Functional Requirements Document

Milestone 1

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GitHub:

https://github.com/ECARE374?tab=repositories

Version	Description of Change	Author	Date

CONTENTS

1   INTRODUCTION

An intranet solution designed with an organizational hierarchy layout in a user friendly manner for stakeholders in accordance to departmental roles at the University of Regina.

1.1   Purpose

To have a more organized, easy to navigate, and uniformed system.

1.2   Scope

To encourage, empower, and foster a knowledge and learning culture in Engineering at the University of Regina.

1.3   Background

The University of Regina is an educational institution that provides courses and services for stakeholders. Faculty members, students, staff and the community produce and utilize documents in the intranet.

1.4   References

First meeting was as soon as the lab ended on the 19th of September, we managed to get some of the powerpoint slides done at this time. We later met on the 26th of September and finalized milestone 1.

1.5   Assumptions and Constraints

[Provide a list of contractual or task level assumptions and/or constraints that are preconditions to preparation of the FRD. Assumptions are future situations beyond the control of the project, whose outcomes influence the success of a project.]

1.5.1   Assumptions

- Access to necessary information needed for design planning and implementation.
- Availability of platform technologies for construction.
- Stakeholder requirements are feasible with given time and resources.
- Prompt communication with stakeholders regarding requirement inquiries and updates.

1.5.2   Constraints

- Security access to web server, ursource for design and construction.

- Team framework to design and construct requirements.

- Pre access to platform technologies for mock up phases of design.

- Delivering on all stakeholder requirements.

- Scheduling and unforeseen challenges with team, professor and stakeholders.

1.6   Document Overview

A internet based software built for all stakeholders to organize the content in a friendly manner. With heightened security, user friendly navigation, and adaptable frequent content change.

2   METHODOLOGY

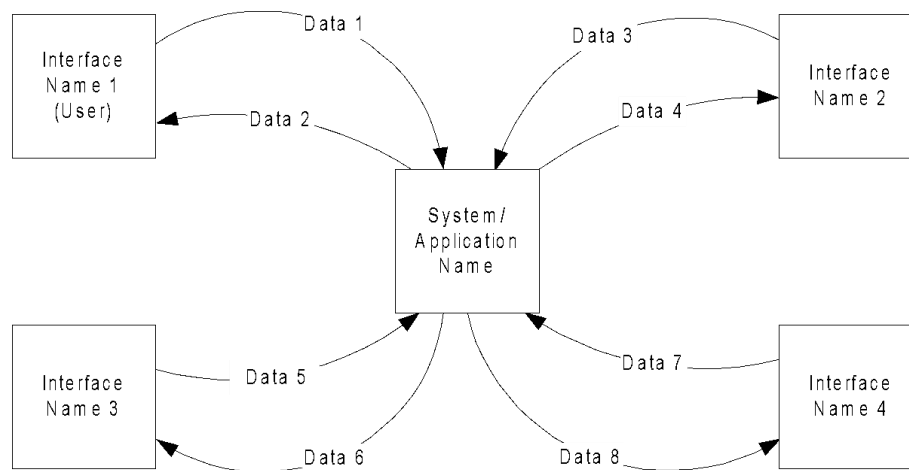The overall approach used in the determination of the project contents are:
- Listening to the stakeholders' requirements.
- Meeting with group to talk about main and extra requirements.
- Making the empathy map
  - This map includes what the stakeholders are feeling, saying, thinking, and doing

3   FUNCTIONAL REQUIREMENTS

4.1   Context

[Provide a context diagram of the system, with explanations as applicable. The context of a system refers to the connections and relationships between the system and its environment.]

Exhibit 2 - Generic Context Diagram

```
        ┌──────────┐                                        ┌──────────┐
        │Interface │       ⟶Data 1          Data 3⟶        │Interface │
        │ Name 1   │                                        │ Name 2   │
        │ (User)   │       ⟵Data 2          Data 4⟶        │          │
        └──────────┘                                        └──────────┘
                                ┌──────────┐
                                │ System/  │
                                │Application│
                                │  Name    │
                                └──────────┘
        ┌──────────┐                                        ┌──────────┐
        │Interface │        Data 5⟶         ⟵Data 7        │Interface │
        │ Name 3   │                                        │ Name 4   │
        │          │        ⟵Data 6         Data 8⟶        │          │
        └──────────┘                                        └──────────┘
```

4.2   User Requirements

Streamlining the access process (temporary access and depending on the type of information, there can be different levels of security enforced. Sensitive records such as anything with HR requires heightened security even if it means additional user validation.

- Easy to navigate
- Simplicity
- Organized
- Safety/security

4.3   Data Flow Diagrams

4.4   Logical Data Model/Data Dictionary

4.5   Functional Requirements
- Simplicity (user friendly)
- Easy to navigate
- Security
- Organized
- Frequent content update.
- Flexible to constant changes.
- Assignment of hierarchy roles
- Temporary access capability.

4.5.1   Functional Requirements Group 1

[List the functional requirements for each functional requirements group.]

Exhibit 4 - Sample Requirements Group 1

Section/ Requirement ID	Requirement Definition
FR1.0.	The system shall [parent requirement group 1].
FR1.1	The system shall [child/parent requirement].
FR1.1.1	The system shall [child requirement].
FR1.1.2	The **Requirements** [Describe the user interfaces that are to be implemented by the system.] Easily to use system shall [child requirement].

4.5.2 Functional Requirements Group 2, Etc.

5 OTHER REQUIREMENTS

Refresh rate of pages when opening new links/going through the navigation.

5.1 Interface

- The user interface is to be:
- Organized
- Easy to navigate
- Have a simple layout
- Proper safety and security measures

5.1.1 Hardware Interfaces

Hardware interfaces supported by the system would be anything a user can access and network, whether ethernet, wireless, or LAN, and data center on. Such devices could be desktops, laptops, as well as mobile devices, such as phones and tablets. The data centers will keep recent files and older versions of everything just incase of an emergency and the need to revert back or find information.

Due to power outages being a vulnerability to data centers and networks, there needs to be some type of backup power supply, alongside the main power source,most likely being SaskPower. This backup power generation would be required in order to safeguard everything until the server starts back up.

5.1.2 Software Interfaces

Will be using Cascade Server/URSource to make the interface.

The external owner of the application is the U of R Engineering Department

5.1.3 Communications Interfaces

[Describe communications interfaces to other systems or devices, such as local area networks.]

5.2 Data Conversion Requirements

5.3 Hardware/Software Requirements

[Provide a description of the hardware and software platforms needed to support the system.]

5.4 Operational Requirements

[Provide the operational requirements in this section.

Do not state how these requirements will be satisfied. For example, in the Reliability section, answer the question, "How reliable must the system be"? Do not state what steps will be taken to provide reliability.

Distinguish preferences from requirements. Requirements are based on business needs, preferences are not. If, for example, the user requires a special response but does not have a business-related reason for it, that requirement is a preference.

Other applicable requirements on system attributes may be added to the list of subsections below.]

Operational requirements describe how the system will run and communicate with operations personnel.

5.4.1 Security and Privacy

[Provide a list of the security requirements using the following criteria:

A. State the consequences of the following breaches of security in the subject application:

The subject is a government institution with highly sensitive information thus, would be subject to investigations, fines and further actions. Furthermore, negative externality cost of security breaches would be incurred by the subject, such as loss of consumer confidence, and damaged institutional reputation.

1. Loss and or comprimization of data.

2. Disclosure of classified and sensitive information

3. Disclosure of privileged, privacy information about stakeholders.

4. Mishandling software, introduction of malware, such as viruses

B. State the type(s) of security required. Include the need for the following as appropriate:

1. Physical security.

2. Cloud security.

3. Intranet security.

4. Institutional security protocol.

5. Holistic evaluation of system security for vulnerabilities.

6. Stakeholder training regarding sensitive material handling.

7. Out of office access and security validation clearance.

8. Secure screenings of stakeholder usage.

9. Temporary password to access certain type of information for a given time.

10. Some informations can only be accessed by certain stakeholders based on their position.

11. State if there is a need for certification and accreditation of the security measures adopted for this application]

The Security Section describes the need to control access to the data. This includes controlling who may view and alter application data.

5.4.2 Audit Trail

[List the activities recorded in the application's audit trail. For each activity, list the data recorded.]

5.4.3 Reliability

A. [State the following in this section:

1. State the damage can result from failure of this system—indicate the criticality of the software, such as:

   a) Loss of human life

   b) Complete or partial loss of the ability to perform a mission-critical function

   c) Loss of revenue

   d) Loss of employee productivity

2. What is the minimum acceptable level of reliability?

B. State required reliability:

1. Mean-Time-Between-Failure is the number of time units the system is operable before the first failure occurs.

2. Mean-Time-To-Failure is the number of time units before the system is operable divided by the number of failures during the time period.

3. Mean-Time-To-Repair is the number of time units required to perform system repair divided by the number of repairs during the time period.]

Reliability is the probability that the system processes work correctly and completely without being aborted.

5.4.4 Recoverability

[Answer the following questions in this section:

A. In the event the application is unavailable to users (down) because of a system failure, how soon after the failure is detected must function be restored?

B. In the event the database is corrupted, to what level of currency must it be restored? For example "The database must be capable of being restored to its condition of no more than 1 hour before the corruption occurred".

C. If the processing site (hardware, data, and onsite backup) is destroyed, how soon must the application be able to be restored?]

Recoverability is the ability to restore function and data in the event of a failure.

5.4.5 System Availability

[State the period during which the application must be available to users. For example, "*The application must be available to users Monday through Friday between the hours of 6:30 a.m. and 5:30 p.m. EST.* If the application must be available to users in more than one time zone, state the earliest start time and the latest stop time. Consider daylight savings time, too.

Include use peak times. These are times when system unavailability is least acceptable.]

System availability is the time when the application must be available for use. Required system availability is used in determining when maintenance may be performed.

5.4.6 General Performance

[Describe the requirements for the following:

A. Response time for queries and updates

B. Throughput

C. Expected rate of user activity (for example, number of transactions per hour, day, or month, or cyclical periods)

Specific performance requirements, related to a specific functional requirement, should be listed with that functional requirement.

5.4.7 Capacity

[List the required capacities and expected volumes of data in business terms. Do not state capacities in terms of system memory requirements or disk space—if growth trends or projections are available, provide them]

5.4.8 Data Retention

[Describe the length of time various forms of data must be retained and the requirements for its destruction.

For example, "The system shall retain application information for 3 years". Different forms of data include: system documentation, audit records, database records, access records.]

5.4.9 Error Handling

[Describe system error handling.]

5.4.10 Validation Rules

[Describe System Validation Rules.]

5.4.11 Conventions/Standards

[Describe system conventions and standards followed.

For example: Microsoft standards are followed for windows, Institute of Electrical and Electronics Engineers (IEEE) for data formats, etc.]

1

APPENDIX A - GLOSSARY

[Define terms, acronyms, and abbreviations used in the FRD.]