

n2013

Uniface 10 IDE Under the hood

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Agenda

UNIFACE 10

- Requirements
- Design principles
- Technology
- Architecture
- Architecture – View Containment
- Architecture – Data Views
- Architecture – Text Entry



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UNIFACE 10

- **Requirements**
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Requirements

- Out of the box
- Not limited by technology
- Task driven
- Responsive
- Familiar
- Source control integration
- Platform (Desktop, Cloud)



Asset Browser

Model Template Layout

ent: ▶

Project prj:SALES ▶

Name	Description
BODYCELL.ULAYOUT	Grid body cell
BODYROW.ULAYOUT	Grid body row
CATEGORY.PROPER...	Property Categories
CPT.DICT	Components

Data Structure

Frame structure	Inh...	Description	Widget	Characteristics
INDEXLIST	✓	Browse objects	-	Dynamic Server Page
PERSON.SALES	✓	Sales persons	Html grid	Database
DESCRIPTION.MANAGER	✓	-	Label	-
MANAGER.SALES	✓	Sales manager	Html row	Database
NAME	✓	Sales manager's na...	EditBox	Database
PERSON.INKOOP	✓	Sales persons	Html grid	Not in Database
MANAGER.INKOOP	✓	Sales manager	Html row	Database
NAME	✓	Sales manager's na...	EditBox	Database
?FIELD_1	✓	Enter 32 max	ComboBox	Database
DATEOFBIRTH	✓	Enter 32 max	EditBox	Database
PERSON.SALES	✓	Enter 32 max	Html grid	Database
MANAGER.DUMMY		Sales manager	Html row	Not in Database
NAME		Enter 32 max	EditBox	Not in Database
PERSON.LAYOUT		Enter 32 max	Html grid	Not in Database
MANAGER.DUMMY2		Sales manager	AttributesOnly	Not in Database
?FIELD_2		Sales manager's na...	Button	Control
DESCRIPTION		Enter 32 max	Button	Control
DATEOFBIRTH		Enter 32 max	Button	Control

Properties

Field Widget Valrep Value Doc

Property	Value
Common	
Name	?FIELD_1
URL	cpt:INDEXLIST/...
Script Reference	?FIELD_1.MANA...
Object Type	Field
Inherits	Yes
Inherits from	ent:MANAGER_I...
Description	Max 32 chars
Data I/O	
Characteristics	Database
Data Type	String
DBMS Interface	C*
Text Syntax	FUL,LEN(10-0)/...
Text Layout	Select or construct
Presentation	
DSP Widget	ComboBox
Associated Label	cpt:INDEXLIST/I...
Presentation (Legacy)	
Border	No
Indexed Color	A 12

Compile Component: 'cpt:INDEXLIST'

```

ERROR cpt:INDEXLIST/ent:PERSON.SALES/trg:exec/line:6 p;endparams Invalid direction (colon ':' missing).
ERROR cpt:INDEXLIST/ent:PERSON.SALES/trg:exec/line:8 $windowproperties($instancename, "splitbar") =... Invalid direction (colon ':' missing).
ERROR cpt:INDEXLIST/ent:PERSON.SALES/trg:exec/line:12 if (pTabId == "compiler") Invalid direction (colon ':' missing).
ERROR cpt:INDEXLIST/ent:PERSON.SALES/trg:exec/line:16 $fieldhandle("FOOTERSTRIP") ->$widgetoperation(... Invalid direction (colon ':' missing).
    
```

Feature & UI Design Phase

- Browser like navigation (U-bar)
- Multiple editors simultaneously (non-modal, tabs)
- Task-driven worksheets
- Property Inspector
- Auto completion (code, properties, ...)
- Source based layout editor



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Normalize Objects

Principal Development Object == Editor:

- **Component** (Entities, Fields, Labels, Variables)
- **Entity** (Subtypes, Fields, Keys, Relationships)
- **Start-up Shell**
- **Include Library** (Include Procs)
- **Message Library** (Messages)
- **Variable Library** (Variables)
- ...



Normalize editors

Task driven Worksheets:

- Component Editor:
Define Structure | Write Script | Design Layout
- Entity Editor:
Define Structure | Define Keys | Create Relationships | Write Script
- Include Library Editor:
Write Script
- ...



Normalize Layout

The screenshot displays the Uniface Development Environment interface with several components highlighted by red labels:

- navigation**: Located in the top navigation bar.
- search**: Located in the top search bar.
- more**: Located in the top right corner.
- Editors**: Located in the top editor tabs.
- worksheets**: Located in the top left toolbar.
- actions**: Located in the top right toolbar.
- toolbox**: Located in the left Asset Browser panel.
- editing area**: Located in the central Data Structure table.
- properties**: Located in the right Properties panel.
- utilities**: Located in the bottom Compiler Output panel.

The Data Structure table contains the following data:

Frame structure	Inh...	Description	Widget	Characteristics
INDEXLIST	✓	Browse ...	-	Dynamic...
PERSON.SALES	✓	Sales pe...	Html grid	Database
DESCRIPTION.MAN...	✓	-	Label	-
MANAGER.SALES	✓	Sales m...	Html row	Database
NAME	✓	Sales m...	EditBox	Database
PERSON.INKOOP	✓	Sales pe...	Html grid	Not in D...
MANAGER.INKO...	✓	Sales m...	Html row	Database
NAME	✓	Sales m...	EditBox	Database
?FIELD_1	✓	Enter 32 ...	ComboB...	Database
DATEOFBI...	✓	Enter 32 ...	EditBox	Database
PERSON.SALES	✓	Enter 32 ...	Html grid	Database
MANAGER.DUM...	✓	Sales m...	Html row	Not in D...
NAME	✓	Enter 32 ...	EditBox	Not in D...
PERSON.LA...	✓	Enter 32 ...	Html grid	Not in D...
MANAGER.DUMMY2	✓	Sales m...	Attribute...	Not in D...
?FIELD_2	✓	Sales m...	Button	Control

The Properties panel shows the following data:

Property	Value
Name	?FIELD_1
URL	cpt:INDEXLIST/...
Script Reference	MANAGER...
Object Type	Field
Inherits	Yes
Inherits from	ent:MANAGER_I...
Description	Max 32 chars
Characteristics	Database
Data Type	String
DBMS Interface	C*
Text Syntax	FULL_LEN(1.0-0)

The Compiler Output panel shows the following error messages:

```
Compile Component: 'cpt:INDEXLIST'  
ERROR    cpt:INDEXLIST/ent:PERSON.SALES/trg... p:endparams      Invalid direction (colon ':' missi...  
ERROR    cpt:INDEXLIST/ent:PERSON.SALES/trg... $windowproperties($instancename, "... Invalid direction (colon ':' missi...  
ERROR    cpt:INDEXLIST/ent:PERSON.SALES/trg... if (pTabId == "compiler")           Invalid direction (colon ':' missi...  
ERROR    cpt:INDEXLIST/ent:PERSON.SALES/trg... $fieldhandle("FOOTERSTRIP", $obj... Invalid direction (colon ':' missi...  
ERROR    cpt:INDEXLIST/ent:PERSON.SALES/trg... else                                  Invalid direction (colon ':' missi...
```



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Technology: Rebuild in Uniface

Arguments pro:

- Dog food
 - new/improved features
 - Hi focus on usability (short cycle between designer and user)
- Available skill set
- Compatible repository
- No dependency on third party environment

Arguments cons:

- No integrated environment with other technologies
- No external communities



GUI Technology: HTML

Arguments pro:

- Rich and flexible (HTML5 + CSS3)
- Presentation-logic split
- Unlimited possibilities
- Future proof

Arguments cons:

- Additional backlog
 - New component type
 - New widget set
- Unknowns (risk)
- Unlimited possibilities take time



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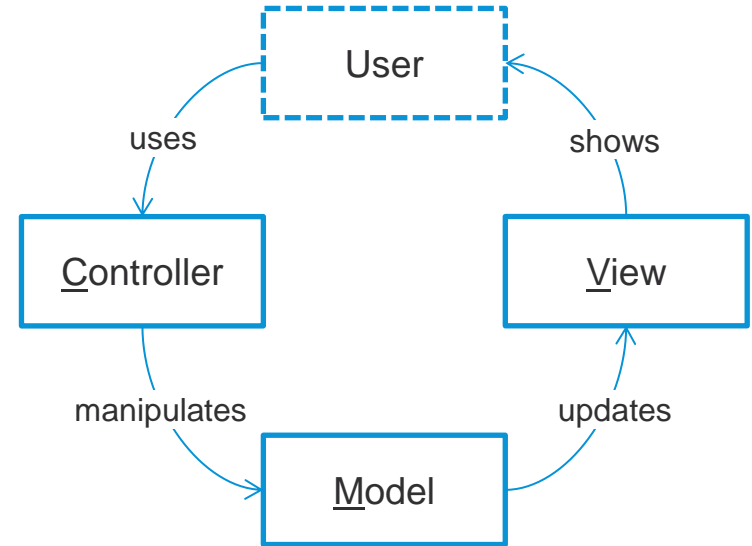
Component based

- Runtime reuse of (form) components
- Improve maintainability
 - No generation framework
 - Avoid code generation
 - Reduce the amount of boilerplate code
 - Avoid component templates
- Compose layout out of multiple Form components



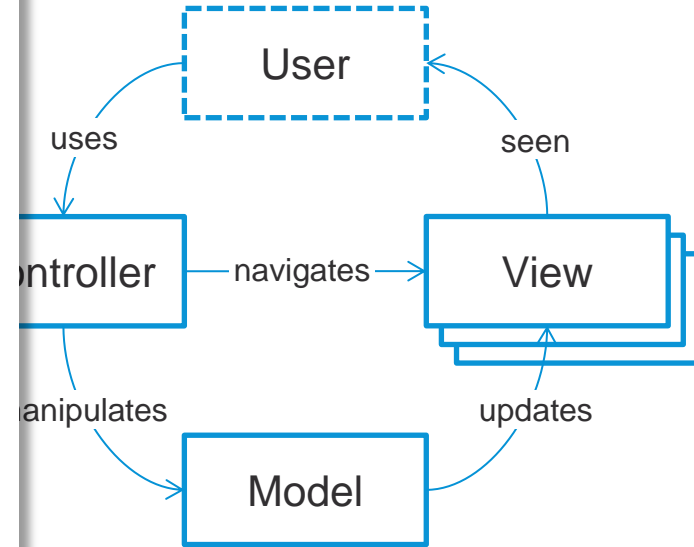
MVC

- Model == Database
 - Component Data Structure
- View == Form
 - Shows data from Model in a for View specific way
- Controller == Triggers & Code
 - Updates data



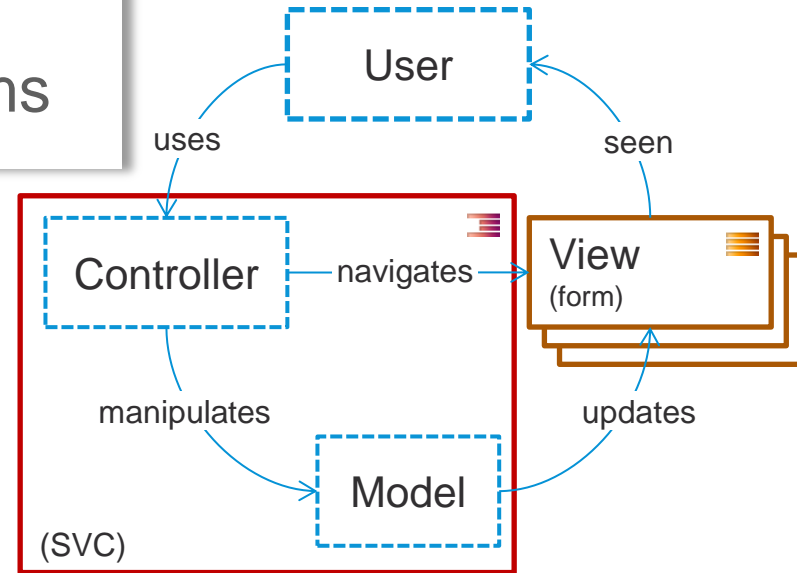
Multiple Views in MVC

- 1 Model
 - Component Data Structure of 1 Service
- 1 Controller?
 - 1 navigation controller
 - 1 manipulation controller
- Multiple Views
 - Show data in View specific way



MVC in IDE

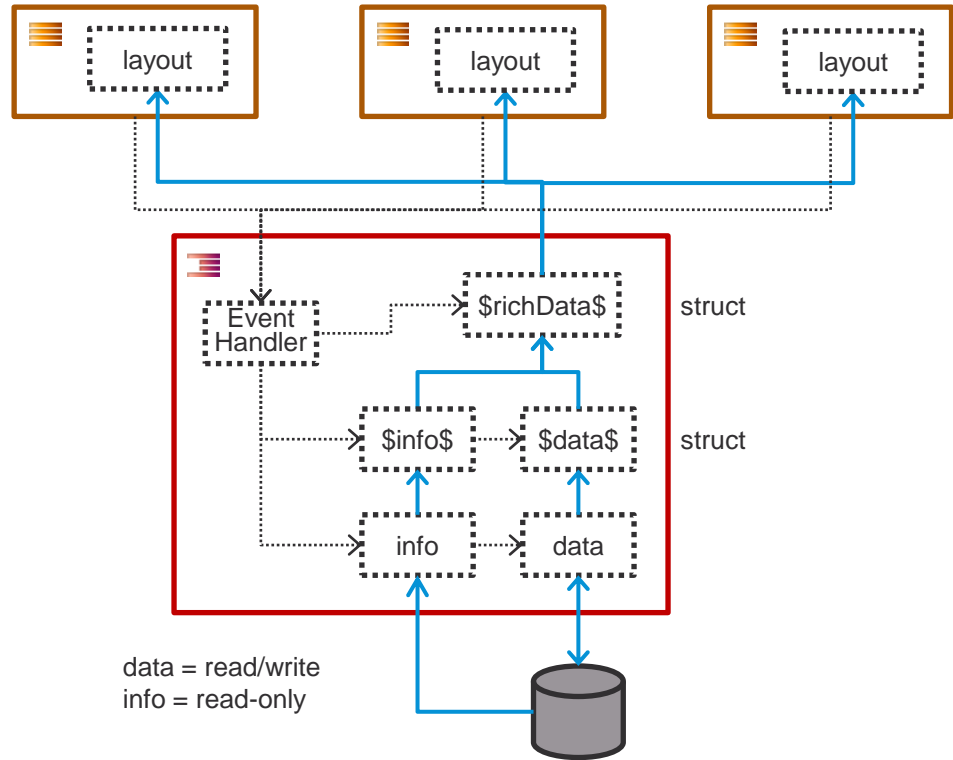
- Model + Controller → Service
- Multiples Views → Multiple Forms



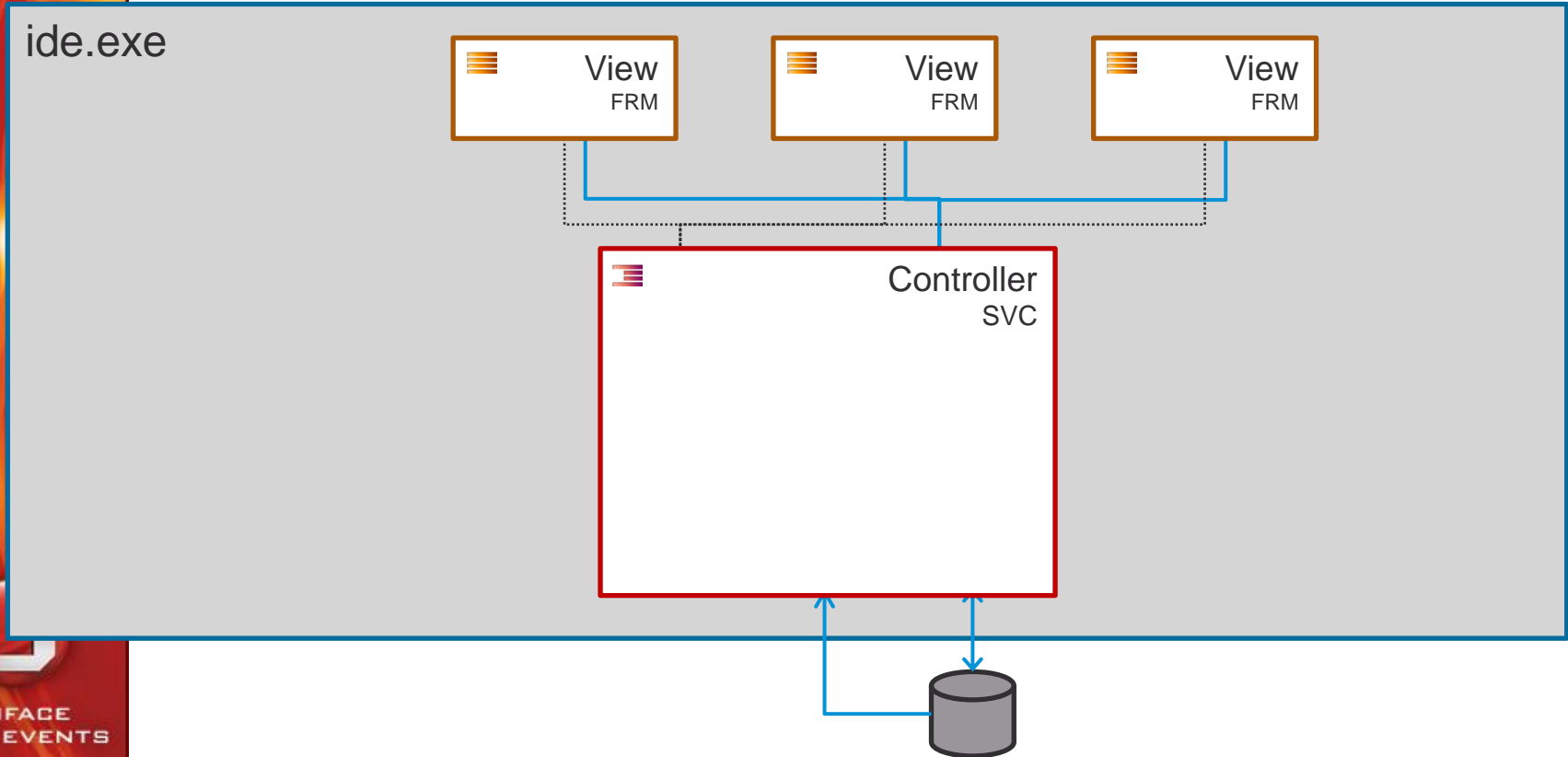
MVC in IDE



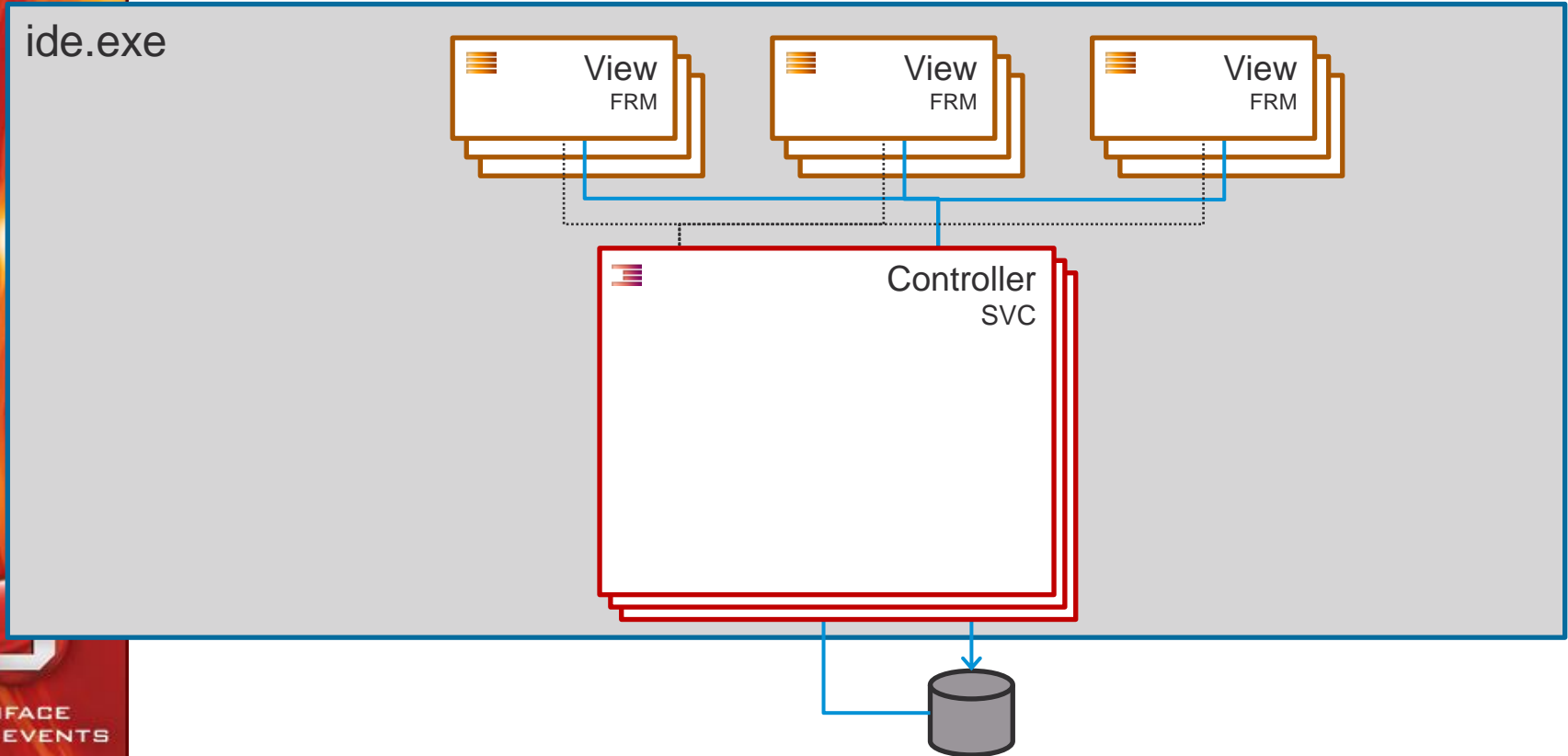
MVC in IDE



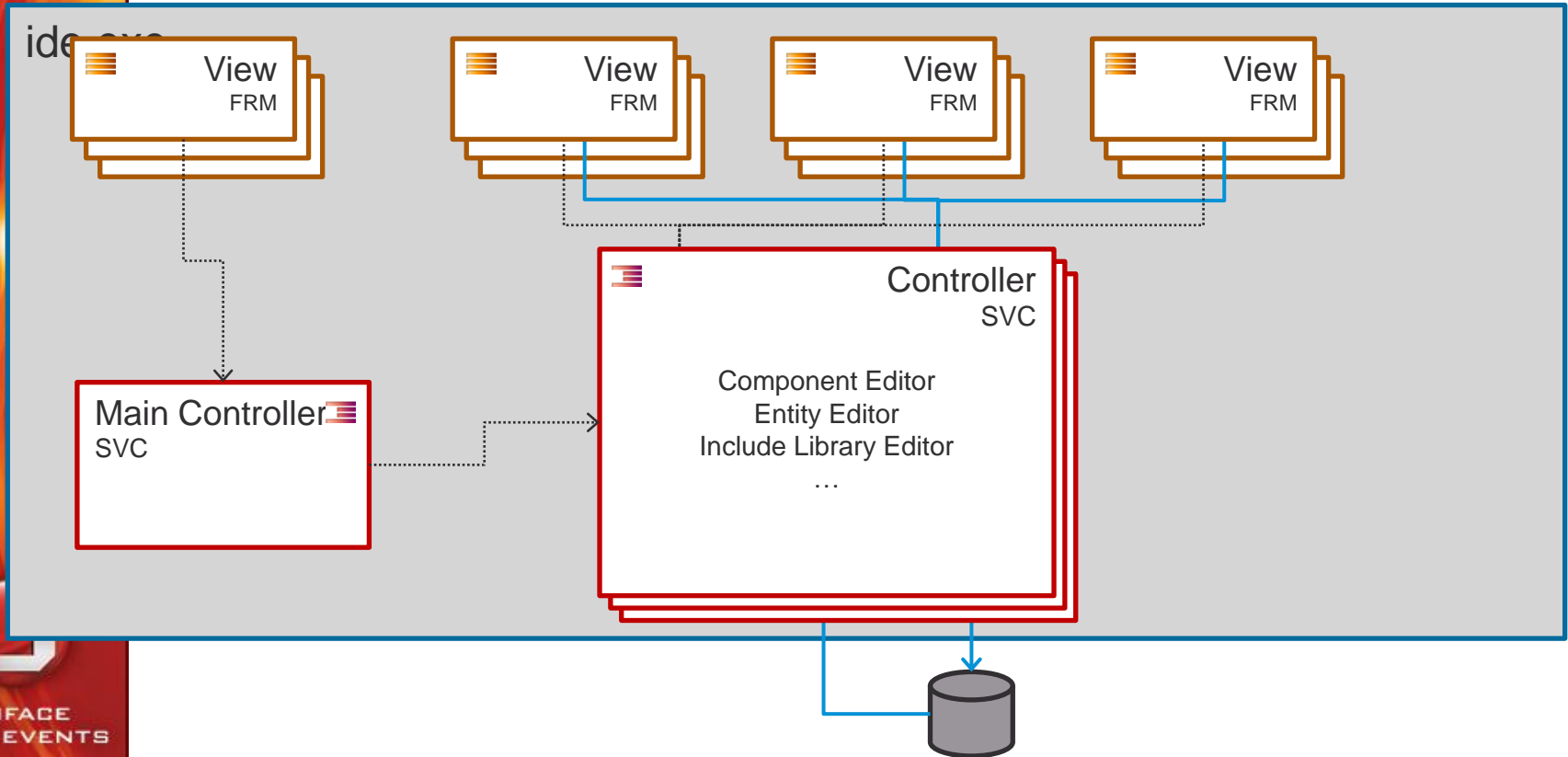
MVC in IDE



MVC in IDE



MVC in IDE



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Uniface Development Environment - [cpt:INDEXLIST]

cpt: INDEXLIST ▶ Define Data Structure Search prj: SALES Tools Utilities Options

INDEXLIST SALES USERVER MAIN TEST PERSON.DEPAR... INCLUDES DEPARTMENT.S... UUEXTN23

Define Data Structure Write Script Design Layout Save Build Help Actions

Asset Browser

Model Template Layout

ent: ▶

Project ▶ prj:SALES ▶

Name	Description
BODYCELL.ULAYOUT	Grid body cell
BODYROW.ULAYOUT	Grid body row
CATEGORY.PROPER...	Property Categories
CPT.DICT	Components

Data Structure

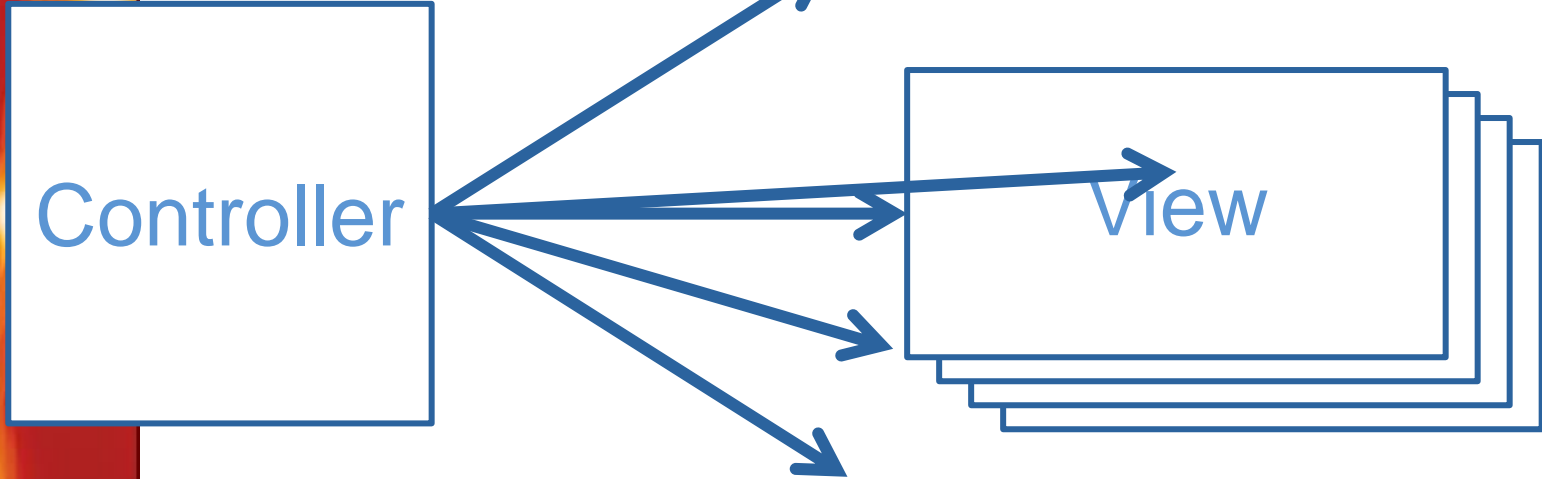
Frame structure	Inh...	Description	Widget	Characteristics
INDEXLIST	✓	Browse objects	-	Dynamic Server Page
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DESCRIPTION.MANAGER	✓	-	Label	-
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NAME	✓	Sales manager's name	EditBox	Database
?FIELD_1	✓	Enter 32 max	ComboBox	Database
DATEOFBIRTH	✓	Enter 32 max	EditBox	Database
PERSON.SALES	✓	Enter 32 max	Html grid	Database
MANAGER.DUMMY		Sales manager	Html row	Not in Database
NAME		Enter 32 max	EditBox	Not in Database
PERSON.LAYOUT		Enter 32 max	Html grid	Not in Database
MANAGER.DUMMY2		Sales manager	AttributesOnly	Not in Database
?FIELD_2		Sales manager's name	Button	Control
DESCRIPTION		Enter 32 max	Button	Control
DATEOFBIRTH		Enter 32 max	Button	Control

Properties

Field Widget Valrep Value Doc

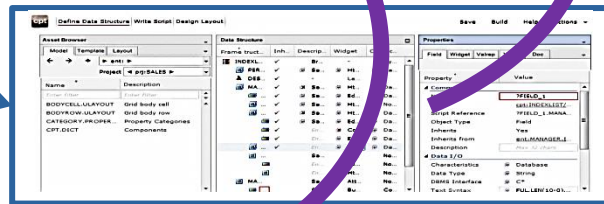
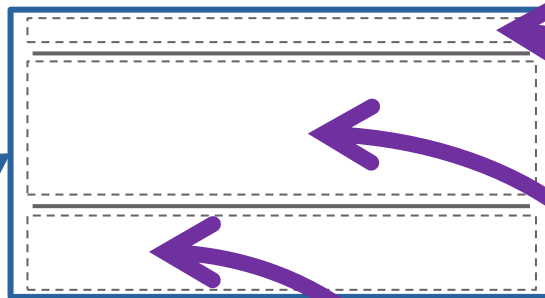
Property	Value
Common	
Name	?FIELD_1
URL	cpt:INDEXLIST/...
Script Referen...	?FIELD_1.MANA...
Object Type	Field
Inherits	Yes
Inherits from	ent:MANAGER.I...
Description	Max 32 chars
Data I/O	
Characteristics	Database
Data Type	String
DBMS Interface	C*
Text Syntax	FUL,LEN(10-0),...
Text Layout	Select or construct
Presentation	
DSP Widget	ComboBox
Associated Label	cpt:INDEXLIST/...
Presentation (Legacy)	
Border	No
Indexed Color	A 12

Compiler Output Search Results SQL Workbench Read-me Documentation

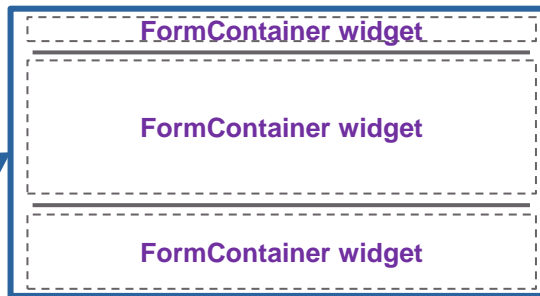




Controller



Controller



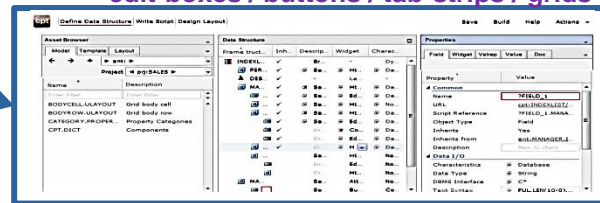
← split-bar

← split-bar

edit-boxes / buttons / tab-strips / grids



edit-boxes / buttons / tab-strips / grids

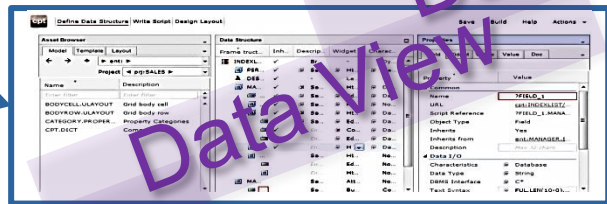


edit-boxes / buttons / tab-strips / grids



Controller

Container View

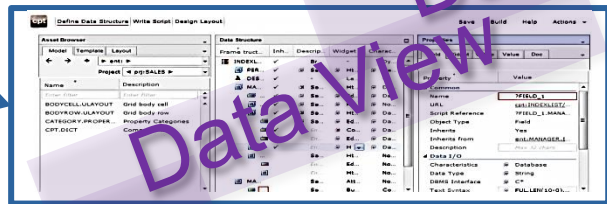


Data View



Controller

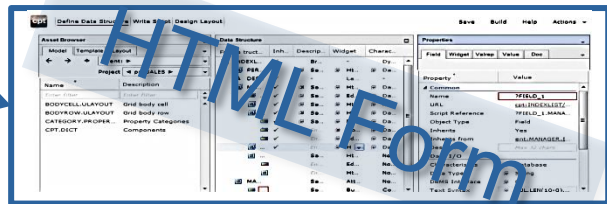
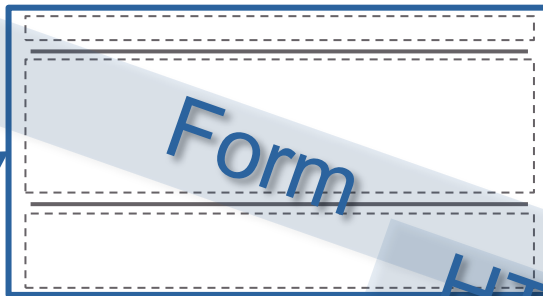
Container View



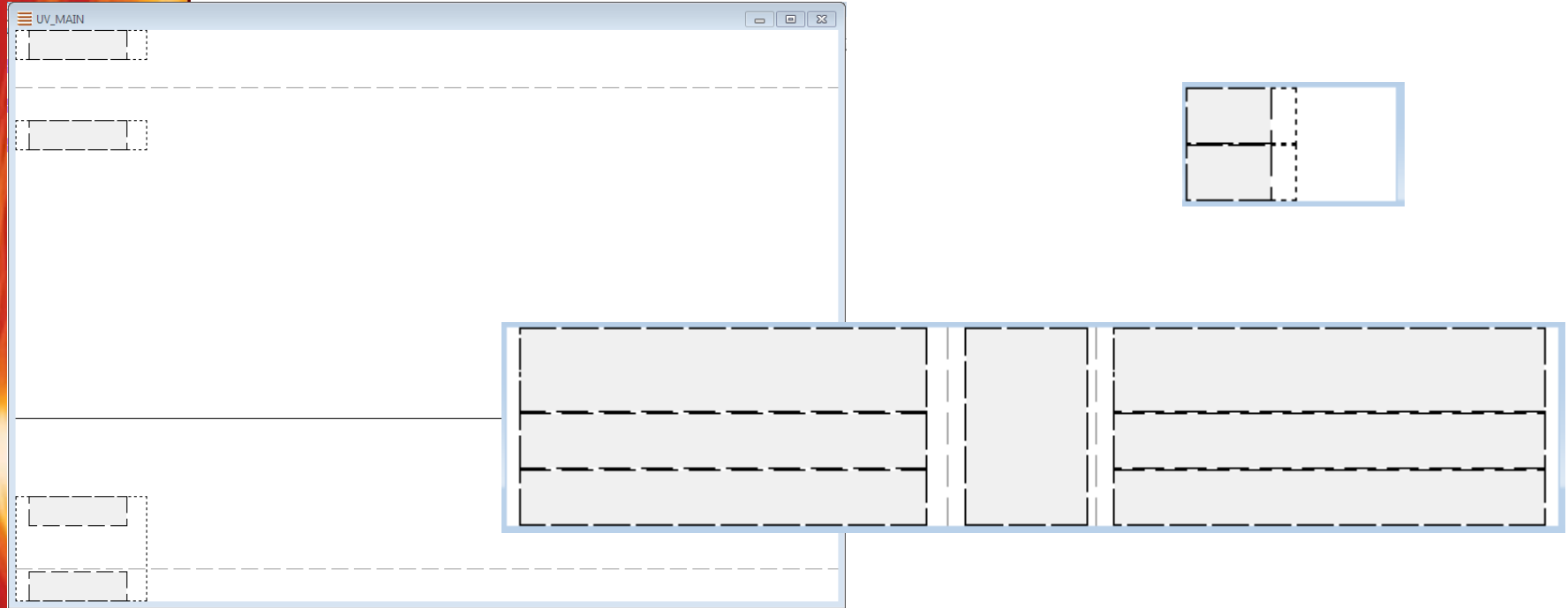
Data View



Controller



Container Views: Form



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Data Views: HTML Form NEW

- HTML Form component
 - Window, caption, contained, secondary, ...
 - Paint canvas → HTML canvas
 - Native Windows widgets → HTML widgets
 - Paint Tableau → HTML Editor
- Presentation logic split (id-based binding style)
- Share JavaScript/HTML-runtime with DSPs
- Connected + stateful (implicit websave/webload)
- Shares HTML rendering engine with HTML Widget

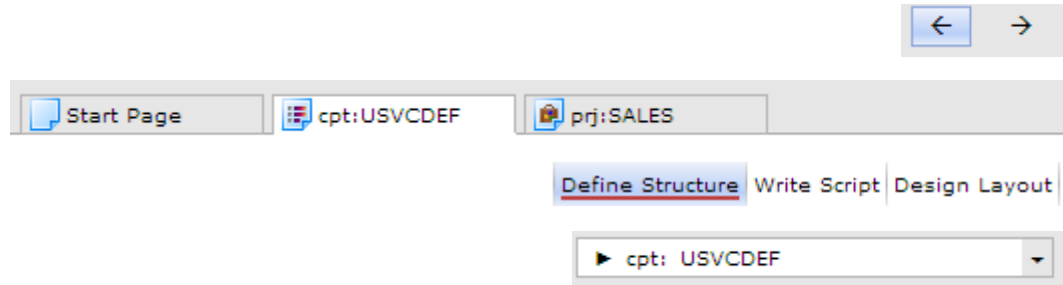


HTML Controls

- HTML 5 controls set
- `AttributesOnly` (Field and Occurrence level)
- `StaticText`
- `RawHTML`
- `Picture`
- ...



HTML Forms in IDE

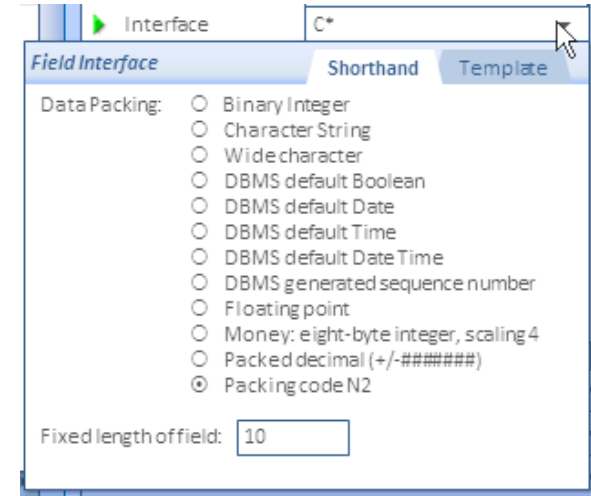


- Custom set of static controls (build in HTML/4GL)
- Look like widgets
(Combobox, Tabstrip, Button, Editbox, Grid cell, Column heading)
- Show static text only + Mouse-clickable areas
- All repetition done with occurrences (no valreps)



Popup/Dropdowns

- Separate HTML Popup Forms
- Started on demand
- Reusable
- No proactive distribution of info
- Allows for any fancy layout
- Allow nested tabs, cascading /popup/dropdowns, edit boxes, etc...



Agenda

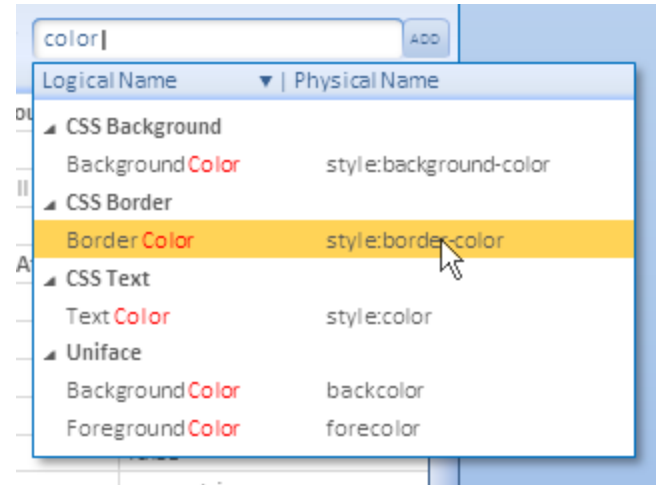
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Text Entry Overlay

- Text entry is a separate Popup Form
- Started on demand
- Only one!
- No (pre) distribution of field syntax
- Functional rich
- Contains 1x Advanced Text Entry Box



Advanced Text Entry box

- Sort of super ProcBox (Scintilla / Notepad++)
- Syntax highlighting, code folding, line numbers, ...
- Code completion dropdown
- Syntaxes: Proc, JavaScript, HTML, CSS, Properties, ...
- Used for ALL text entry:
 - Single-line Prop Value entry
 - Multi-line Code Editbox
 - Search box, U-Bar



Summary

UNIFACE 10

- Requirements
- Design principles – Normalize
- Technology – Uniface, HTML Forms
- Architecture – Component based, MVC
- Architecture – View Containment, FormContainer, Popup
- Architecture – Data Views, HTML Forms
- Architecture – Text Entry, Notepad++, Code Box



Uniface 10 IDE Under the hood

Q&A

MODERNIZATION

UNIFACE 10

UNIFACE 9.6

UNIFACE USER EVENTS