Reolmarked

Systemdokumentation

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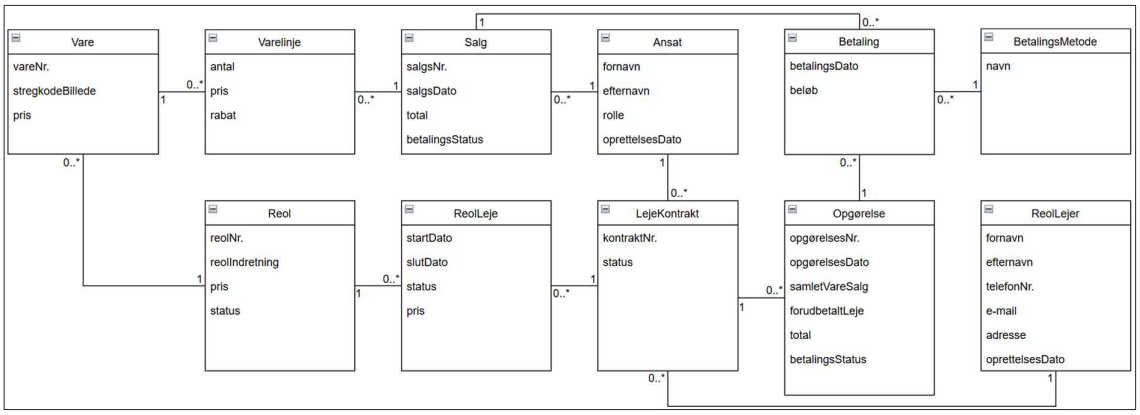
UCL DATAMATIKER ONLINE F25 | PROGRAMMERING & TEKNOLOGI II

Indholdsfortegnelse

Domænemodel



Relationelt Databaseskema

PERSON(PersonId, FirstName, LastName, CreationDate)

EMPLOYEE(*EmployeeId*, Role)

RENTER(*RenterId*, Phone, Email, Address)

RENTALAGREEMENT(AgreementId, Status, *EmployeeId*, *RenterId*)

SHELF(ShelfId, ColumnIndex, RowIndex, Arrangement, Status, Price)

SHELFRENTAL(*ShelfId*, *AgreementId*, StartDate, EndDate, IsActive, Price, Discount)

RENTALSTATEMENT(StatementId, Date, TotalValueSold, PrepaidRent, Total, IsPaid, *AgreementId*)

ITEM(ItemId, BarcodeImagePath, Price, *ShelfId*)

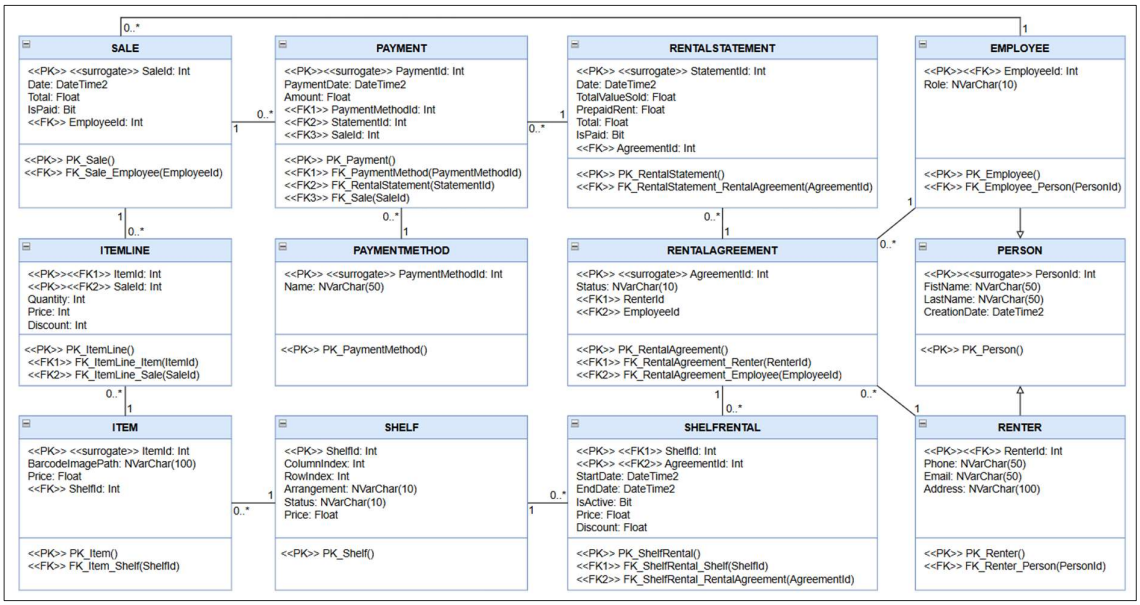
SALE(SaleId, Date, Total, IsPaid, *EmployeeId*)

ITEMLINE(*ItemId*, *SaleId*, Quantity, Price, Discount)

PAYMENTMETHOD(PaymentMethodId, Name)

PAYMENT(PaymentId, PaymentDate, Amount, *PaymentMethodId*, *StatementId*, *SaleId*)

UML Databasemodel



Sekvensdiagrammer (SD)

Her er eksempel på et sekvensdiagram, når en ansat skal tilføje en reol til en lejekontrakt.

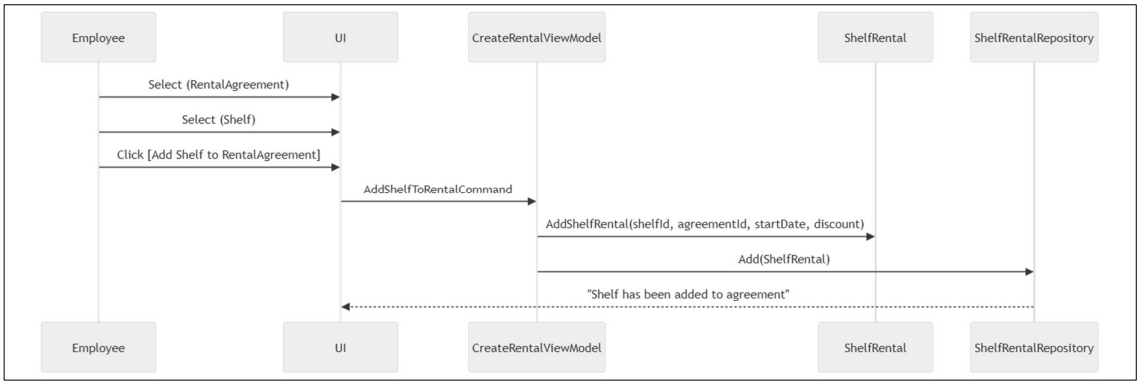


Table Creation Commands

```
CREATE TABLE PERSON(
PersonId Int PRIMARY KEY IDENTITY(1,1),
FirstName NVarChar(30) NOT NULL,
LastName NVarChar(40) NOT NULL,
CreationDate DateTime2 NOT NULL
);

CREATE TABLE RENTER(
RenterId Int,
Email NVarChar(100) NOT NULL,
Phone NVarChar(20) NOT NULL,
Address NVarChar(100) NOT NULL,
CONSTRAINT PK_Renter PRIMARY KEY (RenterId),
CONSTRAINT FK_Renter_Person FOREIGN KEY (RenterId) REFERENCES Person(PersonId)
);

CREATE TABLE EMPLOYEE(
EmployeeId Int,
Role NVarChar(10) NOT NULL,
CONSTRAINT PK_Employee PRIMARY KEY (EmployeeId),
CONSTRAINT FK_Employee_Person FOREIGN KEY (EmployeeId) REFERENCES Person(PersonId)
);

CREATE TABLE RENTALAGREEMENT (
AgreementId INT PRIMARY KEY IDENTITY(1001,1),
Status NVarChar(10) NOT NULL,
RenterId Int,
EmployeeId Int,
CONSTRAINT FK_RentalAgreement_Renter FOREIGN KEY (RenterId) REFERENCES Renter(RenterId),
CONSTRAINT FK_RentalAgreement_Employee FOREIGN KEY (EmployeeId) REFERENCES Employee(EmployeeId)
);

CREATE TABLE SHELF (
ShelfId Int PRIMARY KEY,
ColumnIndex Int NOT NULL,
RowIndex Int NOT NULL,
Arrangement NVarChar(10) NOT NULL,
Status  NVarChar(10) NOT NULL,
Price Float NOT NULL
);

CREATE TABLE SHELFRENTAL (
ShelfId Int NOT NULL,
AgreementId Int NOT NULL,
StartDate DateTime2 NOT NULL,
EndDate DateTime2,
IsActive Bit NOT NULL,
Price Float NOT NULL,
Discount Float NOT NULL,
CONSTRAINT PK_ShelfRental PRIMARY KEY (ShelfId, AgreementId),
CONSTRAINT FK_ShelfRental_Shelf FOREIGN KEY (ShelfId) REFERENCES Shelf(ShelfId),
CONSTRAINT FK_ShelfRental_RentalAgreement FOREIGN KEY (AgreementId) REFERENCES RentalAgreement(AgreementId)
);
```

```
CREATE TABLE RENTALSTATEMENT (
StatementId Int PRIMARY KEY IDENTITY(1001,1),
Date DateTime2 NOT NULL,
TotalValueSold Float NOT NULL,
PrePaidRent Float NOT NULL,
Total Float NOT NULL,
IsPaid Bit NOT NULL,
AgreementId Int NOT NULL,
CONSTRAINT FK_RentalStatement_RentalAgreement FOREIGN KEY (AgreementId) REFERENCES RentalAgreement(AgreementId)
);

CREATE TABLE ITEM(
ItemId Int PRIMARY KEY IDENTITY(1001,1),
BarcodeImagePath NVarChar(100) NOT NULL,
Price Float NOT NULL,
ShelfId Int NOT NULL,
CONSTRAINT FK_Item_Shelf FOREIGN KEY (ShelfId) REFERENCES Shelf(ShelfId)
);

CREATE TABLE SALE (
SaleId Int PRIMARY KEY IDENTITY(1001,1),
Date DateTime2 NOT NULL,
Total Float NOT NULL,
IsPaid Bit NOT NULL,
EmployeeId Int NOT NULL,
CONSTRAINT FK_Sale_Employee FOREIGN KEY (EmployeeId) REFERENCES Employee(EmployeeId)
);

CREATE TABLE ITEMLINE(
ItemId Int NOT NULL,
SaleId Int NOT NULL,
Quantity Int NOT NULL,
Price Float NOT NULL,
Discount Float NOT NULL,
CONSTRAINT PK_ItemLine PRIMARY KEY (ItemId, SaleId),
CONSTRAINT FK_ItemLine_Item FOREIGN KEY (ItemId) REFERENCES Item(ItemId),
CONSTRAINT FK_ItemLine_Sale FOREIGN KEY (SaleId) REFERENCES Sale(SaleId)
);

CREATE TABLE PAYMENTMETHOD (
PaymentMethodId Int PRIMARY KEY IDENTITY (1,1),
Name NVarChar(50) NOT NULL
);

CREATE TABLE PAYMENT (
PaymentId Int PRIMARY KEY IDENTITY(1,1),
PaymentDate DateTime2 NOT NULL,
Amount Float NOT NULL,
PaymentMethodId Int NOT NULL,
StatementId Int,
SaleId Int,
CONSTRAINT FK_Payment_Method FOREIGN KEY (PaymentMethodId) REFERENCES PaymentMethod(PaymentMethodId),
CONSTRAINT FK_Payment_RentalStatement FOREIGN KEY (StatementId) REFERENCES RentalStatement(StatementId),
CONSTRAINT FK_Payment_Sale FOREIGN KEY (SaleId) REFERENCES Sale(SaleId)
);
```

DCD

Model-lag

Nedenstående DCD giver en oversigt over modellagets klasser, som de implementeres i koden. Her er tilføjet en klasse Person, hvorfra Employee og Renter nedarver egenskaberne PersonId, FirstName, LastName og CreationDate.

Til forskel fra domænemodellen viser dette system også interfaces (markeret med gråt). Interfacet ISellable udvides med IDiscountable, som yderligere udvides med klassen IRentable. Som eksempel herpå skal ShelfRental-klassen som implementerer IRentable også implemente egenskaberne Price og Discount grundet indbyrdes nedarvning mellem interfaces.

I dette DCD er ShelfRentalRepository (markeret med lilla) eneste klasse der implementerer IRepository, dog har alle modellagets klasser en tilsvarende IRepository klasse. De er dog ikke vist for at begrænse dette DCDs størrelse.