ESPE

UNIVERSIDAD DE LAS FUERZAS ARMADAS

INNOVACIÓN PARA LA EXCELENCIA

Computer's Science

Career: Information Technology Engineering

Modality: Online

requirements

System Requirements Specification according to the IEEE-830 Standard

Team3 DevSolutions

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Subject :

Web Applications Development

NRC: 8516

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1.Introduction

This implementation project is presented based on the IEEE-830 standard, corresponding to the Software Requirements Specification, for which each of the main components is documented sequentially following the standardized process.

2. Purpose

The main purpose of this IEEE-830 standard document is to list the system requirements for the analysis, design and implementation of the web application for the company iSoftware.ec dedicated to the trade of technological equipment. This document also helps to collect and analyze the ideas collected in the project, in addition, it will be subject to change, if more requirements are added to the project.

For this, a client-server model web application will be implemented to optimize the sales and marketing processes of the company's products. In the first stage of this project, Java is used as the programming language , through the NetBeans 12.5 development IDLE, MySQL relational database and Payara Server and PHP web server.

3. Project Scope

Our implementation project seeks to improve the current conditions of the iSoftware.ec company to maximize product sales, improving sales processes and giving users the ability to graphically appreciate the products and in the same way be able to make their purchases. orders and requirements quickly through the web application.
In principle our application consists of the following modules that are: Add products, Add Users, search for products, update and delete products, billing. Since the sales service is given in the physical facilities of the company, we will detail in the document the main characteristics of the project and detailing the functional and non-functional requirements that the project will use.

4. Definitions, Acronyms and Abbreviations

Table 1. Definitions

FINISHED	DEFINITION
Management system	It allows to achieve the objectives and fulfill the vision and business goals, taking into account different processes of optimization of resources to obtain efficient results.
Software	It is the system in which the software product is made viable through the different stages of software development, which allows a quality product to be delivered to users.
Processes	They are behavior mechanisms that require a sequence of steps and methodologies depending on the application context.
Manage	Direct and manage resources efficiently in the area where their use is required.
Automate	Generate a programmed sequence of actions that allows, improves and optimizes processes at the business level.
Process control	Process control allows optimizing and monitoring activities to achieve improvements in a given time.
Operator	Person who applies an activity or task assigned by a superior boss or department
Quotation	Document that presents detailed information based on a list of requirements requested by customers.
Organizational structure	It is a system used to define a hierarchy within an organization.
Sustainability	It is understood to guarantee that a project or software lasts over time with the highest standards that allow us to cover the needs of users.
Requirement	It is a necessary condition to carry out an action. .
Database	It is a program that allows you to store a collection of data, related and structured, with its own characteristics according to the user's needs.

Query / Query	A database query is a search or request for data stored in a database. In a generic way, query can also refer to an insertion, update, search and/or deletion in a database.
Information system	It is a set of integrated resources with the objective of managing and distributing data in an organized way.
MYSQL	It is a relational database management system.
development IDE	It is a computer application that provides comprehensive services to facilitate software development processes.
netbeans	Free integrated development environment, made primarily for the Java programming language.
Java – Web Java	Computing environment or platform, capable of running applications developed using the Java programming language
Commercialization	Sequences or activities that allow the generation of sales processes for a product
Stock	Products available for subsequent sales management
Visual Studio Code	It is a standalone source code editor that runs on Windows, Linux, and MacOS.

Table 2 Acronyms and Abbreviations

Acronym/Abbreviation	Meaning
ERS OR SRS	Software Requirements Specification
RF	Functional requirement
RNF	Non-functional requirement
TIC	Information and communication technologies
SuperCias	Superintendency of Companies

CRUD	Database operations (Create , Read , Update , Delete – Create, Read, Modify, Delete)
VAT	value added tax
ecud	Detailed Use Case Specification
ROI	Return of investment
GitHub	Repository for sharing and working remotely on the web

Table 3 References

Reference	Qualification	Route	Date	Author
1.	Standard IEEE 830	From the document format template © & Coloriuris http://www.qualitatis.org	1988	IEEE
2.	Inventory control procedure manual	https://www.unidadvictimas.gov.co/sites/default/files/documentosbiblioteca/13-manual-de-procedimiento-para-el-control-de-inventario-v1.pdf	12/22/2014	

5. Overview of the Document

This document is made up of three modules. The first module contains the introduction of the project that provides an overview of the ERS. In the second module, it describes the system in general, in order to know the main needs and functionalities that the web application will carry out,

In the third module, the requirements that the system will cover with the Client-Server architecture are defined in detail. The content of this document is supported by the entire Requirements Engineering process carried out by the authors of the system, with different support mechanisms that will allow adaptations, uses, restrictions and controls to be made to each section according to the user's needs.

5.1. Product Perspective

The web application must be autonomous and manageable by the administrator users, which allows efficient scalability in all its processes, as well as the correct execution of the modules according to the functionality or request required by the users.

5.2. Software Product Features

The software product will allow access to the different modules that are: Add Products, Inventory, Add Employees, Employee List. The business rules of calculating VAT per product, calculating unit profit percentage and total profit. And calculate the value of the discount if you are a customer.

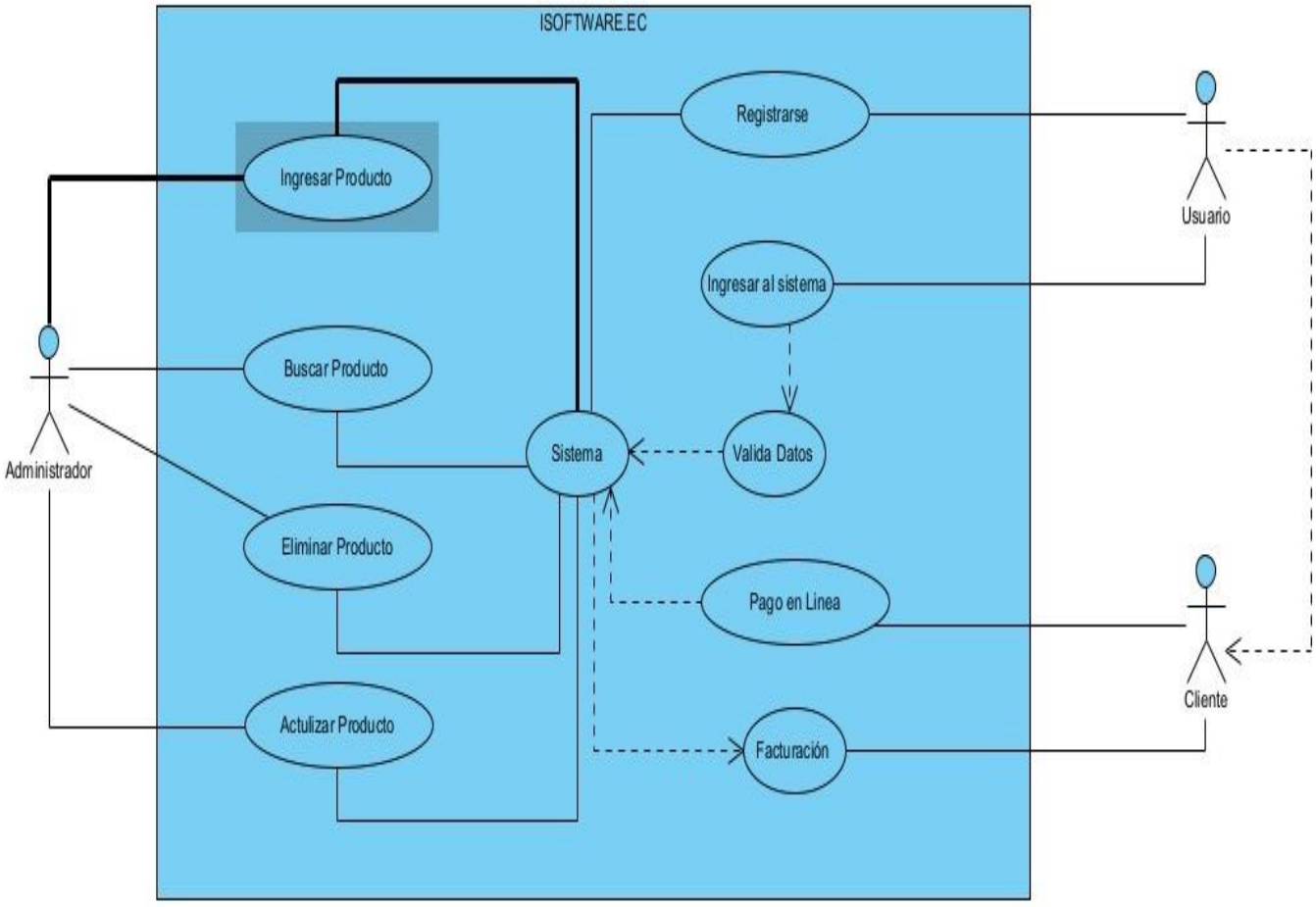

Illustration 1 System Use Case Diagram

6. External Interfaces

The web application makes a connection to the database, where products and orders will be consulted and added efficiently in the different CRUD processes.

6.1 Restrictions

- Hardware: Core I5 Desktop Computer. 16GB of RAM
- Software: Windows 10 Operating System, GitHub, Netbeans 12.5, MySQL, Xampp, Visual Studio Code.
- Programming language: JAVA, PHP
- Database: MySQL
- The graphical user interface should be intuitive and easy to use.
- You must have stable connectivity and broadband for the compilation of the project.

7. Specification of Requirements

7.1 User Interfaces

The web application will be developed with the MVC model with the Client-Server architecture, in the Java programming language, using the NetBeans 12.5 development IDE, where each of the necessary modules will be included so that the application meets each requirement according to the planning. of the project.

7.2 Hardware Interfaces

Table 4 hardware interfaces

Name	Detail	Brand	Characteristic	Description	Price
Display	Main output device (interface), which displays data or information	Dell	- 21" Resolution: Full HD (1920 x 1080) - Aspect Ratio: 16:9 Response Time: 5 ms - Refresh rate: 60 Hz.	The software shall display information to the user through the screen.	$160

Mouse	Pointing device used to facilitate management of a graphical environment on a computer.	genius	Optical mouse with 1000dpi sensor.	The software must interact with the movement of the mouse and its buttons.	$20
Keyboard	Input device or peripheral	genius	104/105/106 keys standard USB Port: Yes Support Windows 10/Windows 11/Windows®7 System Support USB interface	The software will need to interact with keystrokes. With the keyboard the user will type the requests	$16
CPU	The central processing unit is the hardware inside a computer or other devices.	Ryzen 5	Processor : AMD Ryzen 5 3400G with Radeon Vega Graphics 3.70GHz	In good condition, which will have all the controllers to be able to handle each input and output peripheral.	$480

7.3 Software Interfaces

Table 5 Software Interfaces

	Details	Definition	Purpose
Database	Name: MongoDB Atlas Source: www.mongodb.com Distribution: Atlas	It is an open source document-oriented NoSQL database system written in C++.	It is the database on which the tables will be generated to record the information

Server	Name: Payara Server Version number: 5.2022 Source: www.payara.fish	An innovative and compatible application server, to facilitate and enhance your Jakarta EE and MicroProfile projects .	It is the tool with which we will manage the infrastructure of the project
Operating system	Name: windows Specification number: 10 and up Version number: 7 Source: http://windows.microsoft.com/ Distribution: Paid Price: $200 and up	Windows is the name of a family of software distributions for PCs, smartphones, servers, and embedded systems, developed and sold by Microsoft and available for multiple architectures, such as x86 and ARM.	It is the platform on which the application and the database will be executed, which has support until 2020
Development tool	Name: NetBeans Specification number: 12.5 Version number: 12.5 Source: https://www.netbeanside.com/ Distribution: free	Design and generate interfaces and the operation of the program using the Java programming language.	Tool used to develop Web, Mobile and Desktop applications for different programming languages

8. Functional Requirements

8.1 General Objective

- Provide a Client-Server model web application that allows efficient management of the sales and marketing processes of the company iSoftware.ec

8.1.2 Specific Objectives

- Implement a Client-Server model web application that covers the requirements and needs of the iSoftware company
- Create a friendly interface for users to carry out the process of purchasing technological products and equipment.
- Obtain an application that complies with each of the modules planned for each of the different product sales processes.

The following objectives corresponding to each of the modules of the web application are detailed

Table 6 Add Products

OBJ-001	Add Products
Description	It will allow the process of entering products into the system
Importance	high

Table 7 Business rules

OBJ-002	Business rules
Description	Allows you to view stored inventory
Importance	high

Table 8 List Inventory

OBJ-003	List the Inventory
Description	Allows you to view stored inventory
Importance	high

Table 9 Add Employees

OBJ-004	add employees
Description	Allows you to add employees to the system.
Importance	high

Table 10 Employee List

OBJ-005	List Employees
Description	Allows you to view the list of employees.
Importance	high

8.1. 3 Actors

Table 11 Administrator

ACT-001	Administrator
Description	Administrative staff that will manage the company's processes in the application

Table 12 Users

ACT-002	Users
Description	Person who enters a request in the application according to their need at a certain time.

Table 13 Clients

ACT-002	Customers
Description	Person who enters a request in the application according to their need at a certain time.

8.2 List of Functional Requirements

Table 14 List of Functional Requirements

Web Application for the Company iSoftware.ec			
Functional Requirements List			
Code	**Request**	**Case of use**	**Actor**
RF – 01	The system allows you to manage the system information, the information you want to save is name, brand, model, stock, distributor price, discount, unit profit and total profit	Add Products	Administrator
RF – 02	The system must allow viewing the products stored in the database	List Inventory	Administrator
RF – 03	The system allows adding employees to the system, you want to obtain name, surname, address, ID **.**	Add Employees	Administrator
RF – 04	The system allows viewing the personal information of employees on the company's payroll.	List Employees	Administrator

8.3 Non-functional Requirements

8.3.1 General Objective

To meet the project requirements, the following non-functional requirements have been reviewed and analyzed.

Table 15 Non-functional Requirement Use of Colors

RNF-001	Use of Colors
Description	The system must present an interface with color patterns of 4 combinations.
Importance	high
Condition	Passed

Table 16 Requirement Non-functional access method

RNF-002	access method
Description	The system allows the registration and verification of users
Importance	high
Condition	Passed

Table 17 Non-functional accessibility requirement

RNF-003	Accessibility
Description	The interface should present on a single screen all the functionality necessary to maintain the data.
Importance	high
Condition	Passed

Recommendations

- It is recommended to carry out a structured interview that covers all the needs that the client requires to satisfy around the web application that as a team of programmers we wish to propose,
- It is important to define the roles and responsibilities that each member of the team will have to fulfill to ensure compliance with the objectives and goals of the project.

Conclusions

- The development of web applications implies a deep knowledge in various languages and programming frameworks to deliver an efficient software product that meets the needs of the client or company that acquires our services.
- The developers worked jointly and in an organized way in their different stages, which led each branch of the project to work in a planned and structured way to complete the goals proposed by the team.