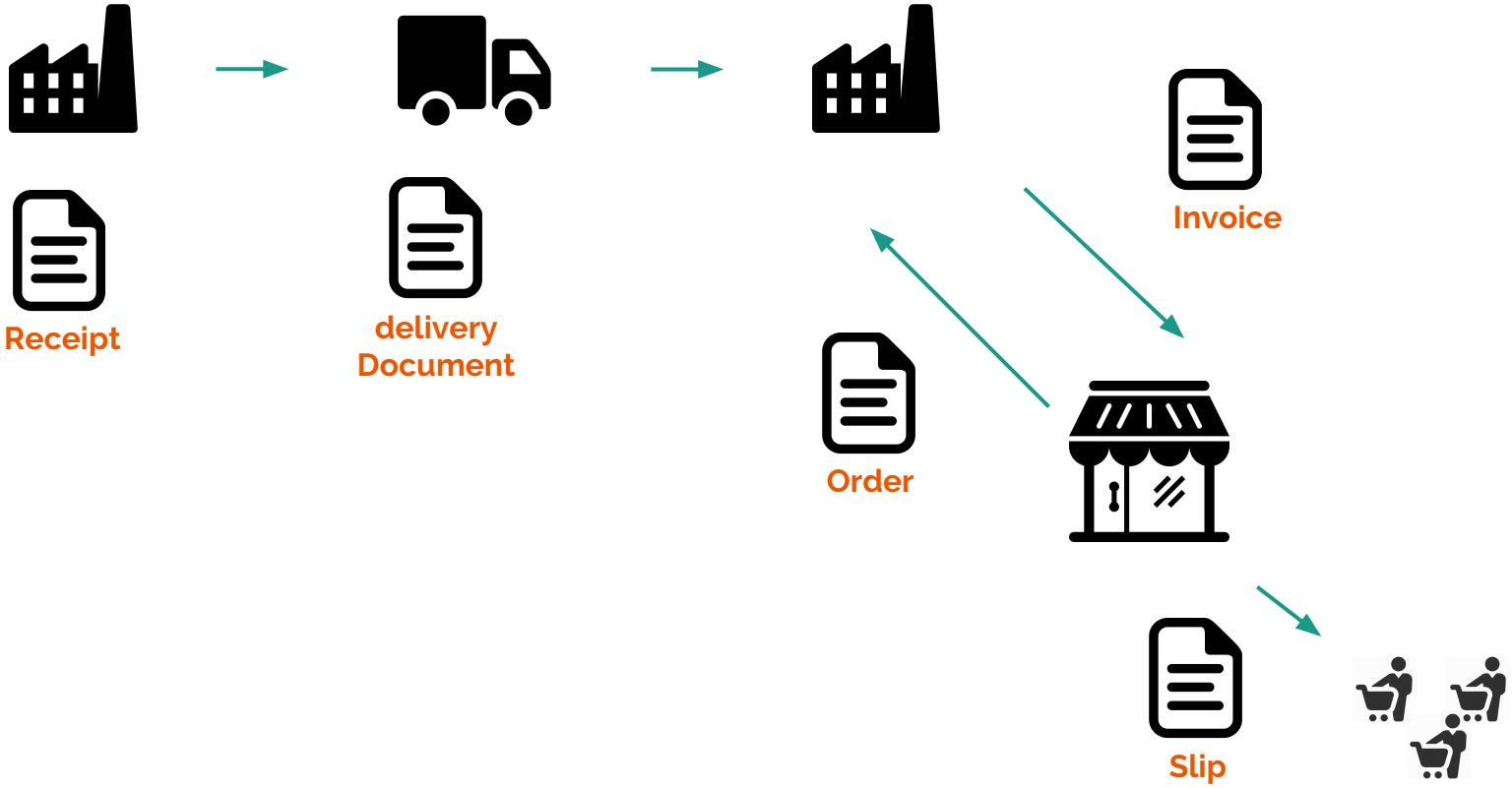
Modelling Business Apps

DataUx and moware

Daniel Stieger, modellwerkstatt.org
Spring 2018

DIVE IN
Document-Centered-Business-Apps



ORDER Demo Application

START Extras Hilfe

Search for orders | Edit Order

ORDER Amazon S.A.R.L

id: 4711

Name: Amazon S.A.R.L

Order Date: 16.04.18

Value: 0.00

Status: created

Store: 1 London FlagShip

Order Positions

1/3

id	EAN	Nam	PosVal	Timestamp
1	1430262532	Beginning COBOL for Programmers	41	16.04.18
2	0764502980	Cobol for Dummies	7	16.04.18
3	3519022818	Programming with COBOL	60	16.04.18

TOTAL: 107.97

Selected: 40.99

Abbrechen (ESC)

Close & Save (F12)

user daniels / 10

ORDER Demo Application

START Extras Hilfe

Search for orders | Edit Order

ORDER Amazon S.A.R.L

id: 4711

Order Date: 16.04.18

Status: created

POSITION 1430262532

id: 1

Name: Beginning COBOL for Programmers

Status: Accepted

Abbrechen (ESC) | Okay (F12)

Order Positions

1/3

id	EAN	Nam	PosVal	Timestamp
1	1430262532	Beginning COBOL for Programmers	41	16.04.18
2	0764502980	Cobol for Dummies	7	16.04.18
3	3519022818	Programming with COBOL	60	16.04.18

TOTAL: 107.97

Selected: 40.99

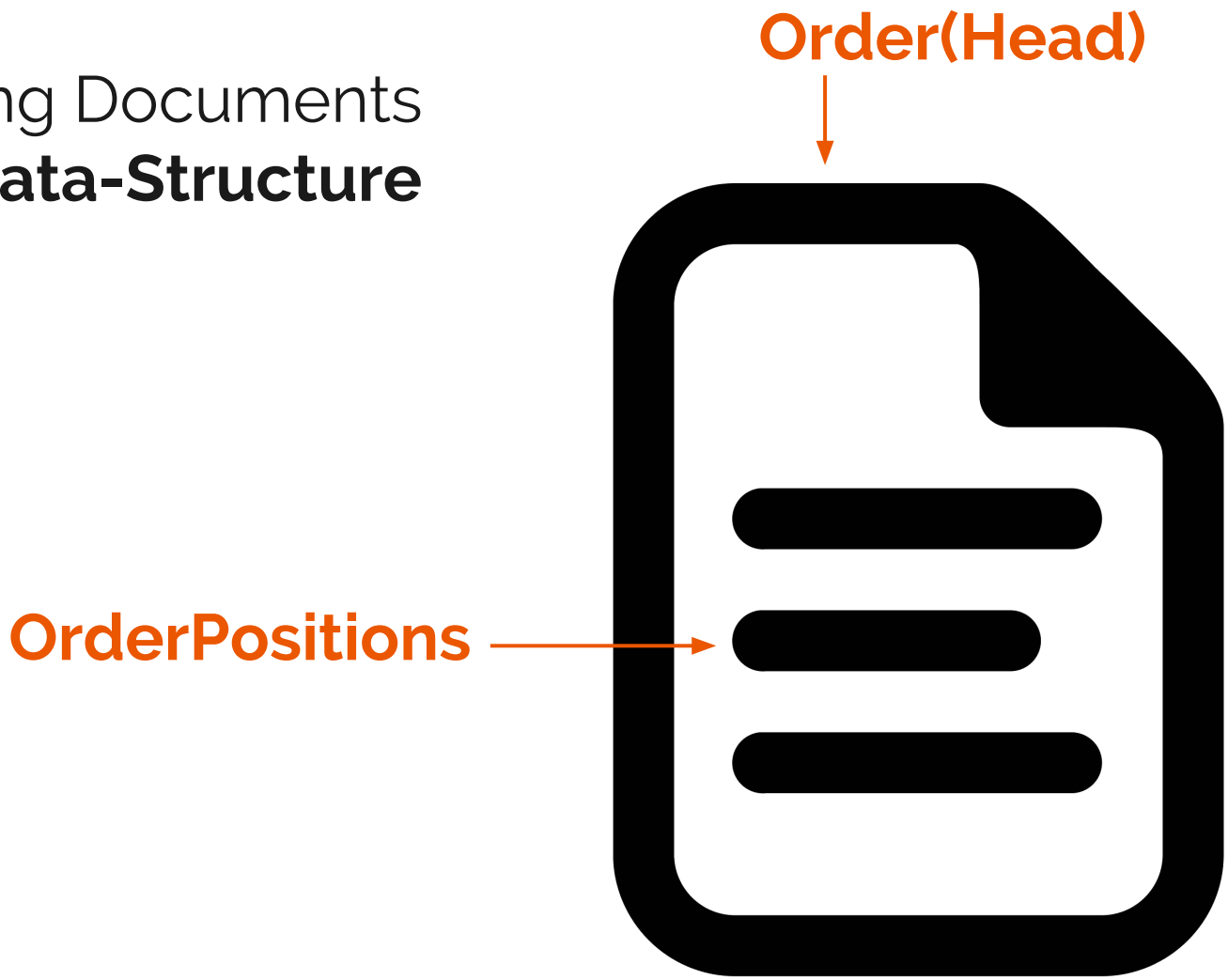
Abbrechen (ESC) | Close & Save (F12)

user daniels / 10

Editing Documents

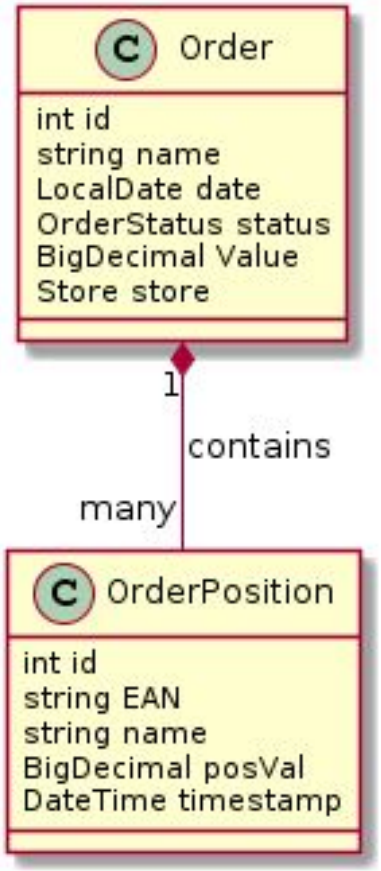
Editing Documents

(1) Data-Structure



The Order

```
public class Order {
    private int id;
    private String name;
    private LocalDate date;
    private list<OrderPosition> positions;


    int getId(){}
    void setId(int id){}

    String getName(){}
    void setName(String id){}



    <infrastructure related code snippets>
```



Entity Order **extends** <no superclass>

<doc>

properties of Entity:

Type	Name	Short Desc	Long Desc	Format	Options	Documentation
int	id	"id"	"id"	...	KEY	...
string	name	"Nam"	"Name"	...	...	...
BigDecimal	totalValue	"Val"	"Value"	...	RANGE(9.0d - 1000.0d,1)	...
BigDecimal	totalValuePlus10Percent	...	"+ 10%"	"#0"	...	...
LocalDate	orderDat	"ODat"	"Order Date"	...	...	...
Store	store	"Str"	"Store"	...	...	...
list<OrderPosition>	pos	"Pos"	"OrderPositions"	...	...	...
OrderStat	status	"Stat"	"Status"	...	...	...
string	aufgabe	...	...	...	...	...

~~object identity (overwrite equals() method):~~
<use standard hash>

members:

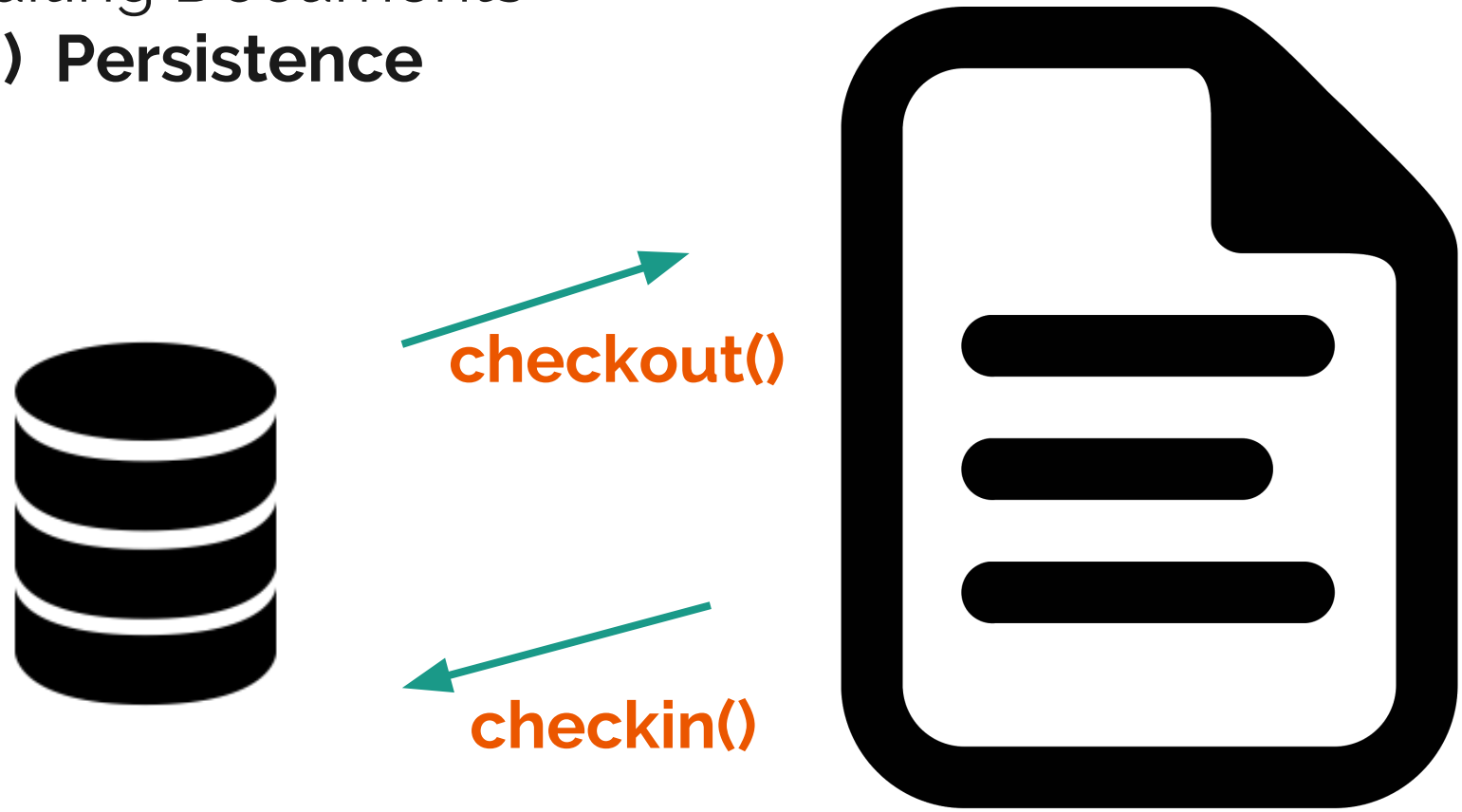
```
  public Order() {
    <no statements>
  }
  public void complete() {
    this.totalValue = this.pos.select({~it => it.posValue; }).reduceLeft({~a,~b => a + b; });
  }
```

status declarations:

status OrderStat

Name	DB value	Short label	Long label	Documentation
(default) created	'C'	created	created	// #E74C3C //
ordered	'O'	ordered	ordered	// #30B41D //
completed	'CO'	completed	completed	// #2C3E50 //

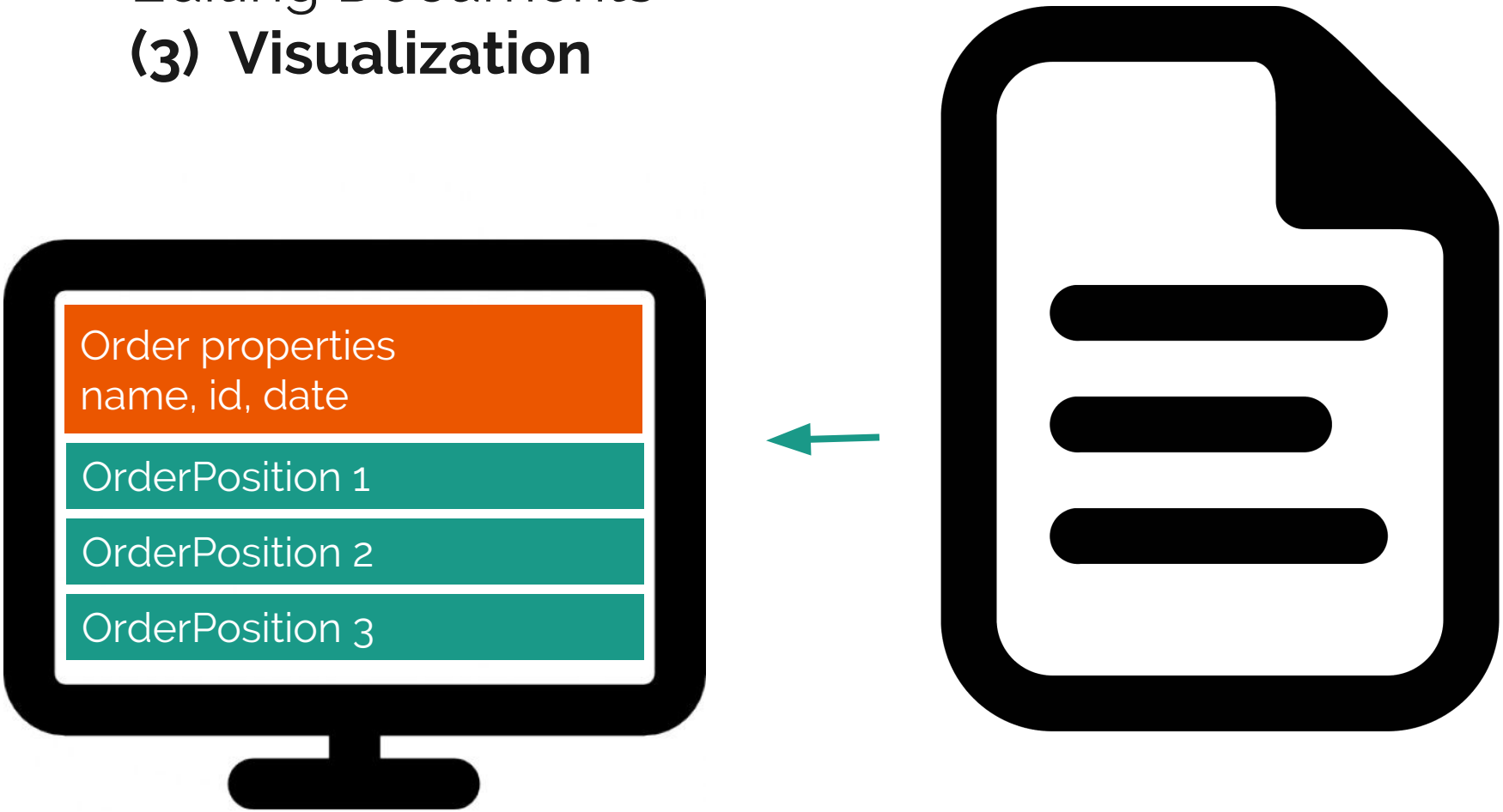
Editing Documents
(2) Persistence



```
persistence description for
Order, OrderPosition


map Order as MapOrder
  on table "TBL_ORDER" options OPTIMISTIC_LOCK {
  int id -> "KEY_ID" AUTOID("S_ODERID"), KEY
  string name -> "TXT_NAME" <opt>
  BigDecimal totalValue -> "VAL_TOTAL" <opt>
  LocalDate orderDat -> "DAT_ORDERDAT" <opt>
  list pos -> by back ref.:  MapOrderPosition.order // determines mapping for join.
  status status -> "STA_STATUS" <opt>
}

map OrderPosition as MapOrderPosition
  on table "TBL_ORDERPOS" options OPTIMISTIC_LOCK {
  int id -> "KEY_ID" KEY, AUTOID("S_ORDERPOSID")
  ref Order order: int id -> "KEY_ORDER"
  string ean -> "TXT_EAN" <opt>
  string name -> "TXT_NAME" <opt>
  BigDecimal posValue -> "VAL_POSVAL" <opt>
  DateTime timestamp -> "DAT_TIMESTAMP" <opt>
}
```

```
model repository OrderRepository


<doc>


<sqlstring / rowmapper>


  //
  CHECKOUT Order checkoutOrder(int orderId) {
    |
    Order o = MapOrder <join> get(orderId) Checkout;
    o.pos = MapOrderPosition <join> where({~orderposition,  => orderposition.order.id == orderId  }) Checkout;

    return o;
  }


  //
  CHECKIN void checkinOrder(Order o) {

    o.pos.forEach({~it => save with MapOrderPosition, <opt> (it); });
    save with MapOrder, <opt> (o);

  }
```

Editing Documents
(3) Visualization



ORDER Demo Application

START Extras Hilfe

Search for orders | Edit Order

ORDER Amazon S.A.R.L

id: 4711

Name: Amazon S.A.R.L

Order Date: 16.04.18

Value: 0.00

Status: created

Store: 1 London FlagShip

Order Positions

1/3

id	EAN	Nam	PosVal	Timestamp
1	1430262532	Beginning COBOL for Programmers	41	16.04.18
2	0764502980	Cobol for Dummies	7	16.04.18
3	3519022818	Programming with COBOL	60	16.04.18

TOTAL: 107.97

Selected: 40.99

Abbrechen (ESC)

Close & Save (F12)

user daniels / 10

```
PagePane 'Single Order Main AppTab Pane' list<> of  Order
  <opts>
  <menu>

Grid Layout
  cols(|): 1* rows(-) -1, 1*

  Delegate Form selected object Order.<property>
    Order as boundObject   cols(|): 1*, 1*
    DISABLED

    Integer id <opts>
    String name <opts>
    LocalDate orderDat <opts>
    BigDecimal totalValue <opts>
    Status status <opts>
    Reference store (reference description: id, name) <opts>

  Table list<> from selected object Order.pos
    OrderPosition as boundObject   (width 100%)
    SELECT FIRST, LABEL "Order Positions"
    <menu>

    Integer id WIDTH 5%
    String ean WIDTH 15%
    String name WIDTH 60%
    BigDecimal posValue WIDTH 10%
    DateTime timestamp WIDTH 10%
```

ORDER Demo Application

START Extras Hilfe

Search for orders | Edit Order

ORDER Amazon S.A.R.L

id: 4711

Name: Amazon S.A.R.L

Order Date: 16.04.18

Value: 0.00

Status: created

Store: 1 London FlagShip

Positions | Pos / AccountPos / AccountPos | Pos / AccountPos | PosList / SinglePos | Store

Order Positions 1/3

id	EAN	Nam	PosVal	Timestamp
1	1430262532	Beginning COBOL for Programmers	41	16.04.18
2	0764502980	Cobol for Dummies	7	16.04.18
3	3519022818	Programming with COBOL	60	16.04.18

Current Position

EAN: 1430262532

Name: Beginning COBOL for Programmers

Pos Value: 41

Timestamp: 16.04.18 14:19

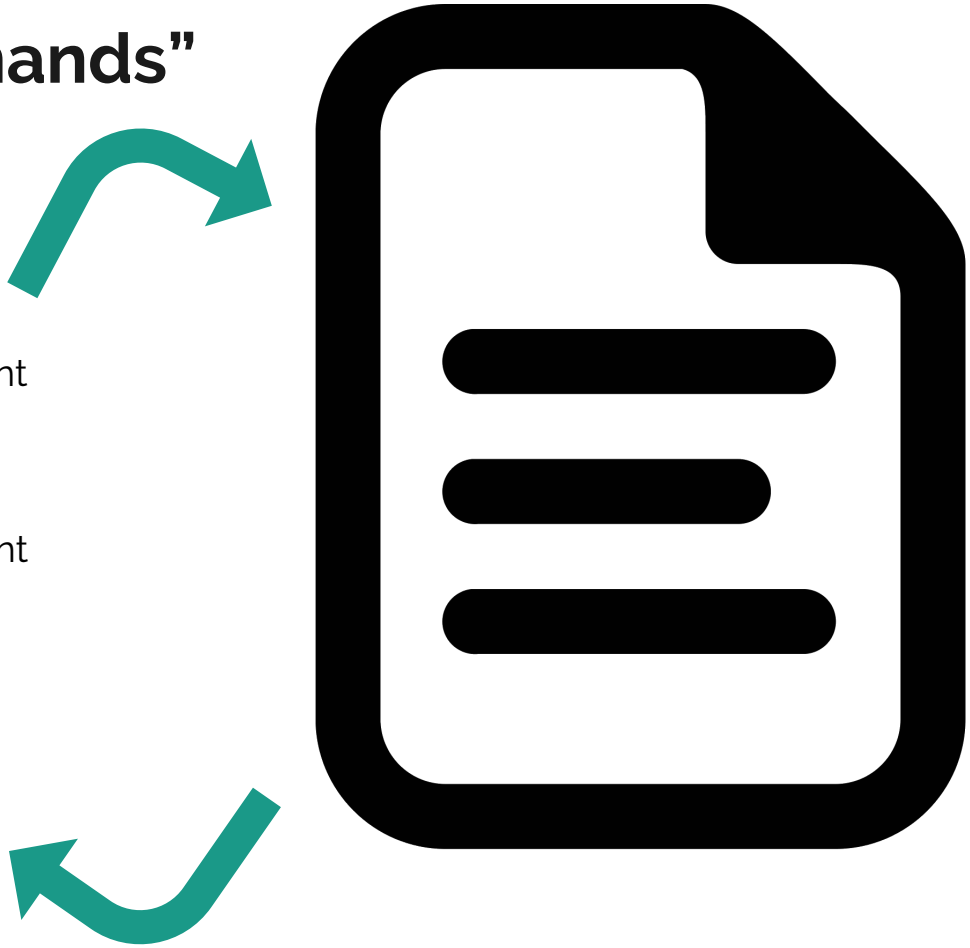
Abbrechen (ESC)

Close & Save (F12)

user daniels / 10

```
PagePane 'Single Order Main AppTab Pane' list<> of  Order
  <opts>
  <menu>

Grid Layout
  cols(|): 1* rows(-) -1, 1*, -1

  Delegate Form selected object Order.<property>
    Order as boundObject   cols(|): 1*, 1*
    DISABLED

    Integer id <opts>
    String name <opts>
    LocalDate orderDat <opts>
    BigDecimal totalValue <opts>
    Status status <opts>
    Reference store (reference description: id, name) <opts>

  Table list<> from selected object Order.pos
    OrderPosition as boundObject   (width 100%)
    SELECT FIRST, LABEL "Order Positions"
    <menu>

    Integer id WIDTH 5%
    String ean WIDTH 15%
    String name WIDTH 60%
    BigDecimal posValue WIDTH 10%
    DateTime timestamp WIDTH 10%

  Delegate Form selected object OrderPosition.<property>
    OrderPosition as boundObject   cols(|): 1*
    LABEL "Selected Order Position"

    String ean <opts>
    String name <opts>
    BigDecimal posValue <opts>
    DateTime timestamp <opts>
```

Editing Documents
(4) Provide "Commands"



1. Load/***Checkout*** Document
2. Apply Business Logic
3. Validate Document

4. Let user change document (User Interface)

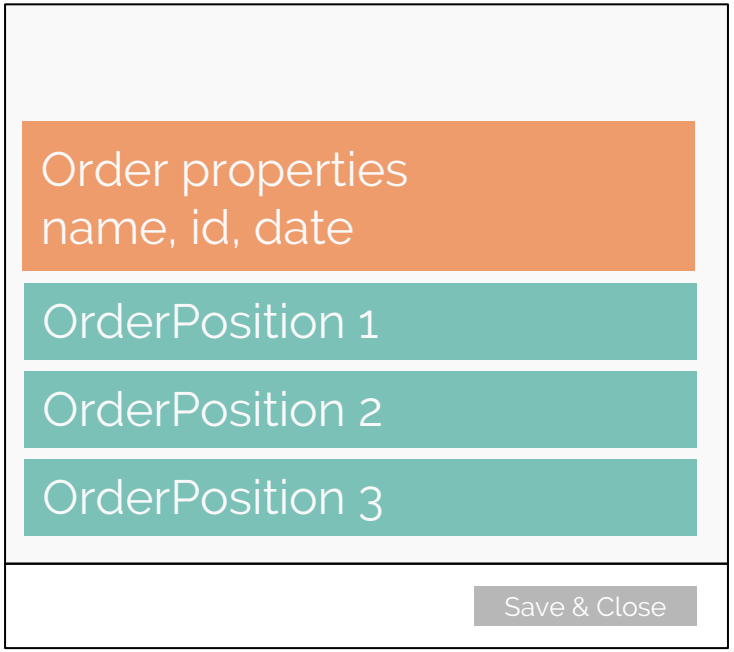
"Save & Close"

5. ***Apply Business Logic***
6. Validate Document
7. Save/***Checkin*** Document

The Command

```
Command 'Edit Order'

command_init {
      order = OrderRepository.checkoutOrder()
}

  Page 'Page1'

  page_init {
        return order
  }

  conclusion 'Save & Close' {
        done
  }

final_ok_conclusion {
      OrderRepository.checkinOrder(order)
}
```

Edit Order User Interface

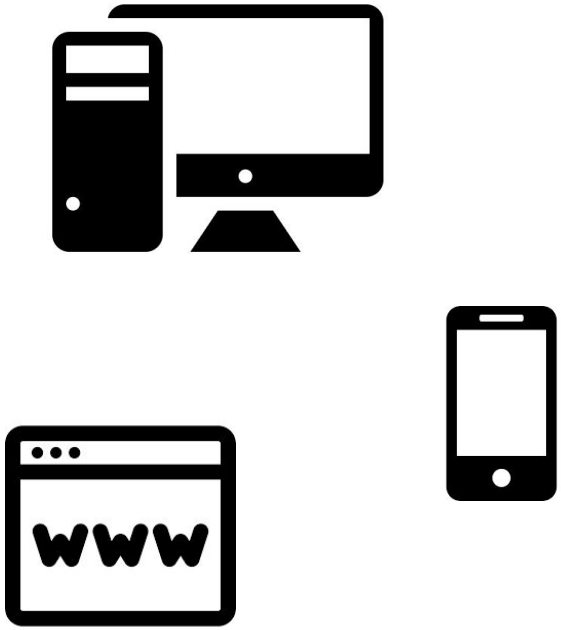


```
command 'Edit Order' in process Orderprocess with Order order  OR null (set proc doc first)!

command parameter:
int id ;

local variables:
<< ... >>


<user docu>

<tec docu>


command settings:
command type: GRAPH_OWNER_CMD
enabled if: <cond>
question on external abort: <msg>
default label info: icon Fx8IconDefaults.ICON_EDIT hotkey ENTER
revert on EX / FINAL_CANCEL_CONCLUSION: <objs>
acquire locks: "LOCK"
max init duration (in sec): <secs> : <dsc>

command init:
func()->void {

  order = call  OrderRepository.checkoutOrder(id) ;
}

then, calc title (addon): <msg>

command pages:
 page 'Standard' bound to Order

  page init:
    pageLoadFunc()->Object {
      order;
    }

  then, calc page title: "ORDER " + order.name
```

```
command pages:
  page 'Standard' bound to Order

    page init:
      pageLoadFunc()->Object {
        order;
      }

    then, calc page title: "ORDER " + order.name

    scopes/child term for page:
      <no scopeConceptFunc>
      pageChildTerminatedFunc(terminatedInFinalOk)->void {

        // call  TheService.doFlag("This is a flag Message") ;
        // call  TheService.doCancel("Cancel this command") ;
      }


    page panes switch:
      isPlatform(MDE) : MDE Simple Order Editor
      <true> : Single Order Main AppTab Pane

    branching commands:
      Edit Order Position Scan OrderPosition Reset Order Complete Order

    page conclusions:
      conclusion Ok  label: Ok_N_Save  (enabled if: <cond>)
        request 'save data' from page form: save hotkey: SAVE
        func()->void {
          done  //run FINAL_OK_CONCLUSION
        }


FINAL_OK_CONCLUSION:
  <sucsr cmds>

  func()->void {
    order.complete();
    call (+ to session ops) OrderRepository.checkinOrder(order) ;
  }

  // check process, then commit session
  selection(s)/update(s) on parent: order.pos, order
```

Editing Documents

(5) Choose Runtime



Posteingang (3) - daniel.stieg | eFMS | DataUx and Moware in MPS - | Daniel

Not Secure | jmain.mpreis.co.at/eFMS-1_12_0_1/

Apps | Schedule | tomcat @ localhost | MoWare Batch17 -... | MANAGER | MoWare supplemen... | theguardian | Other Bookmarks

START | Extras | Hilfe

Offene Aufgaben (241/263 Filialen) | F 3313>Aufgaben | Best-Kont/Perm-Zähl 16.04.18

F 3313>Bestandskontrolle Perm-Zähl>16.04.18>Beleg 1486743

abschließen

Belegdatum 16.04.18 | Status Offen | Version 0 | Rating 0,00

Lagerzählung | Bestandskorrektur | Zählbelege | Aufgaben

Lagerzählung 8 / 266

Pos	Kont	Zähl	Reg	Sta	Ver	Abgrenzung	Artikel-Nr	Artikel-Bez	WG	Soll	Bestand	Manko	PEH	Rating
1	Muss	3	2	O	0		32353	Knabbernossi Duo (25 g)	12	0,00	0,00	0,00	STK	0,00
2	Muss	2	1	O	0		108860	PowerBar Natural Energy Strawberry (40 g)	40	0,00	0,00	0,00	STK	0,00
3	Muss	2	1	O	0		108861	PowerBar Natural Energy Cacao Crunch (40 g	40	0,00	0,00	0,00	STK	0,00
4	Muss	3	2	O	0		108924	PowerBar ProteinPlus Chocolate (35 g)	40	0,00	0,00	0,00	STK	0,00
5	Muss	3	2	O	0		109212	Clif Bar Crunchy Peanut Butter 68 gr. (68 g)	40	0,00	0,00	0,00	STK	0,00
6	Muss	3	2	O	0		109213	Clif Bar White Chocolate Macadamia 68 gr (6	40	0,00	0,00	0,00	STK	0,00
7	Muss	2	1	O	0		143972	Nippon (200 g)	47	0,00	0,00	0,00	STK	0,00
8	Muss	2	1	O	0		161067	Kaiser Bimenthol Original Beutel (85 g)	47	0,00	0,00	0,00	STK	0,00
9	Muss	2	1	O	0		161068	Kaiser Waldhonig Salbei Beutel (90 g)	47	0,00	0,00	0,00	STK	0,00
10	Muss	2	1	O	0		164621	Wick Zitrone & Menthol zfr. Box (46 g)	47	0,00	0,00	0,00	STK	0,00
11	Muss	2	1	O	0		164623	Wick Kirsche & Eukalyptus zfr. Box (46 g)	47	0,00	0,00	0,00	STK	0,00
12	Muss	2	1	O	0		166712	M & M´s Erdnuss Standbeutel (220 g)	47	0,00	0,00	0,00	STK	0,00
13	Muss	2	1	O	0		166713	M & M´s Crispy Standbeutel (187 g)	47	0,00	0,00	0,00	STK	0,00
14	Muss	2	1	O	0		167073	Storck Werther's Original Sahne Bonbons (21	47	0,00	0,00	0,00	STK	0,00
15	Muss	2	1	O	0		168257	Storck Riesen Schokokaramellen (231 g)	47	0,00	0,00	0,00	STK	0,00
16	Muss	2	1	O	0		168304	Storck Nimm 2 (240 g)	47	0,00	0,00	0,00	STK	0,00
17	Muss	2	1	O	0		168350	Storck Nimm 2 Lachgummi (250 g)	47	0,00	0,00	0,00	STK	0,00
18	Muss	2	1	O	0		168363	Storck Nimm 2 Soft (195 g)	47	0,00	0,00	0,00	STK	0,00
19	Muss	2	1	O	0		168366	Storck Nimm 2 Lachgummi Softies (225 g)	47	0,00	0,00	0,00	STK	0,00
20	Muss	2	1	O	0		168369	Storck Nimm 2 Lachgummi Milchbubis (225 g	47	0,00	0,00	0,00	STK	0,00
21	Muss	2	1	O	0		170498	Storck Nimm 2 Lachgummi Joghurt (250 g)	47	0,00	0,00	0,00	STK	0,00
22	Muss	2	1	O	0		175423	Ricola Holunderblüten zfr. Beutel (75 g)	47	0,00	0,00	0,00	STK	0,00
23	Muss	2	1	O	0		175424	Ricola Zitronenmelisse zfr. Beutel (75 g)	47	0,00	0,00	0,00	STK	0,00
24	Muss	2	1	O	0		175438	Ricola Kräuterzucker Beutel (75 g)	47	0,00	0,00	0,00	STK	0,00
25	Muss	2	1	O	0		175449	Englhofer Fiszapfen (190 g)	47	0,00	0,00	0,00	STK	0,00

1 Positionen mit 0,00 Kolli

Zählpositionen / 1

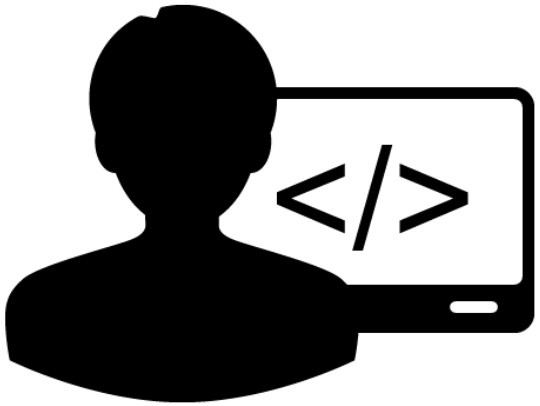
Beleg	Ort	Vers	Pos	Typ	Status	Artikel	Zählzeit	EAN	Menge	EH	Menge	BEH	Menge	PEH
136353	miniM Schillingartikel 1,40r	0	21	E	O	161067			0,00	STK	0,00	STK	0,00	STK

← Abbrechen (ESC) | Speichern & Schließen (F12)

user daniels / 11

ORDER AutoOrder 4
Position scannen
Value
40,00
Status
created
Store
1 London FlagShip
Order Positions
Ariel 500ml 1
12345678
02.04.18
Ariel 500ml 2
12345678
03.04.18
Ariel 500ml 3
12345678
Reload
Msg
OK
TAB
SHIFT
BKSP
ENT
ZEBRA
Search for Orders
Information: Das Kommando wurde fachlich abgebrochen.
RESULT for store London FlagShip
2
AutoOrder 1
02.04.18
10,00
created
3
AutoOrder 2
03.04.18
20,00
created
4
AutoOrder 3
04.04.18
0,00
created
5
AutoOrder 4
05.04.18
40,00
created
6
AutoOrder 5
06.04.18
50,00
created
7
AutoOrder 6
07.04.18
60,00
ordered
8
AutoOrder 7
08.04.18
70,00
created

Editing Documents
(6) Organize a Developer

> Spring BOOT, Angular, Vaadin ***NOT***
> Servlet, IOC, Observer ***NOT***

Increase Productivity
> Technology independence
> Standardization across Apps
> Focus on Domain
- Data-Structures
- Relations and Business Logic
- UI + Command