Requirements Document ch.bfh.bti7081.s2017 Group Yellow

Contents

Preface

This document describes the requirement spezifications of an application which supports the health authority management. The application is part of a patient management system (PMS) in mental authorities. The project is created as part of a group work at the BFH in module software engenieering. This document is aimed to the health authority management as well as the development team.

1.1 Version history

This document is saved in the versioning system GIT. Use git tools to browse history. It would be redundant to show the history here.

2 Introduction

The patient management system (PMS) is applied by an health authority organisation to manage and analyse the care of

patients suffering from mental health problems. The PSM is devided in several applications, each covering a part of a target user. One part is that of the health authority management which we describe here. The application supports the management by doing five main tasks to reduce the workload and risks which may occur by working with high sensitive data. The whole system is build in a enterprise network for easy accessibility.

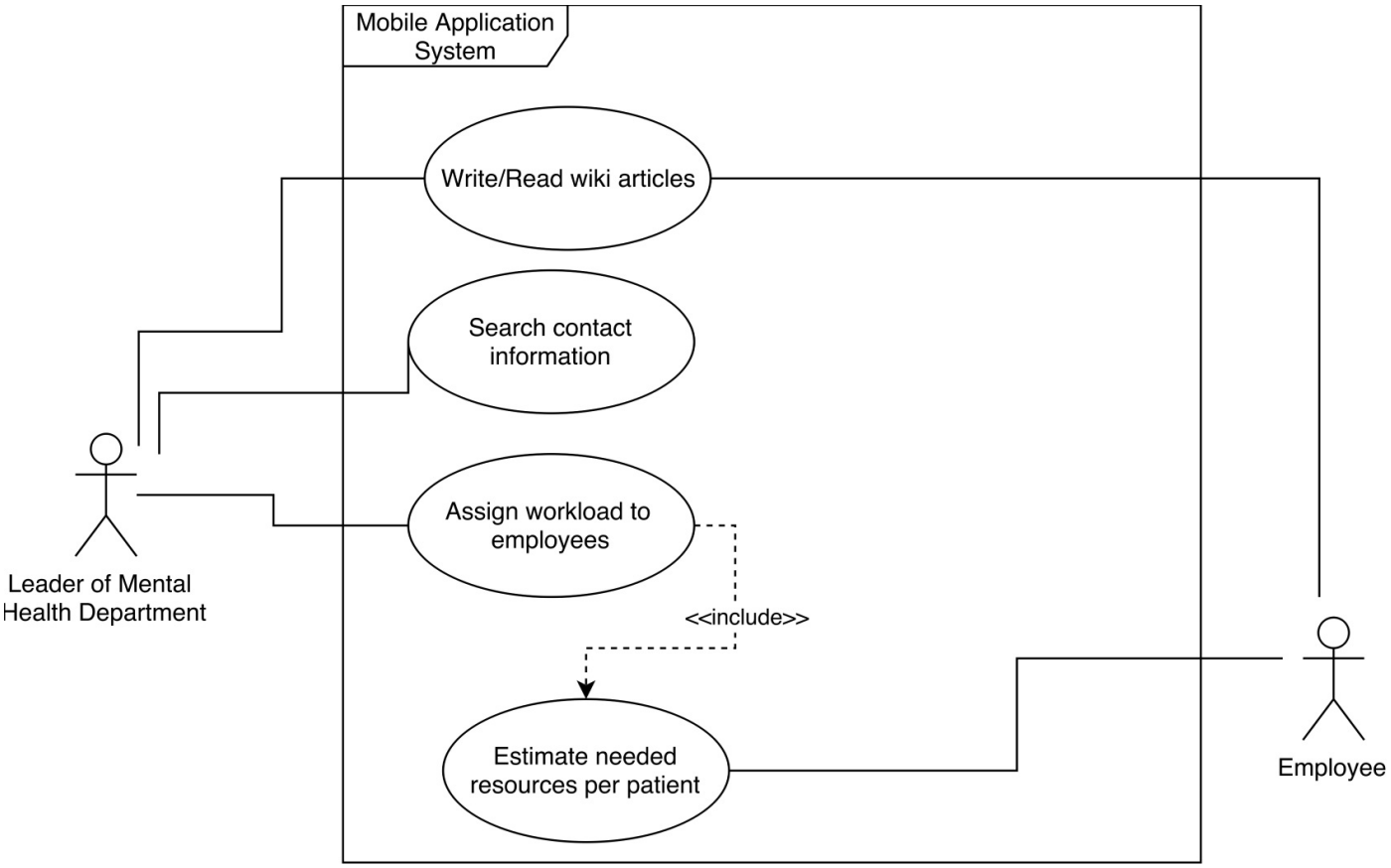
1. Patient management The process to acquired or mutated the date of a patient is running via the health authority management. Whereby a patient's treatment data does not belong to it. Staff management
2. A very central point is the administration and planning of the employees. Recruitment or dismissal are dealt by the health authority management. Also the weekly planning of the assignments and scheduling of the employees, also runs by the channel of the management. If an accidental event occurs such as illness, the management must change the mission plan or any dates.
3. Wiki Parameters of experience, treatment methods, news, etc. are stored centrally in a database. An online encyclopedia is used as a knowledgebase, which is made accessible to the various user groups.
4. Contacts Finally, then management must be able to access all contacts in the entire system. The access takes place for various reasons, on the one hand to provided for the patient and staff administration. On the other hand to contact the appropriate stations/organizations if an emergency oncures.

3 Glossary

Item	Comment
RSD	Requirement specification document
Wiki	Platform to exchange knowhow
PMS	Patient management system
Health authority	A health authority is a part of government which focuses on issues related to the general health of the citizenry
Knowledgebase	A central place where knowledge is kept
3G	Standard in mobile telecommunications
LTE	Newer and faster standard in mobile telecommunictions
HDPI	High resolution of a screen

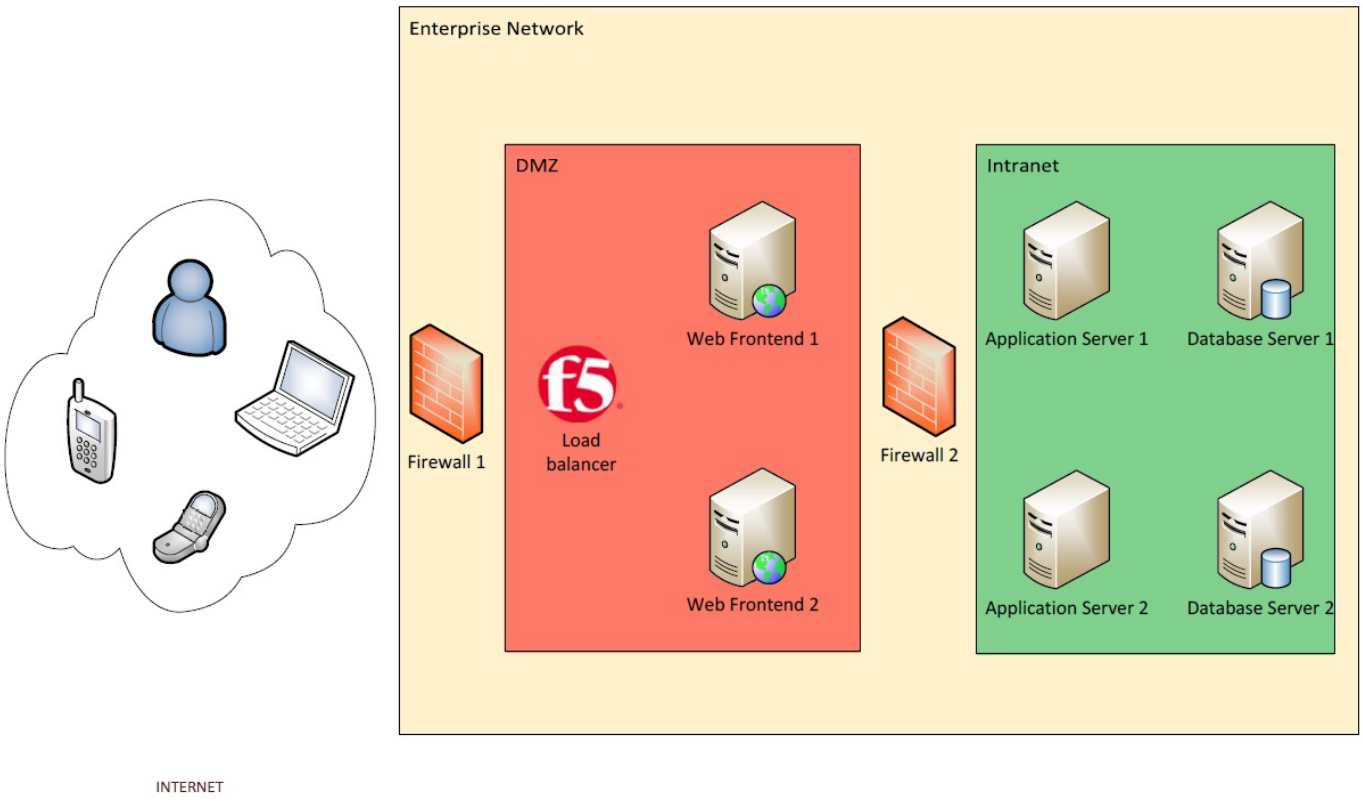
4 User requirements definition

This is an overview of the use cases:



5 System architecture

Our Application should be platform independent. This means that it should be possible to connect to the application from every device with any kind of operating system. Additionally, it should be accessible from the internet because of the employees outward of your enterprise. For this we designed a three tier web application.



5.1 Web frontend server

In this architecture we have the web frontend servers for the presentation layer (first tier). He we will use a webservice for the application presentation

5.2 Application server

Then we have the application servers who has the functionality and communication to the database. (second tier).

5.3 Database server

The third and last tier are the database servers with the whole information of our application.

5.4 Other components

Additionally, to our application components, we have also the following components:

- Two firewall to separate the internet from the DMZ and the DMZ from the internal network
- A F5 loadbalancer to handle the load and system failures
- All system are redundant

6 System requirements specification

6.1 Write/Read wiki articles

| Name | Write/Read wiki articles | |----------|----------| | Number | 1 | | Actors | Leader of Mental Health Department (LMHD), Employee | | Short description | The LMHD writes informative articles that can be read by employees. | | Trigger | An employee asks LMHD a question that was already asked before. | | Results | The answer to the question is in the wiki. The employee can read the article instead of asking the LMHD. |

Flow

Nr.	Who	What
1.0	Employee	asks a question
1.1	LMHD	answers the question
1.2	LHMD	opens the web app

1.3	LHMD	navigates to the wiki feature
1.4	LHMD	creates a new entry, inputs the question
1.5	LHMD	inputs the answer and saves
1.6	Employee	does not know something
1.7	Employee	opens the web app
1.8	Employee	navigates to the wiki feature
1.9	Employee	inputs words into a search field
1.10	Employee	sees results
1.11	Employee	opens a result and reads the answer

Exceptions / Variants

Nr.	Who	What
1.10	Employee	does not find a result for his question
1.10.1	Employee	creates a new question
1.10.2	LHMD	sees unanswered questions when he opens the web app
1.10.3	LHMD	opens the unanswered questions
1.10.4	LHMD	writes an answer to the question and saves
1.10.5	Employee	sees that his question has been answered
1.10.6	Employee	selects the question and reads the answer

6.2 Search contact information

Name	Search contact information
Number	2
Actors	Leader of Mental Health Department (LMHD)
Short description	The LMHD searches for contact information in the web app when other parties have to be informed about the situation.
Trigger	An emergency situation ocurrs.
Results	The LMHD has fastly gained access to the most important contacts needed for further actions.

Flow

Nr.	Who	What
2.0	LMHD	is informed about an emergency situation
2.1	LMHD	decides which persons have to be informed
2.2	LMHD	opens the web app
2.3	LMHD	navigates to the contact feature
2.4	LMHD	sees the most important contacts listed and calls them
2.5	LMHD	searches contacts by patient name or number
2.6	LMHD	sees contacts that are relevant for this patient

Exceptions / Variants

Nr.	Who	What
2.4	LMHD	does not see an important contact in the list

2.4.1	LMHD	searches for the contact
2.4.2	LMHD	adds the contact to the list
2.5	LMHD	searches a specific contact

6.3 Assign workload to employees

Name	Assign workload to employees
Number	3
Actors	Leader of Mental Health Department (LMHD)
Short description	The LMHD assigns workloads to employees depending on factors like experience, holidays and patient conditions etc.
Trigger	No workload is assigned to employees or the workload has to be reassigned because of incidents.
Results	The LMHD has an overview of all workloads of all employees.

Flow

Nr.	Who	What
3.0	LMHD	begins the workload planning
3.1	LMHD	opens the web app
3.2	LMHD	navigates to the planning feature
3.3	LMHD	sees an overview of all patients and their conditions
3.4	LMHD	sees an overview of all available resources
3.5	LMHD	creates a new workload entry

3.6	LMHD	assigns the workload to an employee
3.7	LMHD	sees an updated overview which reflects the current assigned workload

Exceptions / Variants

Nr.	Who	What
3.4	LMHD	sees that there are too little or too much resources

6.4 Estimate needed resources per patient

Name	Estimate needed resources per patient
Number	4
Actors	Employee
Short description	The Employee knows the patient and can therefore estimate how much resources must be assigned to the patient.
Trigger	A new patient arrives or the condition of a patient changes.
Results	The patient condition is updated and available in the planning tool for the LMHD.

Flow

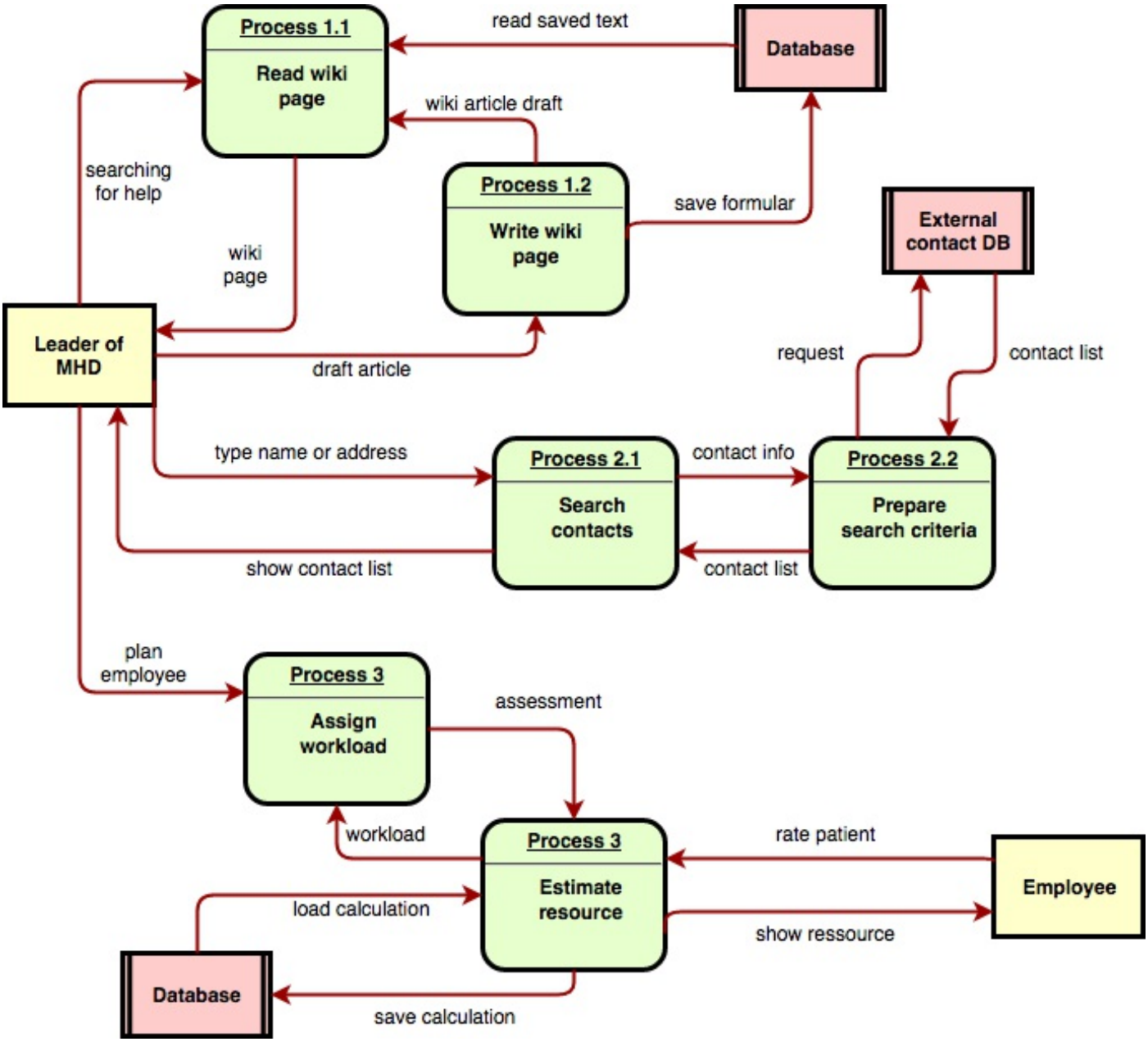
Nr.	Who	What
4.0	Employee	takes in a new patient
4.0	Employee	opens web app

4.0	Employee	navigates to the estimation feature
4.0	Employee	creates a new patient profile
4.0	Employee	enters patient condition and saves

Exceptions / Variants

Nr.	Who	What
4.0	Employee	observes a change of the condition of a patient
4.0.1	Employee	opens app
4.0.2	Employee	navigates to the estimation feature
4.0.3	Employee	enters the name or number of the patient
4.0.4	Employee	selects the patient
4.0.5	Employee	changes the patient condition and saves

7 System models



8 System evolution

For a more momentary view about the System Requirements check the corresponding chapter "System Requirements". A short overview over the components and technology used for this application:

- Server
  - Web- and Databaseserver
  - (Backup server)
- Client

    - Mobile device
- Connectivity
    - Internet connection
    - Local network on customer site

8.1 Application relevant developments

Mobile devices are developed further all the time, especially in terms of processing power and resolution. In order to look good the application needs to scale correctly on high-DPI (hdpi) devices (devices with a very high resolution) since mobile devices with hdpi screens are becoming the norm. To stay future proof in this regard the application code should implement a way to scale correctly on various devices.

8.2 Not application relevant developments

Web-, Database- and, if implemented **Backupservers**, are built to match the requirements of today. Unless there is a massive increase like 3 times the current users using the application and therefore generating load on the servers the requirements in this area stay the same. But even if that should occur todays servers are scalable and no changes in the server side code are necessary.

In terms of **Internet connectivity** even today most devices can connect to the internet over the mobile network (3G, LTE). The amount of mobile devices with internet access will only increase so there is no need for action.

9 Testing

Specific and detailed test cases will be done with the document Test Case Template after we have detailed UI specification.

General

- Check if login works
- Check if logout works
- Validate build and deployment

Patient management and workload rating

- Validate if all patients are visible
  - Check if patient data is visible
  - Check if patient data can be edited
- Validate if changes are saved correctly to db

Employee management and scheduling

- Validate if all employees are visible
  - Check if employee data is visible
  - Check if employee data can be edited
- Validate if changes are saved correctly to db
- Planing
  - Add new entry
  - Delete entry
  - Update entry

Wiki

- Modification
  - Add new entry

    - Delete entry
    - Update entry
- Check if changes are available for everyone
- Give employee access to wiki page and check access

Contacts

- Validate if all contacts are visible
- Check if message or call works

10 Appendices

Following requirements must be met

- Frontend should be responsive Web Design (Desktop, Tablet, Mobile)
    - Theodor is always underway, so it should by possible to access everywhere and with every device
- Internet connection
- The WEB-App should always be available
- Web Server
- Database
    - Easy setup
    - It must not be big DB something like SQLite should be enough
- Backup strategy
- Daily backup (in the evening)
- Domain Name
- DNS-Hoster