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# DOCUMENT PROCESSING

Domain Analysis

Software Architecture (H09B5a and H07Z9a) – Part 1

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# Contents

# 1 Domain analysis

## 1.1 Domain models

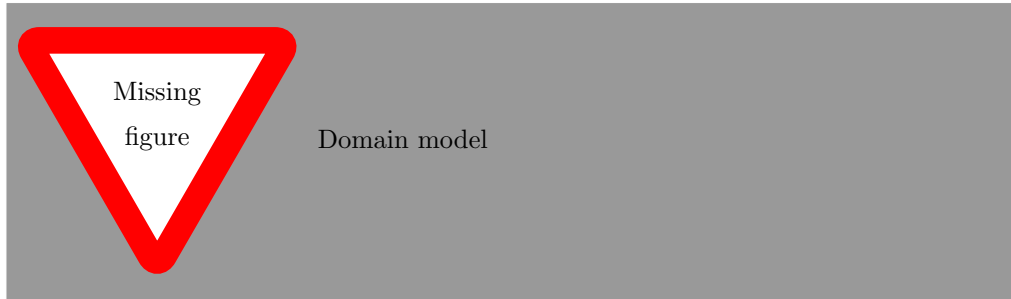This section shows the domain model(s).



Figure 1: The domain model for the system.

## 1.2 Domain constraints

In this section we provide additional domain constraints.

- This is a first constraint.
- This is a second constraint.

## 1.3 Glossary

In this section, we provide a glossary of the most important terminology used in this analysis.

- **Term1**: definition
- **Term2**: definition

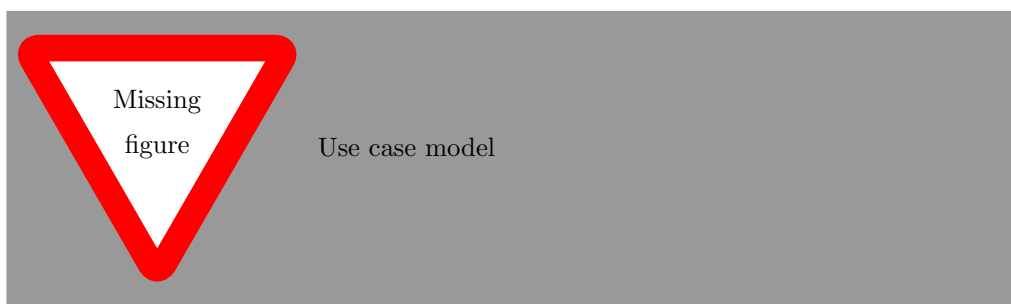# 2 Functional requirements

**Use case model**



Figure 2: Use case diagram for the system.

## 2.1 *UC1*: Name of use case 1

- **Name:** Name of use case 1
- **Primary actor:** primary actor
- **Interested parties:**

- *Name of interested party:* reason why party is interested

- **Preconditions:**

  - First precondition.
  - Second precondition.

- **Postconditions:**

  - First postcondition.
  - Second postcondition.

- **Main scenario:**

  1. Step 1
  2. Step 2
  3. Step 3
  4. ...

- **Alternative scenarios:**

  3b. Alternative at step 3

- **Remarks:**

  - First remark

## 2.2 *UC1.1*: Consult document status

- **Name:** Consult document status

- **Primary actor:** Customer organisation

- **Interested parties:**

  - *Customer organisation:* wants to consult the status of one of its documents at eDocs
  - *The eDocs system:* provides a management dashboard through which the customer can, among other things, consult the status of its documents

- **Preconditions:**

  - The customer organisation is a registred client at eDocs
  - The customer organisation is logged into the eDocs system

- **Postconditions:**

  - The customer organisation has consulted the status of the desired document

- **Main scenario:**

  1. The customer orgnanisation provides the eDocs system with enough information for it to identify the desired document of which the status needs to be consulted
  2. The eDocs system retrieves the status of the respective document
  3. The eDocs system provides the customer organisation with the retrieved document status information
  4. The customer organisation consults the document status information received from the eDocs system

## 2.3  *UC2*: Register customer organisation

- **Name:** Register customer organisation

- **Summary:** The eDocs administrator registers a new customer organisation in order to enlarge the eDocs client base

- **Primary actor:** eDocs administrator

- **Secondary actor:** Customer organisation

- **Interested parties:**

    - *Customer organisation:* wants to outsource its document processing to eDocs
    - *eDocs:* wants to gain new clients customer organisations) for which it can process documents
    - *eDocs administrator:* deals with the administrational tasks during the registration of customer organisations

- **Preconditions:**

    - The customer organisation has actively expressed its interest in eDocs
    - The eDocs administrator has initiated negotiations about the contract and SLA with the customer organisation

- **Postconditions:**

    - eDocs has gained a new client (and friend)
    - The customer organisation and eDocs administrator have succesfully negotiated a contract and SLA

- **Main scenario:**

    1. The customer organisation has expressed its interest in eDocs as its potential document processing partner
    2. The eDocs administrator starts negotiations with the customer organisation about the contract and SLA
    3. Both parties agree upon the terms and conditions specified in the forenamed documents
    4. The customer organisation is now a client of eDocs and has agreed to outsource (part of) its document processing tasks to eDocs

- **Alternative scenarios:**

    3a. The two parties do not reach an agreement
    4a. The customer organisation expresses its intent to outsource its document processing tasks elsewhere
    5a. eDocs had lost a potential client

- **Assumptions:**

    - The registration process is initiated by the customer organisation expressing its interest in eDocs. It is thus assumed that eDocs is a big player in the document processing market, following a passive strategy to gain new clients.

## 2.4  *UC4*: Deliver raw payslip data

- **Name:** Deliver raw payslip data

- **Summary:** The customer organisation provides eDocs, either directly or indirectly, with the raw payslip data to be processed

- **Primary actor:** Customer organisation

- **Secondary actor:** eDocs system

- **Interested parties:**

  - *Customer organisation:* wants to deliver its raw payslip data to eDocs so that the latter can process it accordingly
  - *Social secretary:* wants to be an intermediate party in the delivery of raw payslip data
  - *System:* accepts the raw data to be processed

- **Preconditions:**

  - The customer organisation representative is logged in to the eDocs system

- **Postconditions:**

  - The customer organisation representative has provided the eDocs system with its raw payslip data
  - The eDocs system has succesfully received the customer organisation's raw payslip data

- **Main scenario:**

  1. The customer organisation sends its raw payslip data to eDocs via the management dashboard or via a web service that provides a link from the customer organisation's system to that of eDocs
  2. The eDocs system receives the customer organisation's raw payslip data

- **Alternative scenarios:**

  1a. The customer organisation provides its social secretary with the necessary employee and tax information
  2a. The social secretary integrates the raw employee data into raw payslip data conform to the eDocs standard
  3a. Continue from step 2.

- **Remarks:**

  - The customer organisation representative is either its social secretary or the customer organisation itself

## 2.5 *UC5*: Process raw data

- **Name:** Process raw data
- **Summary:** The eDocs system processes the raw data that was provided by the customer organisation in a previous step
- **Primary actor:** eDocs system
- **Secondary actor:** None
- **Interested parties:**

  - *Customer organisation:* wants its raw data to be processed correctly
  - *eDocs system:* wants to process the raw data correctly

- **Preconditions:**

  - The customer organisation, to which the raw data belongs, is a registered client of eDocs
  - The raw data that has to be processed, was successfully delivered to the eDocs system

- **Postconditions:**

  - The raw data is processed

- **Main scenario:**

  1. Check raw data for consistency and completeness

2. Process document data according to previously provided template

3. Process meta data

- **Alternative scenarios:**

  2a. Erroneous data is sent back to the customer organisation from which it originated

  3a. The customer organisation corrects the erroneous part(s) of the respective (batch of) raw data

  4a. The customer organisation delivers a (batch of) raw data consisting only of those corrected records that were (partly) erronous at the beginning of this processing phase

  5a. Restart from step 1.

## 2.6  *UC6*: De-activate personal document store

- **Summary:** A Registered recipient de-activates his or her personal document store account.

- **Primary actor:** Registered recipient

- **Secondary actors:** The System

- **Interested parties:**

  – *Registered recipient:* wants to de-activate his or her personal document store

  – *eDocs:* wants to keep as many Registered recipients as possible.

- **Preconditions:** None

- **Postconditions:**

  – The Registered recipient is now an Unregistered recipient and can no longer log in to the system.

  – The Registered recipient is now logged out and can no longer make use of his/her personal document store.

  – The System has removed the account of the Registered Recipient. It keeps the documents of the Registered recipient archived.

  – The Registered recipient now receives his or her documents via another channel than his or her personal document store.

- **Main scenario:**

  1. The Registered recipient indicates that he or she wants to de-activate his or her personal document store.

  2. The System removes the account of the registered recipient.

  3. The System indicates success to the Registered recipient and logs him or her out.

- **Alternative scenarios:**

  1. . . .

- **Remarks:**

  – None

## 2.7  *UC7*: Provide document template

- **Summary:** An eDocs administrator

- **Primary actor:** eDocs administrator

- **Interested parties:**

  – *eDocs administrator:* wants to provide a document template that a customer organization can fill in.

- *Customer organization:* wants to have a template for its documents
- *eDocs:* wants to generate documents based on a template that the Customer organization has filled in.

- **Preconditions:**

  - The Customer organization has registered itself with eDocs.

- **Postconditions:**

  - The System now contains a template which the Customer organization can fill in.

- **Main scenario:**

  1. The eDocs administrator provides a document template to the System.

- **Alternative scenarios:**

  1. None

- **Remarks:**

  - None

## 2.8 *UC8*: Update document template

- **Summary:** The Customer organization updates a document template.

- **Primary actor:** Customer organization

- **Secondary actors:**

  - eDocs administrator
  - eDocs System

  eDocs administrator

- **Interested parties:**

  - *Customer organization:* wants its documents to have a layout corresponding to the initial template it fills in.
  - *eDocs:* wants to generate documents with a layout corresponding to the wishes of its clients.

- **Preconditions:**

  - The Customer organization is logged in.

- **Postconditions:**

  - The System from now on generates documents using the new filled in document template.
  - The System stores the provided document template.

- **Main scenario:**

  1. The Customer organization indicates it wants to download the current document template.
  2. The System looks up the correct document template and provides it to the Customer organization.
  3. The Customer organization changes the current document template.
  4. The Customer organization indicates it wants to upload the filled in template.
  5. The System downloads the updated document. It notifies an eDocs administrator that a new filled in document is waiting to be verified for correctness.
  6. An eDocs administrator verifies the correctness of the document template.
  7. The System stores it. The updated document replaces the old document template for that Customer organization and that document type.

- **Alternative scenarios:**

    6a. If the provided document template is not correctly filled in, the administrator notifies the Customer organization. Continue from step 3.

- **Remarks:**

    – If the Customer organization has not filled in a document template before, the document template presented to the Customer organization is the document template that the eDocs administrator provided for the Customer Organization to use.

## 2.9  *UC1*: Enable receipt tracking

- **Summary:** The Customer organization enables receipt tracking

- **Primary actor:** Customer organization

- **Interested parties:**

    – *Customer organization:* wants to know if a Recipient has received his or her documents.

    – *Recipient:* might want to know if he or she is being tracked.

- **Preconditions:**

    – The Customer organization is logged in.

- **Postconditions:**

    – Receipt tracking is now enabled for the distribution channels that support it.

- **Main scenario:**

    1. The Customer organization indicates that it wants to enable receipt tracking.

    2. The System stores this setting.

- **Alternative scenarios:**

    1. . . .

- **Remarks:**

    – Receipt tracking is only supported for e-mail, Zoomit and the personal document store.

## 2.10  *UC1*: Disable receipt tracking

- **Summary:** The Customer organization disables receipt tracking

- **Primary actor:** Customer organization

- **Interested parties:**

    – *Customer organization:* no longer wants to be able to track receipts.

    – *Recipient:* might want to know if he or she is being tracked.

- **Preconditions:**

    – The Customer organization is logged in.

- **Postconditions:**

    – Receipt tracking is now disabled for all distribution channels.

- **Main scenario:**

    1. The Customer organization indicates that it no longer wants to enable receipt tracking.

    2. The System stores this setting.

- **Alternative scenarios:**

  1. ...

- **Remarks:**

  – Receipt tracking is only supported for e-mail, Zoomit and the personal document store.

## 2.11 *UC1*: Send document via e-mail

- **Summary:** Intiated by Time, the system sends an e-mail to an Unregistered recipient.

- **Primary actor:** Time

- **Secondary actors:** The System

- **Interested parties:**

  – *Customer organization:* wants the Unregistered recipients to receive their documents.
  – **Unregistered recipient:** wants to receive his or her documents.
  – **eDocs;** wants the documents it sends to be correctly received.
  – **E-mail provider** wants to correctly deliver documents it send by e-mail in a timely manner.

- **Preconditions:**

  – The document to be send is generated correctly.
  – The addressing information provided by the Customer Organization in the raw data is an e-mail address.

- **Postconditions:**

  – The System has send out an e-mail address to the Unregistered recipient.

- **Main scenario:**

  1. Time notifies the System that it should send the generated document.
  2. The System generates a unique link. When followed, the link points to a web page where the whole document can be read.
  3. The System generates an e-mail containing a preview of the document and the unique link pointing to the web page with the document.
  4. The System sends the e-mail to the e-mail address provided as addressing information in the raw data.

- **Alternative scenarios:**

  2a If receipt tracking is disabled:
    (a) The System generates an e-mail containing a short message indicating that there is a new document from the Customer organization. It puts the document as an attachment to the e-mail.
    (b) Continue at step 4.
  2b. The unique link is not unique. The System keeps generating new links until it generates a unique one.

## 2.12 *UC1*: Notify about incorrect e-mail address

- **Summary:** After receiving an error message from an e-mail provider, the System notifies the customer organization about the incorrect addressing information.

- **Primary actor:** E-mail provider

- **Secondary actors:**

- **Interested parties:**

  - *Customer organization:* wants to be notified when it gives incorrect addressing information to the eDocs System.
  - **eDocs:** wants to notify a customer organisation about incorrect addressing information.
  - **E-mail provider** wants to deliver e-mails to the correct e-mail addresses.

- **Preconditions:**

  - UC: *Send document via e-mail*
  - The addressing information provided by the Customer Organization in the raw data is an incorrect e-mail address.

- **Postconditions:**

  –

- **Main scenario:**

  1. The E-mail provider receives an e-mail for an incorrect e-mail address.
  2. The E-mail provider notifies the System it has received an e-mail to an incorrect address.
  3. The System extracts the necessary information from the error message received from the E-mail provider.
  4. The System looks up the raw data in its archive corresponding to the incorrect e-mail address and document.
  5. The System notifies the Customer organization about the incorrect addressing information.

## 2.13 *UC1*: Receive document via e-mail

- **Summary:** The Unregistered recipient recipient receives a document via e-mail.

- **Primary actor:** Unregistered Recipient

- **Secondary actors:** The System

- **Interested parties:**

  - *Customer organization:* wants the Unregistered recipients to receive their documents.
  - **Unregistered recipient:** wants to receive his or her documents.
  - **eDocs;** wants the documents it sends to be correctly received.
  - **E-mail provider** wants to correctly deliver documents it send by e-mail in a timely manner.

- **Preconditions:**

  - UC: *Send document via e-mail*

- **Postconditions:**

  - The Unregistered recipient has received his or her document .

- **Main scenario:**

  1. The Unregistered recipient checks his or her e-mail.

2. The Unregistered recipient sees the e-mail send by the System and opens it.

3. The Unregistered recipient now sees the preview of the document and a unique link pointing to a web page.

4. The Unregistered recipient follows the link in the e-mail address.

5. The System gets a request that the Unregistered recipient wants to view a document using the unique link.

6. The System responds by sending a web page to the Unregistered recipient where he or she can see or download the document.

7. The Unregistered recipient now sees the page where he or she can see and download the document.

8. The System remembers the fact that the Unregistered recipient sees the document (receipt tracking).

- **Alternative scenarios:**

  3a. If receipt tracking is disabled:
      (a) The Unregistered recipient opens the attachment of the e-mail.
      (b) The Unregistered recipient now sees his or her document.

## 2.14  *UC1*: Search for document in personal document store

- **Summary:** Registered recipient searches for a specific document in his or her personal document store.

- **Primary actor:** Registered Recipient

- **Secondary actors:** None

- **Interested parties:**

  - **Registered recipients:** want to find a specific document.
  - *Customer organization:* wants the specific document to be found.

- **Preconditions:**

  - The Registered recipient is logged in (cf. *UC1: Log in.*

- **Postconditions:**

  - The Registered recipient has received an overview of all the documents he or she received meet his or her search criteria.

- **Main scenario:**

  1. The Registered recipient indicates that he or she wants to search for a specific document, e.g. in the overview of received documents (cf. *UC4: Consult personal document store.*

  2. The System presents to the Registered recipient one or more ways to specify criteria that the document he/she is looking for must meet.

  3. The System searches in its archive and looks up the documents that meet the specified requirements. The System presents the found documents to the Registered recipient.

- **Alternative scenarios:**

  3a. If the System does not find any documents that match the criteria, it notifies the Registered recipient of this fact. Continue from step 2.

# 3  Non-functional requirements

In this section, we model the non-functional requirements for the system in the form of *quality attribute scenarios*. We provide for each type (availability, performance and modifiability) one requirement.

## 3.1 Availability

### 3.1.1 *Av1*: Name of the quality attribute scenario

Shortly describe the context of the scenario.

- **Source:** source
- **Stimulus:**
    - Description of a first stimulus.
    - Description of a second stimulus.
- **Artefact:** the stimulated artefact
- **Environment:** the condition under which the stimulus occurs
- **Response:**
    - Describe how the system should respond to the stimulus.
- **Response measure:**
    - Describe how the satisfaction of a response is measured.

## 3.2 Performance

### 3.2.1 *P1*: Name of the quality attribute scenario

Shortly describe the context of the scenario.

- **Source:** source
- **Stimulus:**
    - Description of a first stimulus.
    - Description of a second stimulus.
- **Artifact:** the stimulated artifact
- **Environment:** the condition under which the stimulus occurs
- **Response:**
    - Describe how the system should respond to the stimulus.
- **Response measure:**
    - Describe how the satisfaction of a response is measured.

## 3.3 Modifiability

### 3.3.1 *M1*: Name of the quality attribute scenario

Shortly describe the context of the scenario.

- **Source:** source
- **Stimulus:**
    - Description of a first stimulus.
    - Description of a second stimulus.
- **Artefact:** the stimulated artefact
- **Environment:** the condition under which the stimulus occurs

- **Response:**

  – Describe how the system should respond to the stimulus.

- **Response measure:**

  – Describe how the satisfaction of a response is measured.