

# CRC Cards

The CRC (Class-Responsibility-Collaboration-Card) is a tool for object-oriented design. The basic principle is to create a file card for each class and note its properties.

## Structure

### Class

- Which things are parts of the system?
- Which things communicate or interact with the system?
- Are there specific customers or users of the system?

### Responsibilities

- What is this class doing? (Functions)
- Which information is known to this class? (Attributes)

### Collaborators

- Does this class need information from another class?
- Does this class change information from another class?
- Is there a collaboration with another class?

# Overview

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# People

## natPerson

<b>natPerson (abstract)</b> is the basis for natural persons.	
Responsibilities	Collaborators
<div>Functions:</div> <div><ul style="list-style-type: none"><li></li></ul></div> <div>Attributes:</div> <div><ul style="list-style-type: none"><li>Name</li><li>Firstname</li><li>Address</li><li>Postcode</li><li>City</li><li>Birthday</li><li>Gender</li><li>AHV</li></ul></div>	Superclass of Employee and Patient

## Employee

### Employee (abstract)

forms the basis for employees. The employee class also contains the login information, since all employees should have a login to the application.

#### Responsibilities

##### Functions:

- interact with the application
- can be hired
- can change the insurance
- can be cancelled
- can log in

##### Attributes:

- Salary
- Departement
- BUV (Berufsunfallversicherung)
- NBUV  
(Nichtberufsunfallversicherung)
- EmploymentStartDate
- EmploymentEndDate
- Nickname
- Password

#### Collaborators

- Extend natPerson

## Doctor

<b>Doctor</b> a doctor is the main role of our application					
Responsibilities	Collaborators				
<table><tr><td>Functions:</td></tr><tr><td><ul style="list-style-type: none"><li>• can mutate BABNr, ZSRNr, MEBEKONr</li><li>• can change his speciality</li><li>• can generate reports</li><li>• can delegate MPA</li><li>• can manage a case</li></ul></td></tr><tr><td>Attributes:</td></tr><tr><td><ul style="list-style-type: none"><li>• BABNr</li><li>• ZSRNr</li><li>• MEBEKONr</li><li>• Specialty</li></ul></td></tr></table>	Functions:	<ul style="list-style-type: none"><li>• can mutate BABNr, ZSRNr, MEBEKONr</li><li>• can change his speciality</li><li>• can generate reports</li><li>• can delegate MPA</li><li>• can manage a case</li></ul>	Attributes:	<ul style="list-style-type: none"><li>• BABNr</li><li>• ZSRNr</li><li>• MEBEKONr</li><li>• Specialty</li></ul>	<ul style="list-style-type: none"><li>• Extends Employee</li><li>• Uses reports</li><li>• Instructs MPA</li><li>• Uses Case</li></ul>
Functions:					
<ul style="list-style-type: none"><li>• can mutate BABNr, ZSRNr, MEBEKONr</li><li>• can change his speciality</li><li>• can generate reports</li><li>• can delegate MPA</li><li>• can manage a case</li></ul>					
Attributes:					
<ul style="list-style-type: none"><li>• BABNr</li><li>• ZSRNr</li><li>• MEBEKONr</li><li>• Specialty</li></ul>					

## MPA

<b>MPA</b> is the direct assistant to the doctor. MPA work as nurses					
Responsibilities	Collaborators				
<table><tr><td>Functions:</td></tr><tr><td><ul style="list-style-type: none"><li>• can mutate his number</li><li>• can insert data for reports</li><li>• manages patients</li><li>• carries out instructions from the doctor</li></ul></td></tr><tr><td>Attributes:</td></tr><tr><td><ul style="list-style-type: none"><li>• MEBEKONr</li></ul></td></tr></table>	Functions:	<ul style="list-style-type: none"><li>• can mutate his number</li><li>• can insert data for reports</li><li>• manages patients</li><li>• carries out instructions from the doctor</li></ul>	Attributes:	<ul style="list-style-type: none"><li>• MEBEKONr</li></ul>	<ul style="list-style-type: none"><li>• Extends Employee</li><li>• Uses report</li><li>• Uses patient</li><li>• Uses case</li></ul>
Functions:					
<ul style="list-style-type: none"><li>• can mutate his number</li><li>• can insert data for reports</li><li>• manages patients</li><li>• carries out instructions from the doctor</li></ul>					
Attributes:					
<ul style="list-style-type: none"><li>• MEBEKONr</li></ul>					

## Patient

<b>Patient</b> is the basis for a patient in our system					
Responsibilities	Collaborators				
<table><tr><td>Functions:</td></tr><tr><td><ul style="list-style-type: none"><li>• addMessage</li><li>• nextMessage</li><li>• getMessages</li></ul></td></tr><tr><td>Attributes:</td></tr><tr><td><ul style="list-style-type: none"><li>• PatID</li><li>• List Messages</li></ul></td></tr></table>	Functions:	<ul style="list-style-type: none"><li>• addMessage</li><li>• nextMessage</li><li>• getMessages</li></ul>	Attributes:	<ul style="list-style-type: none"><li>• PatID</li><li>• List Messages</li></ul>	<ul style="list-style-type: none"><li>• Extend natPerson</li><li>• Has 0 to multiple Case</li><li>• Has 0 to multiple Message</li></ul>
Functions:					
<ul style="list-style-type: none"><li>• addMessage</li><li>• nextMessage</li><li>• getMessages</li></ul>					
Attributes:					
<ul style="list-style-type: none"><li>• PatID</li><li>• List Messages</li></ul>					

# Report data

## Report

<b>Report (abstract class)</b> Is the basis for the Patient-, Case-, Business- and StandupReport.	
Responsibilities	Collaborators
<div>Functions:</div> <ul style="list-style-type: none"><li>• can mutate its attributes</li><li>• getXML</li></ul> <div>Attributes:</div> <ul style="list-style-type: none"><li>• Title</li><li>• Description</li><li>• IssueDate</li><li>• IssuedBy</li></ul>	<ul style="list-style-type: none"><li>• is created by Employees</li><li>• Is Superclass of PatientReport, CaseReport, BusinessReport and StandupReport</li></ul>

## PatientReport

<b>PatientReport (Standortbestimmung Patient)</b> Describes a detailed Report of a Patient and all his Cases.	
Responsibilities	Collaborators
<div>Functions:</div> <div></div> <div>Attributes:</div> <ul style="list-style-type: none"><li>• PatientAutonomy</li><li>• PatientConfidence</li><li>• PatientHumanity</li><li>• PatientAwareness</li><li>• PatientConscientiousness</li><li>• PatientKnowledge</li><li>• PatientRationality</li><li>• PatientResponsiveness</li><li>• PatientVigilance</li></ul>	<ul style="list-style-type: none"><li>• Extends Report</li><li>• Patient generates exactly 1 PatientReport.</li><li>• Uses patient and patient details</li></ul>

## CaseReport

### CaseReport (Schichtwechsel)

is the basis for a case report and evaluation

Responsibilities	Collaborators				
<table><tr><td>Functions:</td></tr><tr><td></td></tr><tr><td>Attributes:</td></tr><tr><td><ul style="list-style-type: none"><li>CaseID</li></ul></td></tr></table>	Functions:		Attributes:	<ul style="list-style-type: none"><li>CaseID</li></ul>	<ul style="list-style-type: none"><li>extends Report</li><li>uses a case to extract data</li></ul>
Functions:					
Attributes:					
<ul style="list-style-type: none"><li>CaseID</li></ul>					

## BusinessReport

### BusinessReport (Präsentation für Politik)

is basis for stakeholders

Responsibilities	Collaborators				
<table><tr><td>Functions:</td></tr><tr><td></td></tr><tr><td>Attributes:</td></tr><tr><td><ul style="list-style-type: none"><li>● HIVPatients</li><li>● HepCPatients</li><li>● GeneralAcknowledgements</li><li>● PatientConfidentialities</li><li>● Sales / FinanceNumbers</li></ul></td></tr></table>	Functions:		Attributes:	<ul style="list-style-type: none"><li>● HIVPatients</li><li>● HepCPatients</li><li>● GeneralAcknowledgements</li><li>● PatientConfidentialities</li><li>● Sales / FinanceNumbers</li></ul>	<ul style="list-style-type: none"><li>● extends Report</li></ul>
Functions:					
Attributes:					
<ul style="list-style-type: none"><li>● HIVPatients</li><li>● HepCPatients</li><li>● GeneralAcknowledgements</li><li>● PatientConfidentialities</li><li>● Sales / FinanceNumbers</li></ul>					

## DailyReport

### DailyReport (Schichtübergabe)

is the basis for shift changeover

Responsibilities	Collaborators				
<table><tr><td>Functions:</td></tr><tr><td></td></tr><tr><td>Attributes:</td></tr><tr><td><ul style="list-style-type: none"><li>list of patients</li><li>description</li></ul></td></tr></table>	Functions:		Attributes:	<ul style="list-style-type: none"><li>list of patients</li><li>description</li></ul>	<ul style="list-style-type: none"><li>extends Reports</li></ul>
Functions:					
Attributes:					
<ul style="list-style-type: none"><li>list of patients</li><li>description</li></ul>					

## WeeklyReport

### WeeklyReport (Wochenrückblick)

is the basis for weekly changeovers

Is the basis for Weekly changeovers				
Responsibilities	Collaborators			
<table><tr><td>Functions:</td></tr><tr><td></td></tr><tr><td>Attributes:</td></tr></table>	Functions:		Attributes:	<ul style="list-style-type: none"><li>extends Reports</li></ul>
Functions:				
Attributes:				



<ul style="list-style-type: none"> <li>• list of patients</li> <li>• list of cases</li> </ul>	
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## Case Informations

### Case

<b>Case</b> A case describes one finite consultation between a doctor and a patient	
Responsibilities	Collaborators
<div>Functions:</div> <ul style="list-style-type: none"> <li>• mutate its attributes</li> </ul> <div>Attributes:</div> <ul style="list-style-type: none"> <li>• CreationDate</li> <li>• EndDate</li> <li>• Place</li> <li>• Insurance</li> <li>• InsuranceName</li> <li>• InsuranceNr</li> </ul>	<ul style="list-style-type: none"> <li>- Belongs to exactly 1 Patient</li> <li>- Belongs to exactly 1 CaseReport</li> <li>- Can contain 0 or multiple Appointment, Prescription, LabResults.</li> <li>- Has at least 1 or multiple Diagnosis</li> <li>- Has exactly 1 Anamnesis</li> </ul>

## Diagnosis

Diagnosis					
Describes a diagnosis of a case					
Responsibilities	Collaborators				
<table><tr><td>Functions:</td></tr><tr><td><ul style="list-style-type: none"><li>mutate diagnosis attributes</li></ul></td></tr><tr><td>Attributes:</td></tr><tr><td><ul style="list-style-type: none"><li>DiseaseName</li><li>Date</li><li>Severity</li><li>Symptoms</li><li>Risks</li><li>Causes</li><li>Prognosis</li><li>Treatments</li><li>Coding</li></ul></td></tr></table>	Functions:	<ul style="list-style-type: none"><li>mutate diagnosis attributes</li></ul>	Attributes:	<ul style="list-style-type: none"><li>DiseaseName</li><li>Date</li><li>Severity</li><li>Symptoms</li><li>Risks</li><li>Causes</li><li>Prognosis</li><li>Treatments</li><li>Coding</li></ul>	<ul style="list-style-type: none"><li>- Is part of exactly 1 case</li><li>- Is created by Employee</li></ul>
Functions:					
<ul style="list-style-type: none"><li>mutate diagnosis attributes</li></ul>					
Attributes:					
<ul style="list-style-type: none"><li>DiseaseName</li><li>Date</li><li>Severity</li><li>Symptoms</li><li>Risks</li><li>Causes</li><li>Prognosis</li><li>Treatments</li><li>Coding</li></ul>					

## Appointment

Appointment	
Is needed for managing appointments in the calendar and belongs to a case	
Responsibilities	Collaborators
<div>Functions:</div> <ul style="list-style-type: none"><li>• can be repetitive</li><li>• can mutate time, date, place</li></ul> <div>Attributes:</div> <ul style="list-style-type: none"><li>• Time</li><li>• Date</li><li>• Place</li><li>• Patient</li><li>• Employee (IssuedBy)</li></ul>	<ul style="list-style-type: none"><li>- is part of a case</li><li>- is created by Employee</li><li>- is using Patient</li></ul>

## Anamnesis

### Anamnesis

Describes the detailed anamnesis of a Case

#### Responsibilities

##### Functions:

- can mutate anamnesis details

##### Attributes:

- SocialAnamnesis
- Employment
- Relationships
- Home
- PersonalAnamnesis
- Allergies
- Drugs, Addiction, Diet
- Hobbies
- History of Illness
- SystemAnamnesis
- FamilialAnamnesis

#### Collaborators

- Belongs to exactly 1 Case.
- Is created by Employee

## Prescription

Prescription	
Describes a prescription for drugs and or medicaments	
Responsibilities	Collaborators
<div>Functions:</div> <div></div> <div>Attributes:</div> <ul style="list-style-type: none"> <li>Quantity</li> <li>Time of Administering, Dosage</li> <li>Number of Administering</li> <li>Valid until (Date)</li> <li>Ev. (Digital) Signature</li> <li>Ev. Covered by Insurance y/n</li> <li>Ev. Location of Obtaining</li> </ul>	<ul style="list-style-type: none"> <li>Belongs (is included) in exactly 1 case.</li> <li>Belongs (includes) 1 or multiple drugs.</li> <li>Is created by Employee</li> <li>uses drug</li> </ul>

## Drug

Drug	
Describes a drug used in a description	
Responsibilities	Collaborators
<div>Functions:</div> <ul style="list-style-type: none"> <li></li> </ul> <div>Attributes:</div> <ul style="list-style-type: none"> <li>Name</li> <li>Dosis / Weight</li> <li>Packing</li> <li>Administering (Dosage form)</li> <li>Color</li> <li>Warnings, Caves</li> <li>Price</li> <li>Composition, Ingredient</li> <li>Chemical Formula</li> <li>Reaction</li> <li>(Possible) Side effects</li> </ul>	<ul style="list-style-type: none"> <li>Belongs (included) in 1 to multiple Prescription.</li> <li>Contained by Prescription</li> </ul>

## LabResults

LabResults	
Describes the Result of a Lab-related Analysis, e.g. blood or urine	
Responsibilities	Collaborators
<div>Functions:</div> <div></div> <div>Attributes:</div> <ul style="list-style-type: none"> <li>BloodAnalysis</li> <li>Hemoglobin, Hematocrit, Cells</li> <li>ChemicalAnalysis</li> <li>Sugar, Proteines, Vitamines</li> <li>MicrobiologicalAnalysis</li> <li>Bacteria, Virus, Parasites</li> <li>HIV</li> <li>Hepatitis-C</li> <li>UrineAnalysis</li> <li>Glucose</li> </ul>	<ul style="list-style-type: none"> <li>Belongs (is included) to exactly 1 Case.</li> <li>Belongs (has) its results from exactly 1 Lab.</li> <li>Is created by Employee</li> <li>Analyzed by Lab</li> </ul>

## Lab

Lab	
Describes an external Lab, its address and location	
Responsibilities	Collaborators
<div>Functions:</div> <div></div> <div>Attributes:</div> <ul style="list-style-type: none"> <li>Name</li> <li>Address</li> <li>Postcode</li> <li>City</li> <li>Description</li> <li>Contact / Unpersonal E-mail / Tel</li> </ul>	<ul style="list-style-type: none"> <li>Belongs (is included) in 0 to multiple LabResults.</li> </ul>

## Other

### Message

<b>Message (Highlights)</b> is the basis for internal messages					
Responsibilities	Collaborators				
<table><tr><td>Functions:</td></tr><tr><td><ul style="list-style-type: none"><li>• can mutate its attributes</li></ul></td></tr><tr><td>Attributes:</td></tr><tr><td><ul style="list-style-type: none"><li>• MessageId</li><li>• Content</li><li>• sentDate</li><li>• status</li><li>• Employee (CreatedBy)</li></ul></td></tr></table>	Functions:	<ul style="list-style-type: none"><li>• can mutate its attributes</li></ul>	Attributes:	<ul style="list-style-type: none"><li>• MessageId</li><li>• Content</li><li>• sentDate</li><li>• status</li><li>• Employee (CreatedBy)</li></ul>	<ul style="list-style-type: none"><li>• is created by Employees</li><li>• belongs to 1 Patient</li></ul>
Functions:					
<ul style="list-style-type: none"><li>• can mutate its attributes</li></ul>					
Attributes:					
<ul style="list-style-type: none"><li>• MessageId</li><li>• Content</li><li>• sentDate</li><li>• status</li><li>• Employee (CreatedBy)</li></ul>					

### PDFCreator

<b>Message</b> is Basis for creating a PDF					
Responsibilities	Collaborators				
<table><tr><td>Functions:</td></tr><tr><td><ul style="list-style-type: none"><li>● generatePDF</li></ul></td></tr><tr><td>Attributes:</td></tr><tr><td><ul style="list-style-type: none"><li>●</li></ul></td></tr></table>	Functions:	<ul style="list-style-type: none"><li>● generatePDF</li></ul>	Attributes:	<ul style="list-style-type: none"><li>●</li></ul>	Uses reports to create a PDF
Functions:					
<ul style="list-style-type: none"><li>● generatePDF</li></ul>					
Attributes:					
<ul style="list-style-type: none"><li>●</li></ul>					