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

People

natPerson

natPerson (abstract) is the basis for natural persons.	
Responsibilities	Collaborators
<table><tr><td>Functions:</td></tr><tr><td>● knows the name and address of the person, date of birth, gender and AHV number.</td></tr><tr><td>Attributes:</td></tr><tr><td>● Name ● Firstname ● Address ● Postcode ● City ● Birthday ● Gender ● AHV</td></tr></table>	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	**Collaborators**
<table><tr><td>**Functions:**</td></tr><tr><td> - knows his salary and department - knows his insurance numbers - knows when the employment starts and ends - knows his login / profile data - interact with the application - can be hired - can change the insurance - can be cancelled - can log in </td></tr><tr><td>**Attributes:**</td></tr><tr><td> - Salary - Departement - BUV (Berufsunfallversicherung) - NBUV (Nichtberufsunfallversicherung) - EmploymentStartDate - EmploymentEndDate - Nickname - Password </td></tr></table>	● Extend natPerson

Doctor

Doctor a doctor is the main role of our application	
Responsibilities	Collaborators
Functions: ● knows his necessary admission numbers ● knows his speciality ● can mutate BABNr, ZSRNr, MEBEKONr ● can change his speciality ● can generate reports ● can delegate MPA ● can manage a case **Attributes:** ● BABNr ● ZSRNr ● MEBEKONr ● Specialty	● Extends Employee ● Uses reports ● Instructs MPA ● Uses Case

MPA

MPA is the direct assistant to the doctor. MPA work as nurses	
Responsibilities	Collaborators
Functions: ● knows his necessary admission numbers ● can mutate his number ● can insert data for reports ● manages patients ● carries out instructions from the doctor **Attributes:** ● MEBEKONr	● Extends Emplyoee ● Uses report ● Uses patient ● Uses case

Patient

Patient is the basis for a patient in our system	
Responsibilities	Collaborators
<table><tr><td>Functions:</td></tr><tr><td> - knows his unique ID number - addMessage - nextMessage - getMessages </td></tr><tr><td>Attributes:</td></tr><tr><td> - PatID - List Messages </td></tr></table>	- Extend natPerson - Has 0 to multiple Case - Has 0 to multiple Message

Report data

Report

Report (abstract class)	
Is the basis for the Patient-, Case-, Business- and StandupReport.	
Responsibilities	Collaborators
Functions: - knows his content - knows his purpose / description - knows his creation date - knows who issued the report - can mutate its - getXML **Attributes:** - Title - Description - IssueDate - IssuedBy	- is created by Employees - Is Superclass of PatientReport, CaseReport, BusinessReport and StandupReport

PatientReport

PatientReport (Standortbestimmung Patient)	
Describes a detailed Report of a Patient and all his Cases.	
Responsibilities	Collaborators
Functions: - Knows Case, Diagnosis, Appointment, Anamnesis, Prescription, LabResults - Knows all Patient Attributes - Knows the attribute differences to the last PatientReport **Attributes:** - PatientAutonomy - PatientConfidence - PatientHumanity - PatientAwareness - PatientConscientiousness - PatientKnowledge - PatientRationality - PatientResponsiveness - PatientVigilance	- Extends Report - Patient generates exactly 1 PatientReport. - Uses patient and patient details

CaseReport

CaseReport (Schichtwechsel)	
is the basis for a case report and evaluation	
Responsibilities	Collaborators

Functions:
  ● Knows the sum of its Case and all Case-Attributes
Attributes:
  ● CaseID
	● extends Report
	● uses a case to extract data

BusinessReport

BusinessReport (Präsentation für Politik)	
is basis for stakeholders	
Responsibilities	Collaborators

Functions:
  ● Knows the sum of PatientReport and CaseReport
  ● Knows the sum of Case-, Diagnosis-, Appointment-, Anamnesis-, Prescription- and LabResults-Attributes.
Attributes:
  ● HIVPatients
  ● HepCPatients
  ● GeneralAcknowledgements
  ● PatientConfidentialities
  ● Sales / FinanceNumbers
	● extends Report

DailyReport

DailyReport (Schichtübergabe)	
is the basis for shift changeover	
Responsibilities	Collaborators

Functions:
  ● knows patients, when it's issued
  ● knows and mutate its description
Attributes:
  ● list of patients
  ● description
	● extends Reports

WeeklyReport

WeeklyReport (Wochenrückblick)	
is the basis for weekly changeovers	
Responsibilities	Collaborators
Functions: ● knows issue date Attributes: ● list of patients ● list of cases	● extends Reports

Case Informations

Case

Case	
A case describes one finite consultation between a doctor and a patient	
Responsibilities	Collaborators
Functions: ● knows the time it starts and ends ● knows where it's located ● knows its insurance ● mutate its attributes Attributes: ● CreationDate ● EndDate ● Place ● Insurance ● InsuranceName ● InsuranceNr	- Belongs to exactly 1 Patient - Belongs to exactly 1 CaseReport - Can contain 0 or multiple Appointment, Prescription, LabResults. - Has at least 1 or multiple Diagnosis - Has exactly 1 Anamnesis

Diagnosis

Diagnosis	
Describes a diagnosis of a case	
Responsibilities	Collaborators
Functions: ● knows diagnosis attributes ● mutate diagnosis attributes **Attributes:** ● DiseaseName ● Date ● Severity ● Symptoms ● Risks ● Causes ● Prognosis ● Treatments ● Coding	- Is part of exactly 1 case - Is created by Employee

Appointment

Appointment	
Is needed for managing appointments in the calendar and belongs to a case	
Responsibilities	Collaborators
Functions: ● knows time, date, place ● knows his attendees ● can be repetitive ● can mutate time, date, place **Attributes:** ● Time ● Date ● Place ● Patient ● Employee (IssuedBy)	- is part of a case - is created by Employee - is using Patient

Anamnesis

Anamnesis	
Describes the detailed anamnesis of a Case	
Responsibilities	Collaborators
Functions: ● knows anamnesis details ● can mutate anamnesis details **Attributes:** ● SocialAnamnesis ● Employment ● Relationships ● Home ● PersonalAnamnesis ● Allergies ● Drugs, Addiction, Diet ● Hobbies ● History of Illness ● SystemAnamnesis ● FamilialAnamnesis	- Belongs to exactly 1 Case. - Is created by Employee

Prescription

Prescription	
Describes a prescription for drugs and or medicaments	
Responsibilities	Collaborators
Functions: ● Knows prescription attributes ● Knows case attributes **Attributes:** ● Quantity ● Time of Administering, Dosage ● Number of Administering ● Valid until (Date) ● Ev. (Digital) Signature ● Ev. Covered by Insurance y/n ● Ev. Location of Obtaining	- Belongs (is included) in exactly 1 case. - Belongs (includes) 1 or multiple drugs. - Is created by Employee - uses drug

Drugs

Drugs	
Describes a drug used in a description	
Responsibilities	Collaborators
Functions: ● Knows in which Prescription it is included, identified by ID ● Knows drug attributes **Attributes:** ● Name ● Dosis / Weight ● Packing ● Administering (Dosage form) ● Color ● Warnings, Caves ● Price ● Composition, Ingredient ● Chemical Formula ● Reaction ● (Possible) Side effects	- Belongs (included) in 1 to multiple Prescription. - Contained by Prescription

LabResults

LabResults	
Describes the Result of a Lab-related Analysis, e.g. blood or urine	
Responsibilities	Collaborators
<table><tr><td>Functions:</td></tr><tr><td>● knows all Lab Results</td></tr><tr><td>Attributes:</td></tr><tr><td>● BloodAnalysis ● Hemoglobin, Hematocrit, Cells ● ChemicalAnalysis ● Sugar, Proteines, Vitamines ● MicrobiologicalAnalysis ● Bacteria, Virus, Parasites ● HIV ● Hepatitis-C ● UrineAnalysis ● Glucose</td></tr></table>	- Belongs (is included) to exactly 1 Case. - Belongs (has) its results from exactly 1 Lab. - Is created by Employee - Analyzed by Lab

Lab

Lab	
Describes an external Lab, its address and location	
Responsibilities	Collaborators
<table><tr><td>Functions:</td></tr><tr><td>● Knows in which LabResults it is included, identified by ID ● Knows the lab details ●</td></tr><tr><td>Attributes:</td></tr><tr><td>● Name ● Address ● Postcode ● City ● Description ● Contact / Unpersonal E-mail / Tel</td></tr></table>	- Belongs (is included) in 0 to multiple LabResults.

Other

Note

Note (Highlights)	
is the basis for internal messages	
Responsibilities	**Collaborators**
Functions: - knows its content - knows when it's sent - knows to whom it's sent - knows its status - can mutate its attributes **Attributes:** - MessageId - Content - sentDate - status - Employee (CreatedBy)	- is created by Employees - belongs to 1 Patient

PDFCreator

Message	
is Basis for creating a PDF	
Responsibilities	**Collaborators**
Functions: - generatePDF **Attributes:**	Uses reports to create a PDF