SOFTWARE REQUIREMENTS SPECIFICATION
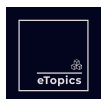

eTopics: Quest for knowledge

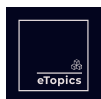## Revision: 1.0

Development and automation department

May, 2021

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Date	Revision	Description	Author

Document validated by the parties on date:

Client	supplier
Jaime Leonardo Enriquez Alvarez	Gallardo Dueñas Carlos Ivan

1. Introduction

This document is the Software Requirements Specification (ERS) for the Topic Creation and Search System. This specification has been structured based on the guidelines given by the IEEE Recommended Practice for IEEE 830 Software Requirement Specifications.
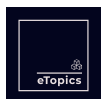
This Software Requirements Specification (ERS) of the system to be built arises to be a set of necessary information that helps software developers to analyze and understand all the requirements and requirements that our User wants, in the same way as this constitutes A useful report for the User to describe what he really wants to obtain, and in this way to have a necessary document whose information in the future will serve for the development of the software, that is, in the correct coding of the same. The user, software, hardware and communications interfaces are described in detail, as well as the User's requirements, system attributes, among others.

1.1 Purpose

Define and present in an orderly manner the requirements and specifications that the software to be built must meet, which allows the creation and search of topics generating a diagnosis about the status of certain users within the platform.

1.2 Scope

- Identification of the software product "eTopics"

- Allow user and administrator management.

- The benefits, objectives and goals that are expected to be achieved with the future system will be described.

- Issue reports when users or Administrators need it (daily, weekly, fortnightly, etc.).

1.3 Involved personnel

Name	Gallardo Dueñas Carlos Ivan
Role	Product Owner
Professional category	Computer Science Engineering
Responsibilities	Maintain communication between the work team and the client.

Name	Yessica Orihuela Castillo
Role	Programmer and Analyst
Professional category	Computer Science Engineering
Responsibilities	Analyze a problem and describe it with the purpose of being solved by a computer system

Name	Merari Livannette Cortes Chavarin
Role	Programmer and Designer
Professional category	Computer Science Engineering
Responsibilities	Carry out design and development tasks for programs that control the internal functioning of computers and computer networks.

Name	María Jazmín Sanabria López
Role	Programmer
Professional category	Computer Science Engineering
Responsibilities	Carry out program development tasks that control the internal functioning of computers and computer networks.

1.4 Definitions, acronyms and abbreviations

Definition

Upgrade: Insert, delete, modify user records.

Storage: In relation to computers or computers, any device capable of storing information from a computer system.

Backup: The purpose of backup copies in a computer system is to maintain a certain capacity to recover information from possible losses. This ability can become very important, even critical, for companies. There have been cases of companies that have disappeared due to the impossibility of recovering their systems to the state before a serious security incident occurred.

DataBase: Any set of data organized for storage in the memory of a computer or computer, designed to facilitate its maintenance and access in a standard way. The information is organized into fields and records. A field refers to a type or attribute of information, and a record refers to all information about an individual.

Button: It is a tangible object that performs an event after its activation.

Connection: Communication between two entities that have similar characteristics of communication.

Interface: Medium that allows communication between the user and the system.

Internet: Interconnection of computer networks that allows computers or connected computers to communicate directly, that is, each computer on the network can connect to any other computer on the network. The term usually refers to a particular interconnection, of a planetary nature and open to the public, that connects computer networks of official, educational and business organizations.

Login: Name or aliases that are given to a person to allow access to the system as long as they are registered.

Password: Password or key to authenticate the entrance to a place or site.

Protocol: Signal by which it is recognized that communication or the transfer of information can take place.

Acronyms
Username: Person who will use the system to manage processes
ERS: Specification of Software Requirements
RFN: Functional Requirement

RNFN: Non-Functional Requirement

Abbreviations
HW: Hardware
SW: Software
Mr.: Mister
Ms.: Mis
Eng.: Engineer
Dr.: Doctor

1.5 References

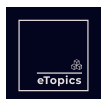| Reference	Title
IEEE	Standard IEEE 830 - 1998

1.6 Document overview

The SRS is composed as follows

- *Introduction:* This section details the objectives of the SRS and of our system in general.
- *General description:* It describes an overview of the product to be developed, as well as the characteristics of the user and the limitations it could have.
- *Specific requirements:* t shows step by step all the requirements that the user wants in the final product. For which the "Prototype 2 of the IEEE Standard 380" has been used.

2. General description

2.1 Product perspective

eTopics applies the Knowledge Systems structure. The employees information that the company already has registered allows the creation of users, using the existing data. Both interfaces will be independent in terms of functions and requirements, just like databases, which only interact with each other when creating users.

2.2 Product features

-Generation of multimedia content with thematic information.

-Content rating.

-Visualization of local content.

-Generate content performance reports.

-Search for publications according to their relevance.

-Administration of users and publications.

2.3 Users characteristics

User type	Employee
Schooling	Basic education, computing knowledge.
Activities	File management and searching, web browsing.

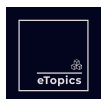| User type	Administrador
Schooling	Computer technician or related.
Activities	Computational systems management, users creation, file management and searching, web browsing.

2.4 Restrictions

a) No insurance or mediation involving performance is available in case of accidents, sinisters, or any incident that directly affects the platform operation besides software developers testings.

b) The access speed will be subject to the connection quality of the company's provider.

c) Any action produced by any employee that affects the company, caused by the shared information, is out of the software development team responsibilities.

2.5 Assumptions and dependencies

1. The development team has the knowledge and experience in the languages in which the project will be developed.
2. The company has computer equipment on which the platform will be implemented.
3. Users will constantly generate topics to enrich the platform.
4. All users who access the platform have a username and password provided by the company
5. The servers where the page is hosted have a good functioning.
6. In case of a change in the database management system or the database itself, it will be necessary to make the corresponding changes to the API that interconnects the data with those of the platform.
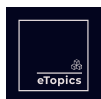
3. Specific requirements

1. Offer users a platform that is available at all times, that is easy to use and attractive, as well as guaranteeing the security of the information that is registered there.
2. When a user writes a topic, they will be offered a catalog with related and existing topics.
3. Allow published topics to also attach photos, videos or presentations with a maximum size and duration limit.
4. Offer the user the ability to consult the topics that have been registered as well as the ability to locally download the referenced documents.
5. Offer data analytics on the topics that are more concurrent, the topics to which the users do not find the topic that is shown similar topics, using the recommendations or solutions made by the system itself.

3.1 List of user requirements

Number	RUS-001		
Name	Ease of use		
Type	☑ Requirement	☐ Restriction	
Description	Easy-to-use platform available at all times with a good hosting service.		
Priority	☑ High / Essential	☐ Average / Desired	☐ Low / Optional

Number	**RU**-002		
Name	Topic recommendation		
Type	☑ Requirement	☐ Restriction	
Description	Offer related topics based on user searches. Be as precise as possible with the list of categories of the topics that are recommended.		
Priority	☐ High / Essential	☑ Average / Desired	☐ Low / Optional

Number	**RU-003**	
Name	Upload multimedia	
Type	☑ Requirement	☐ Restriction
Description	Allow additional documents to be attached to the topics that are published.	
Priority	☐ High / Essential	☑ Average / Desired ☐ Low / Optional

Number	**RU-004**	
Name	Download multimedia	
Type	☑ Requirement	☐ Restriction
Description	Allow downloading of multimedia content that is attached to the topics that are visited by users.	
Priority	☐ High / Essential	☑ Average / Desired ☐ Low / Optional

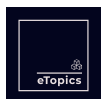| Number	**RU-005**	
Name	Data analytics	
Type	☑ Requirement	☐ Restriction
Description	Allow administrators to analyze site traffic and provide statistics on topics.	
Priority	☐ High / Essential	☐ Average / Desired ☑ Low / Optional

4. External interface requirements

4.1 User interfaces

- The user interface has to be harmonious throughout the entire system (it has a general design standard)
- No more than 3 fonts are used
- No more than 5 base colors are used on the site
- The content of the site will be viewed and pre-approved by the client
- images and multimedia will be provided by the company itself
- The site must have adaptability to different mobile devices

4.2 Hardware interfaces

- The site has to be optimized to load on low and medium resource devices
- The interfaces should not interfere with the performance of the devices (consumption of resources in the background)
- The site will display on the screen what the user is requesting depending on what they are clicking.

4.3 Software interfaces

- The interfaces must be compatible with browsers: google chrome, Opera, firefox, safari and edge
- the site must redirect the user in case he enters an unauthorized page
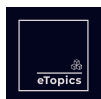
4.4 Communication interfaces

- The interfaces must make requests to other pages in a secure way
- The interfaces must ensure the privacy of user information
- interfaces will use communication protocols to ensure data integrity

5. System requirements

5.1 Functional requirements

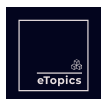| Number	RFN-01	
Name	User authentication	
Description	The user must access the platform by means of a password.	
Precondition	The user must be assigned a user ID and password and assigned permissions by the administrator.	
Normal sequence	Step	Action
	1	The user must enter his credentials

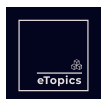|	2	The user must press the "Sign In" button.
	3	The system will verify if the credentials are valid.
Postcondition		The system redirects the user to the main page of the platform.Disponibilidad
Exceptions	Step	Action
	1	If the password is incorrect the user must be informed.
	2	The system should display a message and ask the user to fill out the login form again.

Priority	☑ High / Essential	☐Medium / Desired	☐ Low / Optional

Number	RFN-02		
Name	Topic creation		
Description	The user will be allowed to create topics and these will be published for the rest of the users.		
Precondition	The user must first log in to access this functionality.		
normal sequence	Step	Action	
	1	Click on the menu "New topic".	
	2	Select the files you want to add to the topic.	
	3	Click on the "Create topic" button.	
Postcondition		The system allows the user to visualize his newly added topic.	
Exceptions	Step	Action	
	1	The files must be valid file types.	
	2	The system should display a message and re-request the correct files.	
Priority	☑ High / Essential	☐Medium / Desired	☐ Low / Optional

Number	RFN-03
Name	Catalog of topics
Description	When a user writes a topic, he/she will be offered a catalog with related and existing topics.
Precondition	The user must first log in to access this functionality.

Normal sequence	Step	Action
	1	Click on the magnifying glass icon.
	2	Enter the keywords related to the topic of interest.
	3	The platform returns similar topics.
Postcondition		The user can choose one of the topics or return to perform more searches.
Exceptions	Step	Action
	1	If the user enters invalid characters a message will be displayed.
	2	If the user enters a topic not found a message "No results found" will be displayed.
Priority	☑ High / Essential	☐Medium / Desired ☐ Low / Optional

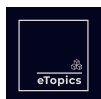|	
Number	RFN-04
Name	Add files
Description	Allow the topics that are published can also attach photos, videos or presentations with a maximum size and duration limit.
Precondition	The user must previously access the "New topic" menu to access this functionality.

normal sequence	Step	Action
	1	Click on the "Add files" button.
	2	Select the desired files from the computer.
	3	The files are uploaded to the platform.
Postcondition		The user can choose one of the topics or return to perform further searches.
Exceptions	Step	Action
	1	The files must be valid file types (PDF,pptx,mp4,png,jpg).

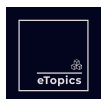|	2	Files should not exceed 50 mb in size.	
Priority	☑ High / Essential	☐Medium / Desired	☐ Low / Optional

Number	RFN-05	
Name	Size of topics	
Description	The topics that are written have a limit of characters as well as the multimedia files that are to be added to them.	
Precondition	The user must previously enter the "Add files" menu to access this functionality and have selected a file.	
normal sequence	Step	Action
	1	Click on the "Add files" button.
	2	Wait until the files are verified to be no larger than 50 mb.
	3	The files are uploaded to the platform.
Postcondition		The user can choose more files or publish the current one.
Exceptions	Step	Action
	1	Files must be valid file types (show message if not).
	2	Topic description must not be longer than 1000 characters (show message if not).
Priority	☐ High / Essential ☑Medium/Desired	☐ Low / Optional

Number	RFN-06	
Name	Classification of topics	
Description	Topics are classified by subject so that users can find the topics that interest them most.	
Precondition	The classification of each topic must be specified in each topic.	

normal sequence	Step	Action
	1	User creates a topic
	2	The user enters the classification (according to the list shown).
	3	Accepts the category and saves the topic.
Postcondition		User publishes a topic.
Exceptions	Step	Action
	1	Topic is not published
	2	The topic was not saved correctly.

Priority	☐ High / Essential	☑ Medium/Desired	☐ Low / Optional

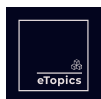| Number	RFN-07
Name	User Topics
Description	Users will have a section in the menu to access their previously published topics.
Precondition	The user must previously enter the "Your topics" menu to access this functionality.

normal sequence	Step	Action
	1	Click on the "Your topics" button.
	2	A list of topics posted by that user is displayed.
	3	One of the topics is selected.
Postcondition		The user can choose more topics to view or access other menu functionality.
Exceptions	Step	Action
	1	The topics displayed should be only those posted by the logged in user.
	2	Prompt to enter authorized credentials.

Priority	☐ High / Essential	☑ Medium/Desired	☐ Low / Optional

Number	RFN-08	
Name	Data export	
Description	The user will be able to download multimedia files from the topics.	
Precondition	The user must have accessed a pre-published topic.	
normal sequence	**Step**	**Action**
	1	A search for a topic must be made.
	2	Select a topic
	3	Select one of the multimedia files of the topic. Click on the "download" button and it will start downloading.
Postcondition		The user proceeds to download the multimedia content
Exceptions	**Step**	**Action**
	1	The server does not have the requested file at that time.
	2	A message is displayed to the user.
Priority	☐ High / Essential	☐ Medium/Desired	☑ Low / Optional

Number	RFN-09	
Name	Data analysis	
Description	The system must be able to perform a popularity analysis of the topics.	
Precondition	The user must be logged in in administrator mode.	
normal sequence	**Step**	**Action**
	1	The administrator enters his credentials.
	2	The administrator panel is displayed.

	3	The progress of the site and popular topics is displayed.
Postcondition		The system displays data in a simple and understandable way for the administrator.
Exceptions	Step	Action
	1	The user's credentials do not have the permissions to perform this action.
	2	The system will display a message informing that this data cannot be accessed.
Priority	☐ High / Essential	☐Medium/Desired ☑ Low / Optional

Number	RFN-10
Name	Approval of Topics
Description	Only administrators are able to approve topics for posting.
Precondition	The topic has to be well structured to deal with a topic that contributes to the company's line of business and not conflict with the terms and conditions of use.

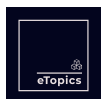| Normal sequence	Step	Action
	1	The topic that is posted is placed on approval.
	2	The administrator reviews the topic and authorizes it
	3	The topic is published.
Postcondition		The system notifies the user that it has been approved and published.
Exceptions	Step	Action
	1	The topic violates the site rules and is not published.
	2	In case the administrator is not available, it is sent to the waiting process.
Priority	☐ High / Essential ☐Medium/Desired ☑ Low / Optional	

5.2 Non-functional requirements

5.2.1 Performance

Number	Name	Description
RNFN-01	Quick response time.	Response time less than 5 seconds.
RNFN-02	Site stability.	The system must be capable of operating properly with up to a total of 10,000 concurrent users.

5.2.2 Design constraints

Number	Name	Description
RNFN-03	Design	The design must be attractive, minimalist and intuitive (easy to use).

5.2.3 System attributes

Number	Name	Description
RNFN-04	Information integrity.	User information must be protected, which is why access to the database must be through an API and only by authorized personnel.
RNFN-05	Safety	The platform must guarantee the security of the information that is registered there.

The only users authorized to register a new user are administrators, who will enter the platform through a username and password.

5.2.4 Other requirements

Number	Name	Description
RNFN-06	Availability	The platform must be available at all times.
RNFN-07	Backrests	Backups must be made every 24 hours of the information contained on the site. The backups must be saved, organized and transferred to a safe place for later conservation.

Conclusions

Yessica Orihuela

In this activity one of the easiest things to do were the first ones in this document since they were things that we already had done and as we have advanced in the project and are important to have them from the beginning.

We went from expressing the requirements in broad strokes to reformulating the requirements in a better structured way. I consider that this document is very important because it covers almost completely all the important points to develop the documentation of a project.

Merari Cortes

In this document we implement the knowledge that we have already acquired in previous classes and advance our project. The software requirements specification activity is a complete description of the behavior of the system that is going to be developed, this document is what will help us to implement our project.

Carlos Gallardo

We went from setting requirements to expressing functionalities of the system to be developed. Once all the software requirements have been specified, it is easier to identify what will be achieved in later phases (such as the software architecture and the

methodology to be used). One of the biggest challenges with the formulation of requirements is to establish their level of priority, since once these requirements begin to be developed they can change or even evolve (something with which agile methodologies can help us).

María Sanabria

This would be the first time I work in a formal document involving all of the software development, hence it would be very useful once I get my future degree. Getting familiar with the process of a software project implies establishing the limitants and the capacities of the implementing system from the beginning is fundamental. It feels as if I were working with an actual company.

We must see the document as part of the references the customer will need once the product is fully installed, thus using a simple yet technical language is the best in order to make it understandable for both parts of the project.

Github repository