LIVE DEMO OF

COMPUTED PROPERTIES

LIBRARY FOR UI5

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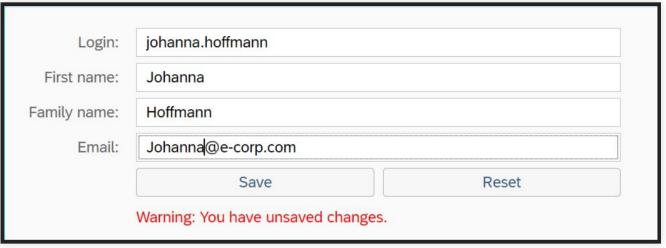
https://www.exxcellent.de

COMPUTED PROPERTIES??

- Used to store intermediate results
- Calculates a value from input properties
- Updates value when any input changes
- Behaves like any normal model property
- Concept from Vue.js and Aurelia
- Simple library for UI5

EX. EDITOR (1): SHARED CALCULATION





- Show/hide controls if some properties change vs backup properties
- Multiple controls share parts of calculation: "changed" status

EX. EDITOR (2): UI5 - OUT OF THE BOX

1) Expression Binding:

Flaws:

- Verbose syntax
- Poor reusability
- Logic partially in view

EX. EDITOR (3): LIB - COMPUTED PROPERTY IN VIEW

- Custom element "ComputedProperty" propagates "value" to "var"
- Takes advantage of (expression) binding mechanism
- Put it inside "dependents" aggregation
- Benefits: reusable

EX. EDITOR (4): LIB - COMPUTED PROP BUILDER

```
new ComputedPropertyBuilder(this, "local>/changed")
    .withFunction(
        (login, loginOrig, surname, surnameOrig) => login!==loginOrig || surname!==surnameOrig,
        ["/login", "orig>/login", "/surname", "orig>/surname"])
    .add();
```

- Alternative: "ComputedPropertyBuilder" allows definition in controller
- Takes JavaScript (arrow) function plus parameters from model(s)
- Stores function in model and constructs expression binding:

```
\{= %{\frac{123}( %{\lceil \log n \rceil, %{\lceil \log n
```

- Dynamically adds "ComputedProperty" element to view
- Benefits: reusable, readable & logic in controller

EX. TABLE (1): ADVANCED USE CASES

First name	Family name	Email	Pretty email	
Philipp	Werner	Philipp.Werner@e-corp.com	Philipp Werner <philipp.werner@e-corp.com></philipp.werner@e-corp.com>	Edit
Emily	Schmitt	Emily.Schmitt@e-corp.com	Emily Schmitt <emily.schmitt@e-corp.com></emily.schmitt@e-corp.com>	Edit
Sofia	Becker	Sofia.Becker@e-corp.com	Sofia Becker <sofia.becker@e-corp.com></sofia.becker@e-corp.com>	Sofia.Becker@e-corp Save Cancel
Jonas	Walter	Jonas.Walter@e-corp.com	Jonas Walter < Jonas.Walter@e-corp.com>	Edit
Max	Wagner	Max.Wagner@e-corp.com	Max Wagner <max.wagner@e-corp.com></max.wagner@e-corp.com>	Max.Wagner@e-corp Save Cancel
Emily	Herrmann	Emily.Herrmann@e-corp.com	Emily Herrmann < Emily. Herrmann@e-corp.com>	Edit
Anna	Meyer	Anna.Meyer@e-corp.com	Anna Meyer <anna.meyer@e-corp.com></anna.meyer@e-corp.com>	Anna.Meyer@e-corp.c Save Cancel
Lilly	Hofmann	Lilly.Hofmann@e-corp.com	Lilly Hofmann <lilly.hofmann@e-corp.com></lilly.hofmann@e-corp.com>	Edit
Jakob	Müller	Jakob.Müller@e-corp.com	Jakob Müller < Jakob. Müller@e-corp.com>	Edit
Paul	Neumann	Paul.Neumann@e-corp.com	Paul Neumann <paul.neumann@e-corp.com></paul.neumann@e-corp.com>	Edit

Computed Properties for lists

EX. TABLE (2): WRAPPING LIST DATA

Augment data in temporary model without polluting original model:

```
list: [
    ...
    {firstname: "Sofia", surname: "Becker", email: "BeckerS@e-corp.com"},
    ...
]
```



```
wrappedList: [
    ...
    {
        obj: {firstname: "Sofia", surname: "Becker", email: "Beckers@e-corp.com"},
        temp: {editMode: true, prettyEmail: "Sofia Becker <Beckers@e-corp.com>"}
    },
    ...
]
```

• Updated only if list reference changes, so add elements with concat(), not push()

EX. TABLE (3): COMPUTED PROP WITH REL. BINDING

- Bindings relative to row binding context
- ComputedProperty in row template is duplicated into every row

```
new ComputedPropertyBuilder(this, "temp/prettyEmail")
    .withFunction(
        (firstname, surname, email) => `${firstname} ${surname} <${email}>`)
        ["obj/firstname", "obj/surname", "obj/email"])
    .addById("rowTemplate");
```

COMPUTED PROPERTY LIBRARY

- Library with demo on Github:
 - https://github.com/exxcellent/ui5-computed-properties
- JavaScript ES5 for compatibility
- Property changes are logged on debug filter for "computed-property"
- Just copy ComputedProperty.js and ComputedPropertyBuilder.js!

SUMMARY

- Two layers: May be used in view or controller
- Avoids redundancy
- Provides reasonable abstraction
- Improves readability of view
- Calculation logic in controller
- Simplifies debugging

THANK YOU FOR YOUR ATTENTION!