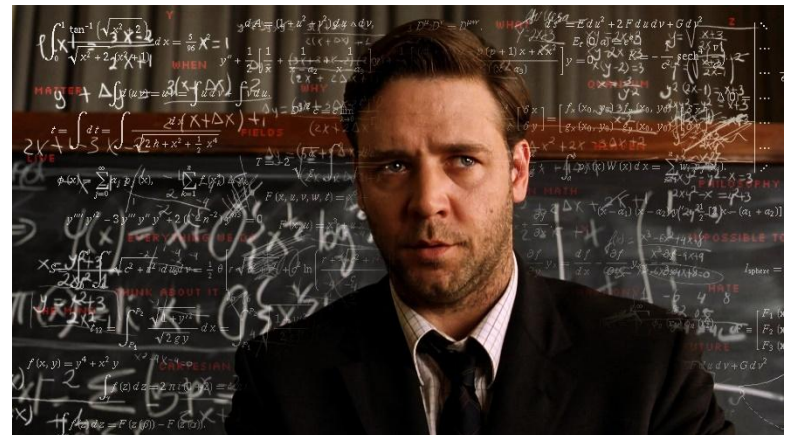
Управление

Цели



Генерация

*to be
alright*



Итого

- Управление архитектурой
 - Проектирование объектов
 - Версионирование и контроль изменений
 - Кастомизация
- Автоматическая генерация кода
 - Структура базы данных
 - API к системе
 - Тонкий клиент

Step 1. Power Designer

The screenshot displays the PowerDesigner interface. On the left, the 'Workspace' tree shows a project structure including 'Metamodel', 'PdBPM', and 'PdCDM'. The main area shows a UML class diagram with several classes and their relationships. On the right, the 'DB Manager' window shows a table with columns for 'Amendment Date', 'Source Code', 'Source Channel', 'Target Channel', 'Is Authorization Request', 'Category', 'Trans Type', 'Source Reg Num', 'Ret Ref Number', 'Acq Ref Number', 'Target Member ID', 'Target Number', and 'Source Member ID'. Below this, a 'Query' window shows a table with columns for 'Seq #', 'Tag', 'Value Data', 'Value Tag', 'Value Type', 'Comment Text', and 'Is Ready'.

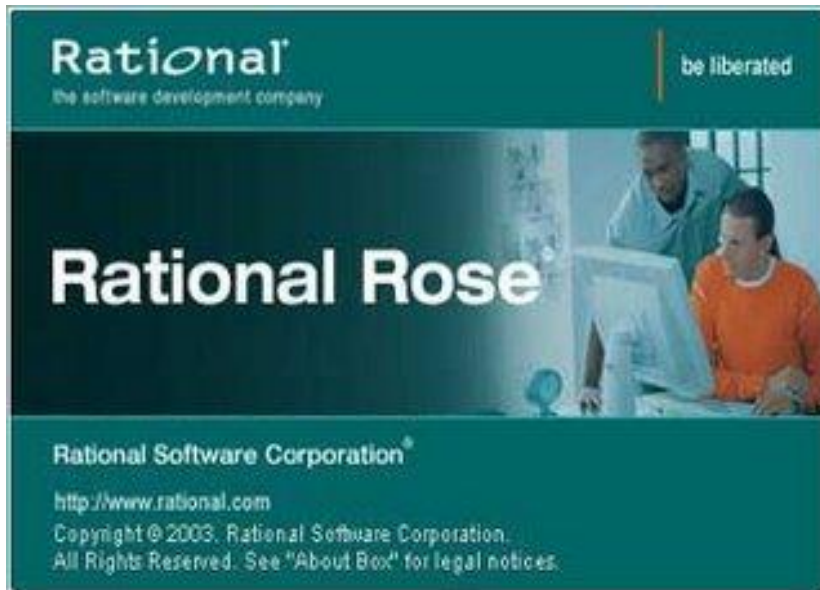
Amendment Date	Source Code	Source Channel	Target Channel	Is Authorization Request	Category	Trans Type	Source Reg Num	Ret Ref Number	Acq Ref Number	Target Member ID	Target Number	Source Member ID	Seq	
25/01/17 18:18:58	Our POS	VISA	Fin	Reversal	Retail		H02532475084	702532542003	7491096702500003650007	400552	400552000000129	0001	MCCE	
25/01/17 18:18:58	Our POS	VISA	Fin	Advice	Retail		H02532475084	702532542003	7491096702500003650007	400552	400552000000129	0001	MCCE	
25/01/17 18:18:58	Our POS	VISA	Fin	Advice	Retail		H02532475070	702532542002	7491096702500003649999	400552	400552000000129	0001	MCCE	
25/01/17 18:18:58	Our POS	VISA	Fin	Advice	Retail		H02532475070	702532542001	7491096702500003649901	400552	400552000000129	0001	MCCE	
25/01/17 18:18:54	Our POS	VISA	Fin	Reversal	Retail		H02532475070	702532541803	7491096702500003649603	400552	400552000000129	0001	MCCE	
25/01/17 18:18:54	Our POS	VISA	Fin	Advice	Retail		H02532475070	702532541003	7491096702500003649603	400552	400552000000129	0001	MCCE	
25/01/17 18:18:53	Our POS	VISA	Fin	Advice	Retail		H02532475078	702532541002	7491096702500003649504	400552	400552000000129	0001	MCCE	
25/01/17 18:18:53	Our POS	VISA	Fin	Advice	Retail		H02532475076	702532541001	7491096702500003649405	400552	400552000000129	0001	MCCE	
25/01/17 18:18:48	Our POS	VISA	Fin	Reversal	Retail		H02532475085	702532545003	7491096702500003649207	400552	400552000000129	0001	MCCE	
25/01/17 18:18:47	Our POS	VISA	Fin	Advice	Retail		H02532475085	702532545003	7491096702500003649207	400552	400552000000129	0001	MCCE	
25/01/17 18:18:47	Our POS	VISA	Fin	Advice	Retail		H02532475006	702532545002	7491096702500003649108	400552	400552000000129	0001	MCCE	
25/01/17 18:18:47	Our POS	VISA	Fin	Request	Retail		H02532475006	702532545001	400552	0100002287010	400552	400552000000129	0001	MCCE
25/01/17 18:18:47	Our POS	VISA	Fin	Advice	Retail		H02532475006	702532545001	7491096702500003648902	400552	400552000000129	0001	MCCE	

Seq #	Tag	Value Data	Value Tag	Value Type	Comment Text	Is Ready
10	SALDO	Y	Tag Present	Unknown		Ready
20	SEVMERCHD	MCCERT01	Tag Present	Unknown		Ready
30	STOBER		Tag Present	CharBin		Ready
40	PA_COUNT	2	Tag Present	Unknown		Ready

DB Structure

Client

Step 2. Rational ...



Step 3. Eclipse + EMF

The screenshot displays the Eclipse IDE interface with the WAY4 Modeler plugin. The main window shows the 'Acquiring.submodel' project with a tree view of its structure, including domains, datasets, and contexts. The Properties view on the right shows the 'Info' property of the selected element, with a table of values:

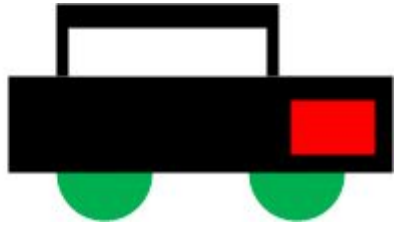
Property	Value
derived	false
editable	true
last modified	February 14, 2017 11:01:18 AM
linked	false
location	C:\OWS_HOME\WScards\root_module\Acquiring.submodel
name	Acquiring.submodel
path	/WScards/root_module/Acquiring.submodel
size	953,043 bytes

The EMF logo is overlaid on the right side of the IDE. The logo consists of a globe icon and the text 'emf ECLIPSE MODELING FRAMEWORK'. In the bottom right corner, a system tray notification indicates 'English (United States) US keyboard' and 'To switch input methods, press Windows key+Space'. The system clock shows '15:36 08.09.2017'.

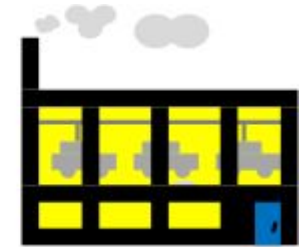


Language

Car



Company



Name: <string>
Body: Sedan / hatchback
Transmission: Manual / Auto
Company: <reference>

Name: <string>

LOOKUP
DOMAIN

EDIT
DOMAIN

LISTBOX
DOMAIN

Contains

Contains

OBJECT
SUBORDINATION

Wheel



Engine

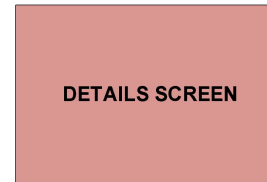
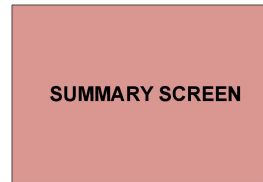


Name: <string>
Size : <number>

Volume: <number>
Type: Gasoline / Diesel

Layers

View Layer



Business Layer

CAR		
Name	name	STRING(255)
Body	body	STRING(1)
Transmission	transm	STRING(1)
Status	status	STRING(1)
pumpWheel		
changeWheel		

DB Layer

car		
RecordID	id	NUMBER(18)
Name	name	STRING(255)
Body	body	STRING(1)
Transmission	transm	STRING(1)

wheel		
RecordID	id	NUMBER(18)
Status	status	STRING(1)
Size	size	NUMBER(2)
Car	car_id	NUMBER(18)

utils package	
pumpWheel	Pl/sql function
changeWheel	Pl/sql function

DB layer

Table	
Name	String
Code	String
Table Kind	Regular / Manual / Manual Approved

View	
Name	String
Code	String
Select String	String

DataType	
Name	String
Type	VARCHAR2 / Number / Date
Length	Number
Length	Scale
Default Value	String

Domain Edit	
Name	String
DataType	-> DataType
Edit Mask	String

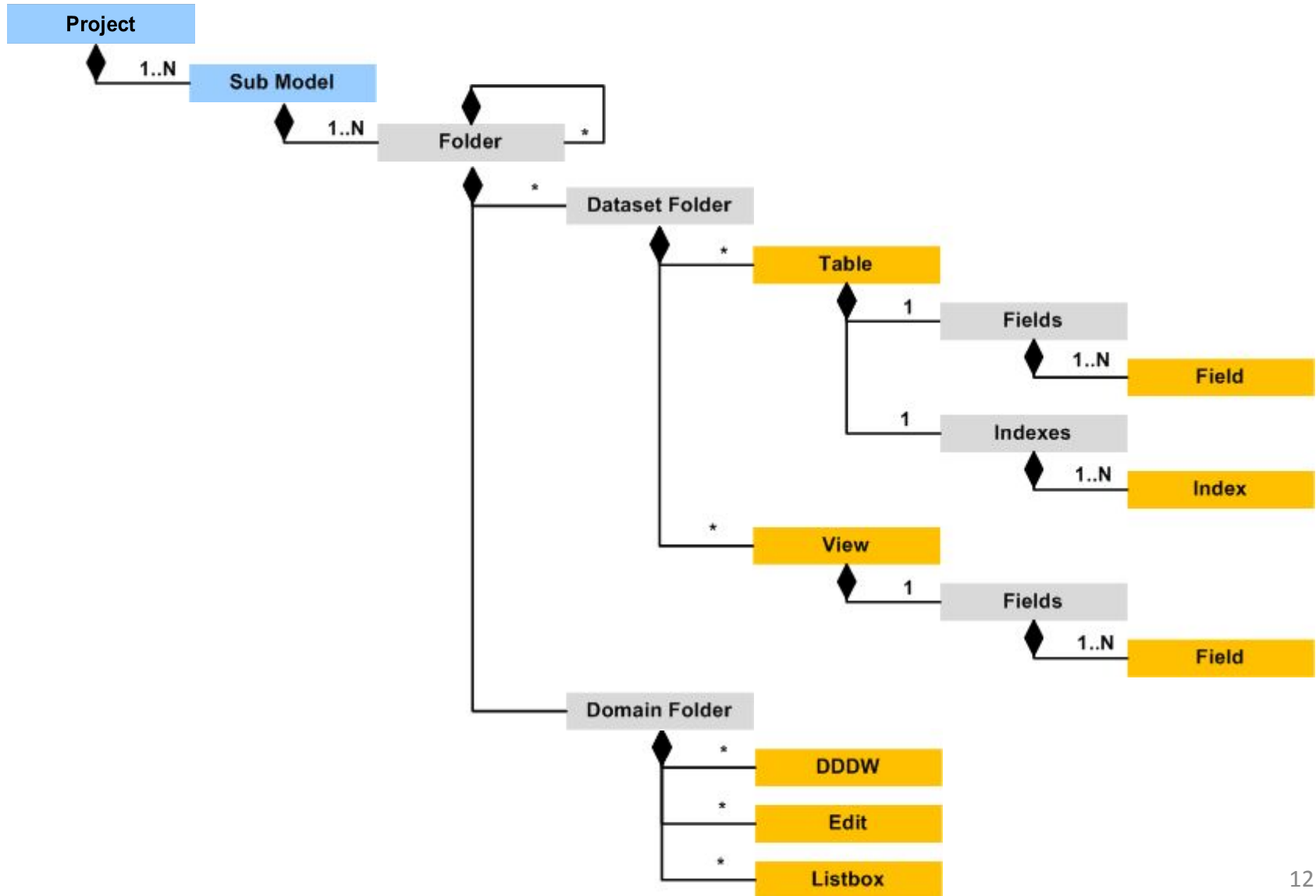
Field	
Name	String
Code	String
Domain	-> Domain DDDW / -> Domain Listbox / -> Domain Edit
Field Kind	Regular / ID / Amendment / Ready Tag
Link Kind	Undefined / Subordination / Strong / Weak
Linked Table	String
Constraint Kind	Delete / Restrict
Constraint Code	String

Index	
Name	String
Index Type	Unique Constraint / Not Unique

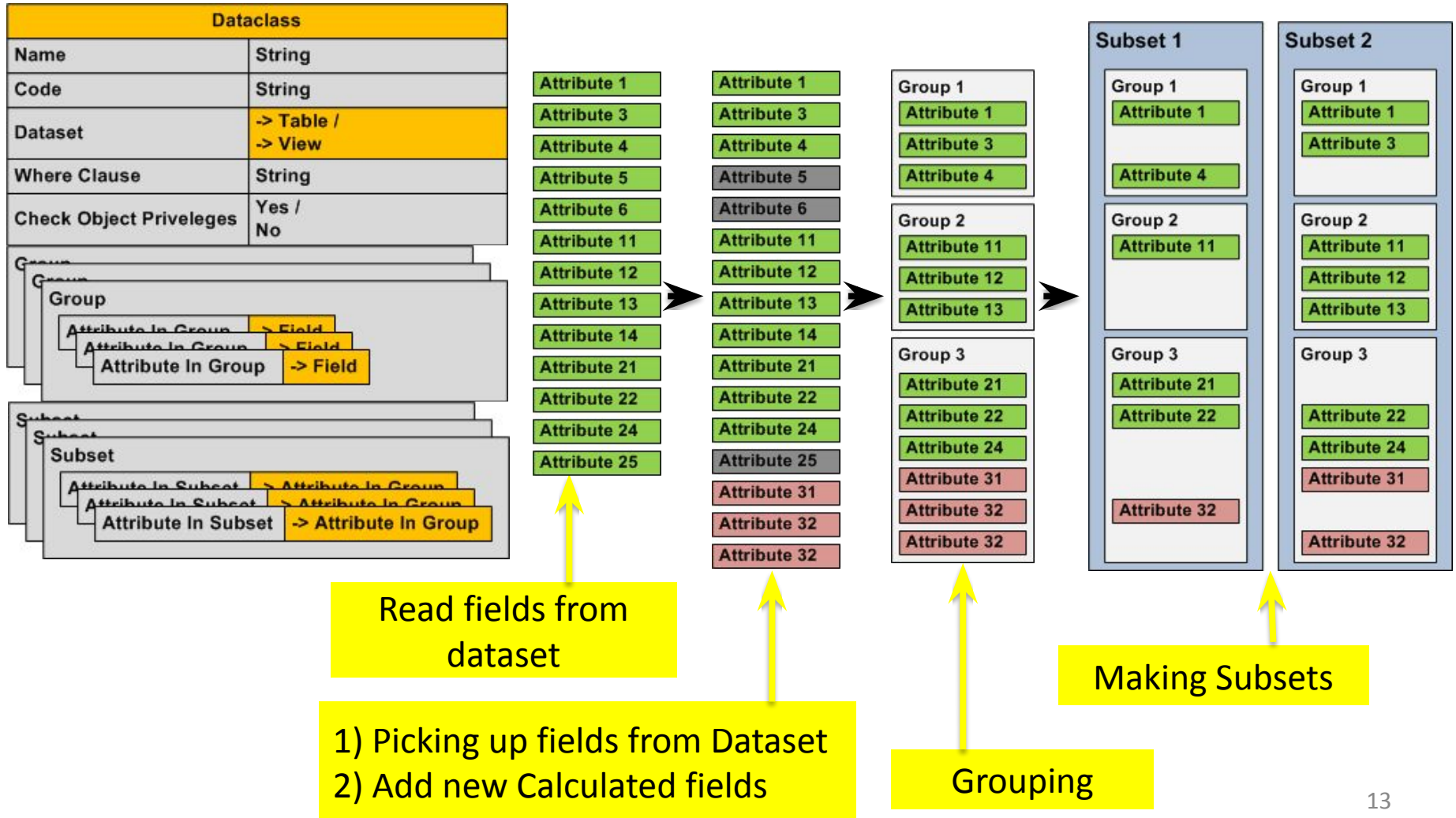
Domain DDDW	
Name	String
Data Type	-> DataType
Dataset	-> Table / -> View
Display Field	-> Field
Data Field	-> Field
Link Kind	By ID / By Code

Domain Listbox	
Name	String
Data Type	-> DataType

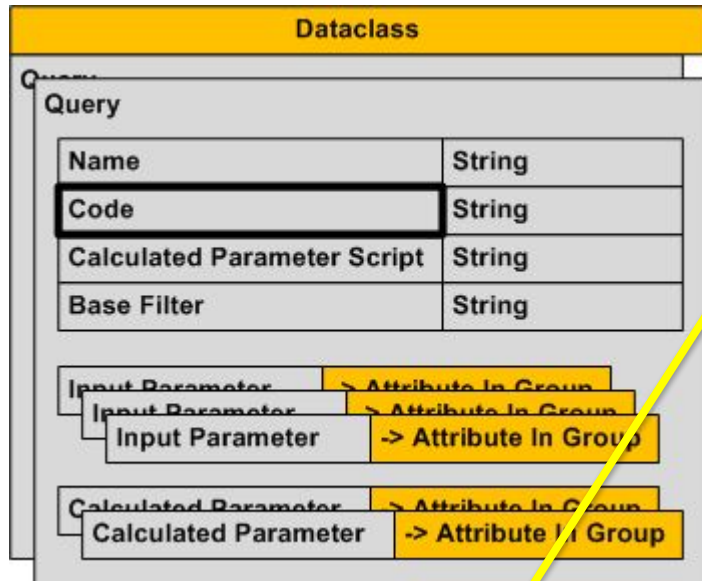
DB layer



Business layer (fields)



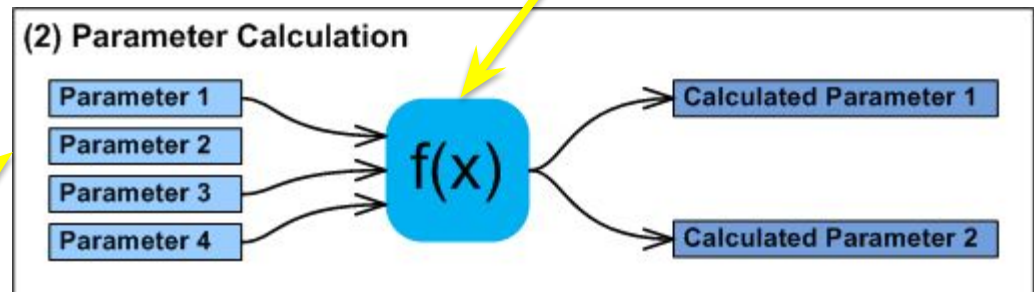
Business layer (queries)



(1) User Input

Parameter 1	<input type="text" value="%John%"/>
Parameter 2	<input type="text" value="01.10.2012"/>
Parameter 3	<input type="text" value="123.2344"/>
Parameter 4	<input type="text" value="EUR"/>

PL/SQL Block



(3) Making sql where clause

	Parameter 1	=	Attribute 1
AND	Parameter 2	=	Attribute 4
AND	Parameter 3	>	(Attribute 11 - Attribute 12) * 2
AND	Calculated Parameter 1	=	Attribute 13
AND	Calculated Parameter 2	=	Attribute 24

Three system steps for query processing

Business layer (actions)

Dataclass	
Action	
Action	
Name	String
Code	String
Input Type	Parameters Only / Object and Parameters
Action Type	Create / Approve / Delete / ...
Enable For Object Type	-> Object Type
Calculated Parameter Script	String
Default Edit Procedure	Yes / No
Output Parameter Script	String
Input Parameter	
Input Parameter	
Name	String
Code	String
Related Attribute	-> Attribute In Group
Domain	-> Domain
Default Value	String
DDDW Filter	String
Mandatory	Yes / No
Edit Mode	Edit / View / Hidden
Calculated Parameter	
Calculated Parameter	
Name	String
Code	String
Related Attribute	-> Attribute In Group
Domain	-> Domain
Default Value	String
Output Parameter	
Output Parameter	
Name	String
Code	String
Related Attribute	-> Attribute In Group
Domain	-> Domain
Default Value	String
Output Standard Parameters	
RetCode	Number
RetMsg	String

(1) User Input

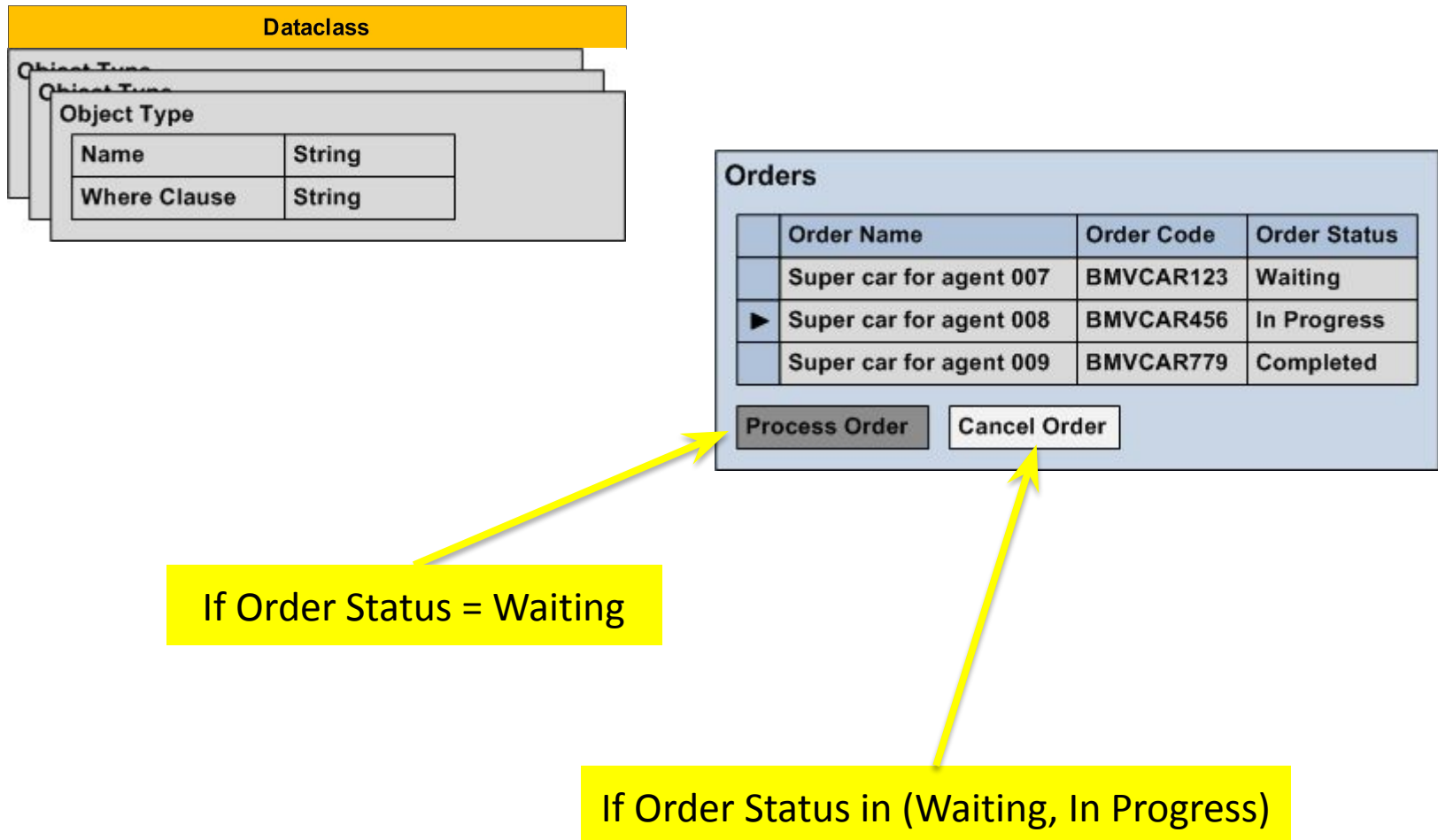
Input Parameter 1	<input type="text" value="123455"/>
Input Parameter 2	<input type="text" value="44455555"/>
Cancel	Ok

(2) Parameter Calculation

Calculated Parameter 1

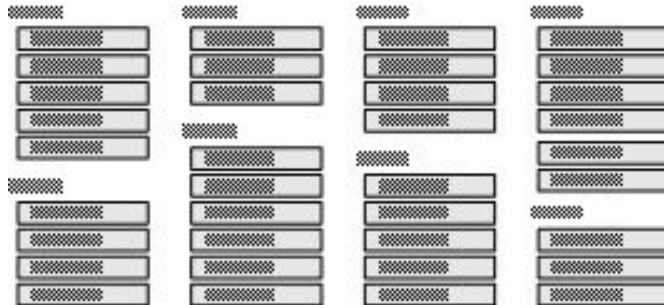
(3) Action Execution

Business layer (conditions)

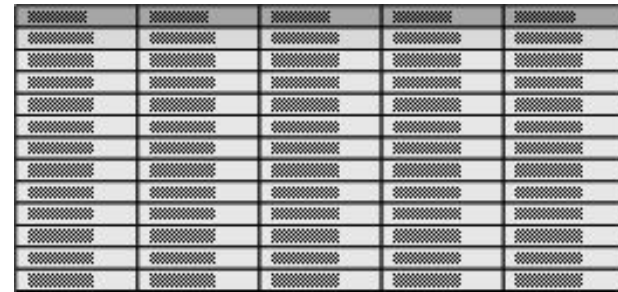


View layer

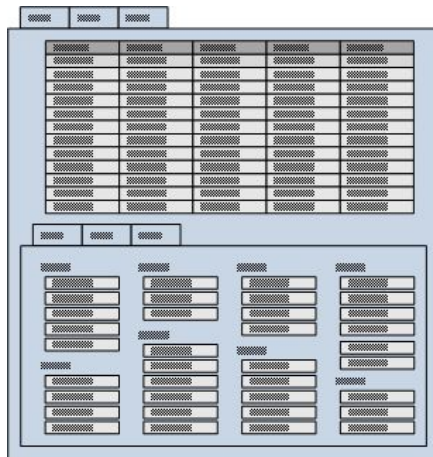
FreeForm



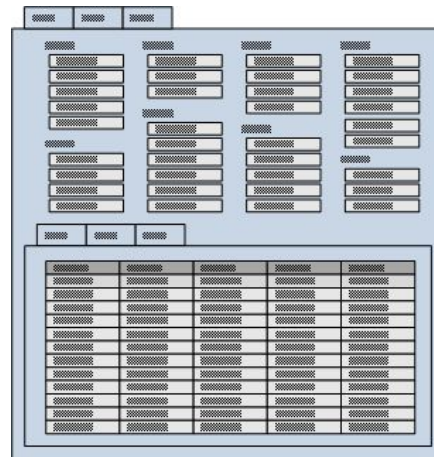
Grid



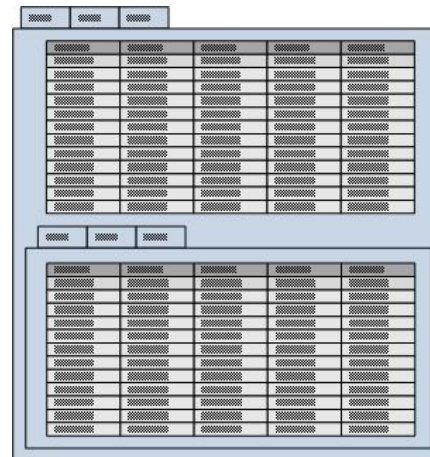
Grid - FreeForm



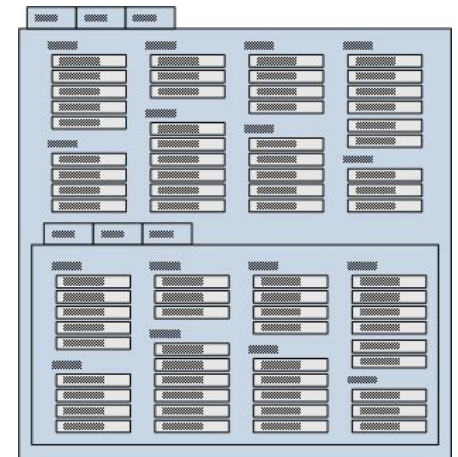
FreeForm - Grid



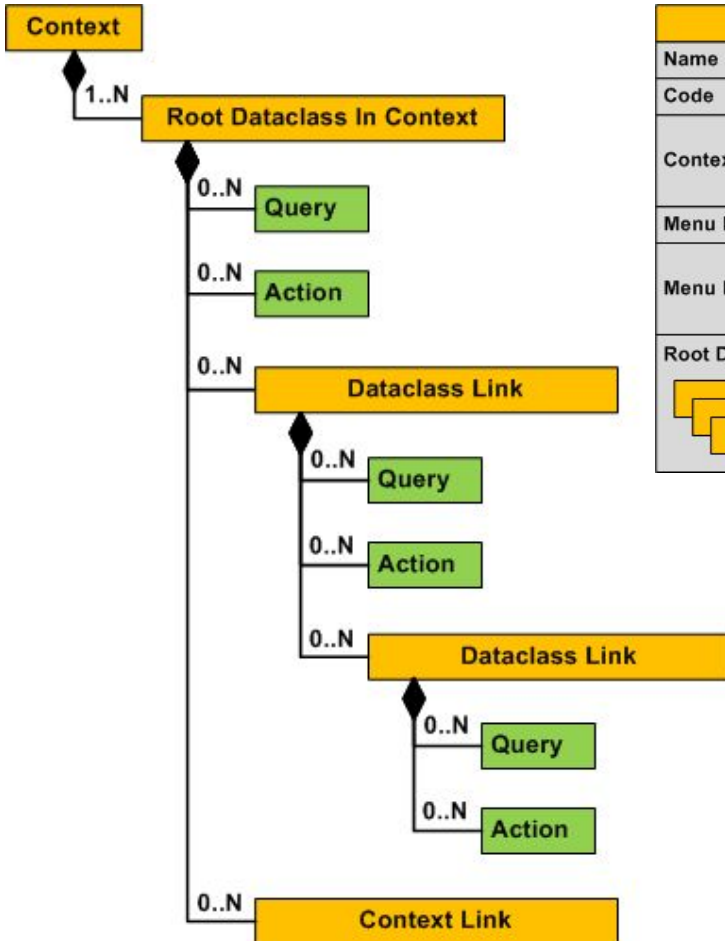
Grid - Grid



FreeForm - FreeForm



View layer (contexts)



Context	
Name	String
Code	String
Context Type	Menu Root / Subordinated / API
Menu Package	-> Menu Package
Menu Function	Operations / Configurations / ...
Root Dataclasses	
<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Root Dataclass In Context</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Root Dataclass In Context</div> <div style="border: 1px solid black; padding: 2px;">Root Dataclass In Context</div>	

Root Dataclass In Context	
Name	String
Code	String
Dataclass	-> Dataclass
Subset	-> Subset
Default Query	-> Query
Query Mode	User Defined / Get All
Required Package	-> Menu Package
Layout Mode	Grid / Form / Tree

Query (from DataClass)

Query (from DataClass)	
Name	String
Code	String
Query	-> Query
Required Package	-> Menu Package

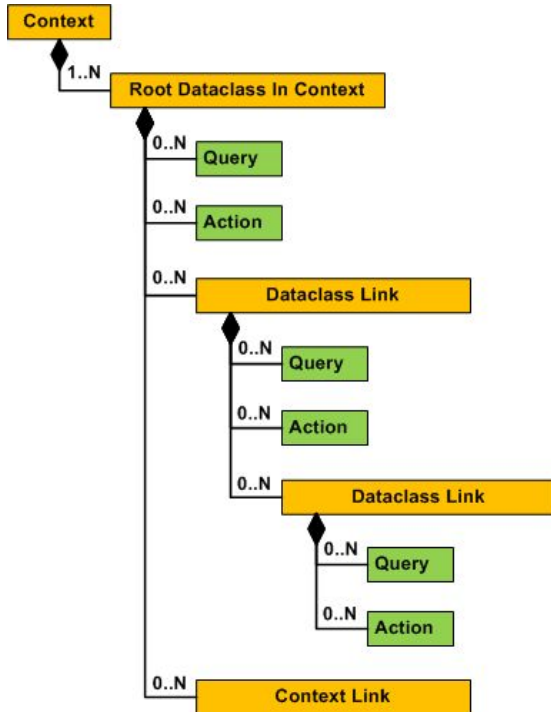
Action (from DataClass)

Action (from DataClass)	
Name	String
Code	String
Action	-> Action
Subset	-> Subset

Linked

<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Dataclass Link</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Dataclass Link</div> <div style="border: 1px solid black; padding: 2px;">Dataclass Link</div>	
<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Context Link</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Context Link</div> <div style="border: 1px solid black; padding: 2px;">Context Link</div>	

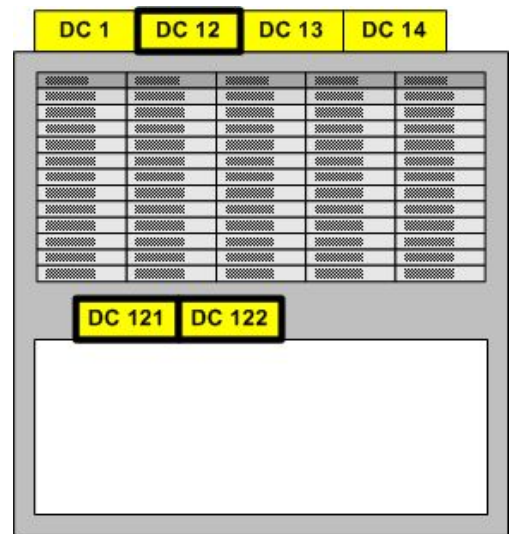
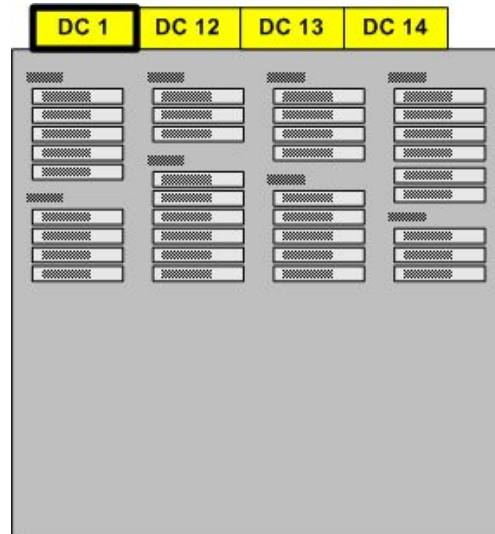
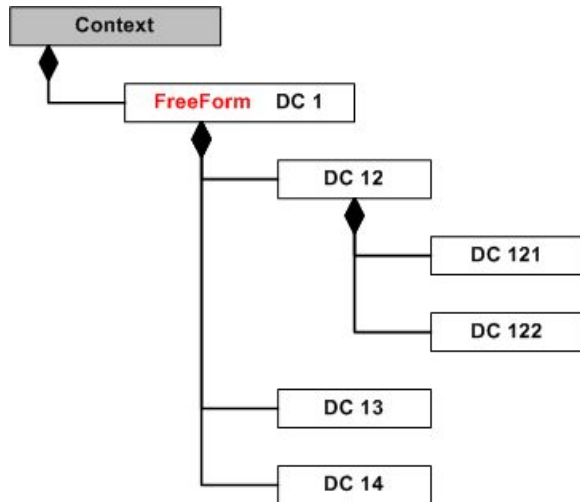
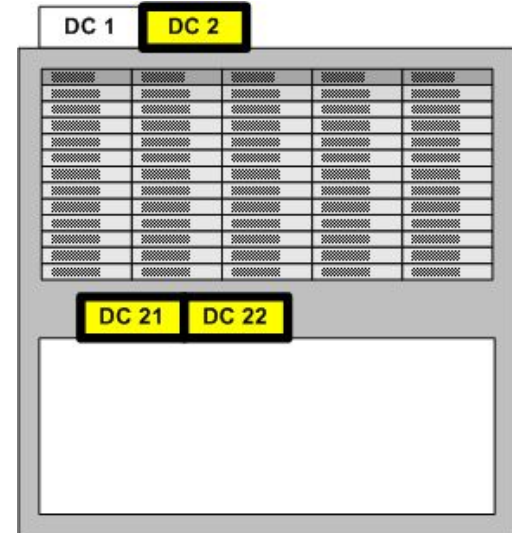
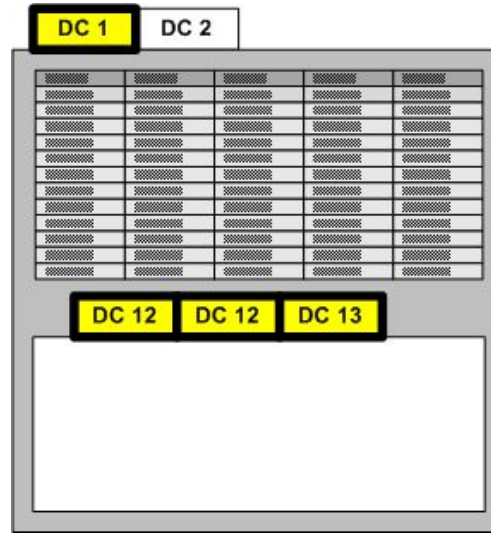
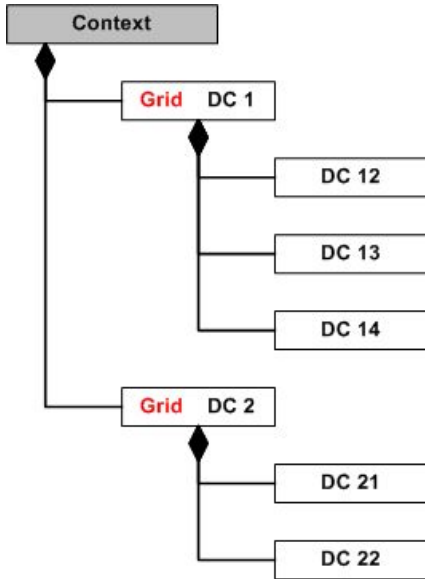
View layer (links)



Dataclass Link	
Name	String
Code	String
Target Dataclass	-> Dataclass
Target Subset	-> Subset
Layout Mode	Grid / Form / Tree
Required Package	-> Menu Package
Enable For Object Type	-> Object Type
Source Field	-> Attribute
Target Field	-> Attribute
Where Clause Part	String
Link Query	-> Query
Q	Query (from DataClass) ...
A	Action (from DataClass) ...
Linked	...

Context Link	
Name	String
Code	String
Target Context	-> Context
Target Dataclass	-> Dataclass
Required Package	-> Menu Package
Open In New Page	Yes / No
Enable For Object Type	-> Object Type
Source Field	-> Attribute
Target Field	-> Attribute
Link Query	-> Query

View layer (layout)



CustomerService.subm dbmodel.submodel (re) Contracts.submodel

- Model
 - Domains
 - Datasets
 - Dataclasses
 - CSW
 - Issuing Client
 - Issuing Contract
 - Attributes (by Groups)
 - Segment
 - Attributes
 - Institution (Institution)
 - Branch (Branch)
 - BranchSearch (Branch Search)
 - ClientCategory (Client Category)
 - ClientType (Client Type)
 - ProductCategory (Product Category)
 - RedefinedProductCategory (Redefined Product Category)
 - ContractCategory (Contract Category)
 - RelationType (Relation Type)
 - RelationTag (Relation Tag)
 - LiabilityCategory (Liability Category)
 - ParentProduct (Parent Product)
 - MainProduct (Main Product)
 - MainProductCorrected (Main Product Corrected)
 - Product (Product)
 - ContractSubtype (Contract Subtype)
 - ServiceGroup (Service Group)
 - ReportType (Report Type)
 - Role (Role)
 - CardSubproductsPresent (Card Subproduct Is Present)
 - Icon (Icon)
 - Leaf (Leaf)
 - AccountSubproductsPresent (Account Subproduct Is Present)
- General
- Financials
- Functional Dates
- Add Data
- Status
- Reference Data
- Card Data
- Security
- Attribute Subsets
- Object Types (Specializations)
- Queries
- Actions
- Generic Contract
- Card
- Plastic
- Contract Financials

Properties

Property	Value
Basic	
Name	Institution
Code	Institution
Attribute Type	Regular
Data	
Dataset Field	F_I
Expression	
Tag Name	
Tagged Data Format	None
Related Session Variable	
Domain	
Domain	Granted Financial Institution [F_I]
DDDW Filter	
Synchronize with Dataset Field	No
Visibility	
Edit Mode	Hidden
Edit Mode Result	Hidden
Editable For	
Visible For	
Edit Options	
Mandatory On Edit	No
Mandatory For	
Initial Value Expression	
DDDW Dataclass	
DDDW Subset	
UI	
Break Line	No
Description	
Description	Contract's Financial Institution (ID for API WS)
Описание	
Document	
Internal	
Comment	
Disabled	No

Dataclass Attribute

CONTRACT TREE

TITLE 

- ▶ Test Test LAST55
 - ▶ Subordinated
 - ▶ 777-P-010390
 - ▶ 777-P-349467
 - ▶ 777-P-473928
 - ▶ 777-P-567468
 - ▶ 777-P-784839
 - ▶ 777-P-759403
 - ▶ 777-P-849382

DETAILS

PERSONAL DATA


FULL NAME Test Test Last 55

SHORT NAME Bosch


FIRST NAME Hieronymus

MIDDLE NAME van

LAST NAME Aken

BIRTH DATE Feb 10, 1970 

ADDRESS

COUNTRY 

STATE

CITY

ZIP CODE

ADDRESS LINE 1

ADDRESS LINE 2

ADDRESS LINE 3

ADDRESS LINE 4

IDENTIFICATION DATA

CARD TYPE

CARD NUMBER

CARD DETAILS

CLIENT NUMBER

CONTRACT LIST 

NUMBER	AVAILABLE	TYPE	STATUS
777-P-658484	95701.01 RUR	Account	OK
777-P-745387	50197.41 RUR	Account	Blocked
777-P-647384	11448.90 RUR	Account	OK
777-P-658484	49581.64 RUR	Account	OK
777-P-658484	63826.63 RUR	Account	OK

[Details](#) • [Financials](#) • [Transactions](#) • [Services](#) • [More](#)
CONTRACTS   

PRODUCT	ROLE	CLIENTS
Liabb acc	Full Liability	82557Test Test LAST55
Aff acc	Affiliated	82557Test Test LAST55
Aff acc	Affiliated	82557Test Test LAST55
Liabb acc	Full Liability	82557Test Test LAST55
Aff acc	Affiliated	82557Test Test LAST55

[Details](#) • [Financials](#) • [Transactions](#) • [Used Roles](#) • [Constraints](#) • [Services](#) • [More](#)
CONTRACT LIST 

NUMBER	AVAILABLE	TYPE	STATUS
777-P-658484	95701.01 RUR	Account	OK
777-P-745387	50197.41 RUR	Account	OK
777-P-647384	11448.90 RUR	Account	OK
777-P-658484	49581.64 RUR	Account	OK
777-P-658484	63826.63 RUR	Account	OK
777-P-658484	63826.63 RUR	Account	OK
777-P-658484	63826.63 RUR	Account	OK

[Details](#) • [Financials](#) • [Transactions](#) • [Services](#) • [More](#)

DB layer: 500

таблиц
Business layer: 2000

объектов
View layer: 10000

форм



**МНОГО
МОДЕЛЕЙ**



VS



- Eclipse EMF -> Text files (yaml)
- Model -> Folder
- File = Root object (5000)

Кастомизация



- Наследование
- Переопределение

Генерация

- SQL scripts for DB
 - Create
 - Alter
- Data for authorization/grants
- Data for Web Service engine
 - For thin client
 - For API
- Data for UI engine
- Documentation
 - Web Service API
- Data for test engine

