
Specification of software requirements

Billing control system for PYMES

Review

Logo

Revision history

| Date | Review | Description | Author |
|-------------------|--------|--------------------------|--------|
| dd / mm / yyyy | 1.0 | "Interface Requirements" | <name> |
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Document validated by the parties on date:

| For the client | By the supplying company |
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1 Introduction

This report is the result of the research project "Inventory and billing system" for the mini-market called San Juan. This will be developed during the period from November 2020 to April 2021, by the team of "CrSystem" programmers.

Technological tools have become one of the fundamental reasons for a giant or small company to be able to direct in the trade, one of them is the good management of its documentation, since these are used daily for the management of its data and its scope in order to mechanize services and reduce busy times by improving the quality of interest.

It is very important to take into account that the company needs to improve its economic solidity because the benefits are quite high but the administration that is implemented is not correct due to the disorganization of the information from which a number of problems are broken down. The invoicing that has been used is a manual process without a reliable database, which produces human errors and document waste, in addition to the loss of information. Therefore, it is not possible to have accurate and timely information on the sales that have been made, signifying a stagnation of operations.

1.1 Purpose

The purpose of this project is to create and implement a billing system with which we can help people who are owners of small and medium-sized businesses to have control of their inventory and information about their respective products. We also need to keep a record of earnings and expenses, issuing an invoice as appropriate, for each purchase made inside and outside the company.

The objective of the document is to document the correct development of the project in question, several techniques have been selected for data collection and the use of the Software Requirements Specification (ERS) format according to the latest version of the standard.

IEEE 830.

The target audience for this project is the San Juan minimarket business, in which it is intended to automate inventory control and billing through the design of an information system for inventory management and billing.

1.2 Scope

The billing system will minimize the risks of any loss of company data, reduce the rate of unnecessary hours when counting records for the month, and fully manage the control and record of each work activity for the day. As for the invoicing systems in SMEs, it represents the savings in resources much more feasible since leaving the invoices online avoids the use of paper, ink and time. Saving time is important in SMEs, so that staff save time in a process, this will allow the company to be more productive.

The billing system will be called CrSystem.

This project aims to offer a business solution to improve the management of the San Juan business, a mini-market located in the city of Quito.

This solution is developed at the request of business owners, who want to make changes in the administration of their business in order to have information in a timely manner about the status of the store's products.

The implementation of the system will make the company acquire more speed and fluidity when processing an order, since it will be an important piece at the time of billing for the client.

In the “San Juan” minimarket, there was no proper control of purchases, sales, inventory management or the main processes that a company of this nature should have; Faced with this problem, we have taken the following investigations as a reference:

Invoicing and inventory system for the tax control of purchase and sale in the VPC Corporation of the Technical University of Ambato. [1]

Prototype of an automatic billing system with RFID technology and an Android application to speed up the payment process at the checkouts of a supermarket of the Israel University [2]

Procedure design to control the billing process of the supermercado ricardito jr of the instituto superior tecnológico bolivariano de tecnología. [3]

1.3 Involved personnel

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1.4 Definitions, acronyms and abbreviations

Definition of all terms, abbreviations and acronyms necessary to properly interpret this document. In it you can indicate references to one or more appendices, or to other documents.

1.5 References

| Reference | Title | Route | Date | Author |
|-----------|---|---|-------------|---|
| [1] | Invoicing and inventory system for the tax control of purchase and sale in the VPC Corporation of the Technical University of Ambato. [1] | TECHNICAL UNIVERSITY OF AMBATO FACULTY OF SYSTEMS ENGINEERING, ELECTRONICS AND INDUSTRIAL | Abril 2012 | Franklin Ricardo Barrionuevo Caiza |
| [2] | Prototype of an automatic billing system with RFID technology and an Android application to speed up the payment process at the checkouts of a supermarket of the Israel University [2] | ISRAEL TECHNOLOGICAL UNIVERSITY | August 2018 | CORELLA TITUAÑA MARCELA CRISTINA |
| [3] | Procedure design to control the billing process of the supermercado ricardito jr of the instituto superior tecnológico bolivariano de tecnología. [3] | INSTITUTO SUPERIOR TECNOLOGICO BOLIVARIANO OF TECHNOLOGY | June 2018 | MINA CASTRO RONALD ELEUETIO |

1.6 Summary

Invoicing and inventory system for the tax control of purchase and sale in the VPC Corporation of the Technical University of Ambato. [1]

The lack of a billing and inventory control system in the Corporation is the main drawback that this system does not generate an invoice, so it is necessary to invoice it, at the same time affecting the inventory both when making sales and when make purchases. The research is developed within the corporation to better understand the current state of the software, hardware and data network infrastructure.

Mass communication guides the majority of applications are developed in a web environment, one of the main advantages being accessibility, allowing system users to access it from anywhere in the world regardless of the operating platform that is running.

This is the basis for applying a methodology of analysis and design of our system, with which it is intended to provide a solution to the Billing and Inventory processes that will allow the creation of a tool that supports the activities of said company.

Prototype of an automatic billing system with RFID technology and an Android application to speed up the payment process at the checkouts of a supermarket of the Israel University [2].

The invoice automation system has been made thinking of cutting the time that customers spend in supermarkets in billing the products purchased.

The invoicing control for purchases and sales in supermarkets is carried out manually and the invoices file is also carried out in the same way, which are used

at the end of each accounting period for the completion of financial statements. By doing this in the supermarket billing process, some errors are made in the

billing of products. The errors that occur frequently are those related to fractured items and not delivered to the customer, item codes wrong or items without code.

The system to be implemented aims to solve the problems that are currently occurring in terms of better optimization of billing time in supermarkets, to better control thefts that occur within these places.

Procedure design to control the billing process of the supermercado ricardito jr of the instituto superior tecnológico bolivariano de tecnología. [3]

Technology is important to facilitate the effort ongoing efforts by companies to reduce the number of paper documents. The process can be simplified through the use of formats, or key forms for standard documents that accelerate the adoption of electronic data interchange of invoice documents.

The Ricardito Jr. Supermarket presented the need to improve the billing process in order to have better control of inventories, the purpose of this research was to propose improvement to the billing process procedures for inventory control.

The traditional billing process always it has been part of a broader set of business processes. At trading include placing and accepting an order, processing of the order, the delivery of the merchandise and the final payment

The main problem with such manual processing is that paper remains deeply embedded in billing processes between entities of all sizes.

In the case of the Ricardito Jr. Supermarket, there is a need to improve the billing process that it currently carries out and with this, better control its inventories.

2 General description

Despite the owner's efforts to have control of the structured information, this is not enough since none of these files is digitized and there is only one copy at present, therefore, the loss of information and the inappropriate manipulation of the files. bills is imminent.

Since the main problem is the lack of automation, it is proposed to develop a billing system in which the different processes can be integrated, which can systematize the information and optimize the functions performed at the time of making the invoice records.

After evaluating the problems in the business, the needs and gaps in the workplace could be visualized. Hence, the requirement arises to improve billing services.

The record on which the business is based is clearly written, so it is very easy for an invoice to be lost at any time in the course of the storage process, also, consulting a document is a huge waste of time. This can be automated for higher throughput and ease of processes. Therefore, the purpose is to create various modules that allow the storage and organization of information.

2.1 Product perspective

The model of this system that was developed has the consequence of facilitating the search for billing and work orders, among these there will be different modules for the entry of information, which will allow generating invoices in a better way.

2.2 Product functionality

The billing system must have a wide scope so that it can be implemented in taxpayers who do not yet use it.

It must be simple to facilitate compliance with the obligations of taxpayers and the accounting process. It must be secure so as to guarantee non-repudiation of the operation and that it be a valid document for all purposes.

The billing system will minimize the risks of any loss of company data, reduce the rate of unnecessary hours when counting the month's records and will be in charge of keeping track and recording each work activity of the day.

The implementation of the billing system will make the company more fluid when it comes to processing an order, as it will be an important piece when billing the client and reporting work orders such as payment to employees, number of hours, labor and warranties.

Definition of requirements.

They are the characteristics that a software must have to be able to support and / or execute an application; These can be functional or non-functional.

Functional Requirements

The billing process will include the following steps:

Order entry

billing

collection.

Non-Functional Requirements

The programming language must be java.

Very fast and efficient data processing.

User friendly graphical interface.

2.3 User characteristics

| | |
|--------------|----------------|
| Type of user | aquí el texto] |
| Training | aquí el texto] |
| Skills | aquí el texto] |
| Activities | aquí el texto] |

2.4 Restrictions

One of the restrictions that we may have is that we do not have a user-friendly interface, since this interface will be used by the manager, cashier, etc. So it has been decided to use the following programming tool.

NetBeans IDE is a development environment - a tool for programmers to write, compile, debug, and run programs. It is written in Java - but it can be used for any other programming language. There are also a significant number of modules to extend the NetBeans IDE. NetBeans IDE is a free and open product with no use restrictions. "

Therefore, it is concluded that NetBeans is an open source program, accessible to all and with a large number of modules. NetBeans is a very complete IDE to program in different languages that gives the possibility of carrying out different activities such as: Edit code, compile it, execute it, debug it.

NetBeans has been chosen for the development of this project due to its friendly environment and easy use, since it is nothing more than a directory with a special organization.

2.5 Assumptions and dependencies

The factors that can affect it is in part knowledge since it is true that currently the economically active population with technology is undoubtedly a point in favor for the implementation of the electronic invoicing system, however, it cannot be forgotten that there is a trade of character informal where people of low cultural level intervene who to a certain extent may be afraid of the change to the application of the electronic invoicing system this as a result of the scarce or null technological knowledge, thus having the tax administration the mandatory intervention with training so that taxpayers may know and adhere to this system.

Another factor may be the difficulty of small and medium-sized companies to adapt to the change in the billing system.

Another factor that can affect the system is the network or directly the lack of access to it.

2.6 Predictable evolution of the system

The improvements to the invoicing system of the CrSystem group will depend on a successful experience and application in the small business that we will implement the system, the invoicing software could also be improved making it more user-friendly, with greater accessibility to taxpayers with low technological knowledge, seeking to suppress the filling of forms, if possible the elimination of complex processes that do not have an importance real. All these updates will be taken into account once the billing system is finalized and implemented.

3 Specific requirements

This is the longest and most important section of the document.

It must contain a detailed and complete list of the requirements that the system to be developed must meet. The level of detail in the requirements must be sufficient so that the development team can design a system that meets the requirements and that testers can determine whether they are met.

The requirements will be arranged in the form of numbered lists for identification, monitoring, traceability and validation (eg RF 10, RF 10.1, RF 10.2, ...).

For each requirement, the following table must be completed:

| | | | |
|----------------------|---|--|---|
| Requirement number | aquí el texto] | | |
| Requirement name | aquí el texto] | | |
| Type | <input type="checkbox"/> Requirement | <input type="checkbox"/> Restriction | |
| Requirement source | aquí el texto] | | |
| Requirement priority | <input type="checkbox"/> High / Essential | <input type="checkbox"/> Average / Desired | <input type="checkbox"/> Low / Optional |

and make the description of the requirement

The distribution of the paragraphs that make up this point may differ from the one proposed in this template, if the characteristics of the system advise another distribution to offer greater clarity in the exposition.

3.1 Common interface requirements

aquí el texto]

Detailed description of all inputs and outputs of the software system.

3.1.1 User interfaces

aquí el texto]

Describe the user interface requirements for the product. This can be in the form of text descriptions or interface screens. For example, the customer may have specified the style and colors of the product. Describe precisely how the product will appear to its intended user.

3.1.2 Hardware interfaces

aquí el texto]

Specify the logical characteristics for each interface between the product and the hardware components of the system. Configuration features will be included.

3.1.3 Software interfaces

aquí el texto]

Indicate whether to integrate the product with other software products. The following must be specified for each software product:

- *Description of the software product used*
- *Interface purpose*
- *Interface definition: content and format*

3.1.4 Communication interfaces

aquí el texto]

Describe the communication interface requirements if there are communications with other systems and what the communication protocols are.

3.2 Functional requirements

aquí el texto]

Definition of fundamental actions that the software must take when receiving information, processing it and producing results.

They include:

- *Validity check of tickets*
- *Exact sequence of operations*
- *Response to abnormal situations (overflows, communications, error recovery)*
- *Parameters*
- *Output generation*
- *Relationships between inputs and outputs (sequences of inputs and outputs, formulas for information conversion)*
- *Specification of the logical requirements for the information to be stored in the database (type of information, required)*

Functional requirements can be divided into subsections.

3.2.1 Functional requirement 1

3.2.2 Functional requirement 2

3.2.3 Functional requirement 3

3.2.4 Functional requirement n

3.3 Non-functional requirements

3.3.1 Performance requirements

aquí el texto]

Specification of the requirements related to the load that the system is expected to bear. For example, the number of terminals, the expected number of simultaneously connected users, the number of transactions per second that the system must support, etc.

All of these requirements must be measurable. For example, stating "95% of transactions must be completed in less than 1 second", instead of "operators should not wait for the transaction to complete".

3.3.2 Security

aquí el texto]

Specification of elements that will protect the software from malicious access, use and sabotage, as well as from malicious or accidental modifications or destruction. Requirements may specify:

- *Use of cryptographic techniques.*
- *Record of files with activity logs.*
- *Assignment of certain functionalities to certain modules.*
- *Communication restrictions between certain modules.*
- *Integrity checks of critical information.*

3.3.3 Reliability

aquí el texto]

Specification of the necessary reliability factors of the system. This is generally expressed as the time between permissible incidents, or the total permissible incidents.

3.3.4 Availability

aquí el texto]

Specification of the final availability factors required of the system. Normally expressed in% of time in which the software has to show availability.

3.3.5 Maintainability

aquí el texto]

Identification of the type of maintenance required for the system.

Specification of who should perform maintenance tasks, for example users, or a developer.

Specification of when maintenance tasks should be performed. For example, generation of weekly and monthly access statistics.

3.3.6 Portability

aquí el texto]

Specification of attributes that the software must present to facilitate its transfer to other platforms or environments. They may include:

- *Percentage of server-dependent components.*
- *Percentage of code dependent on the server.*
- *Use of a certain language for its portability.*
- *Use of a specific compiler or development platform.*
- *Use of a specific operating system.*

3.4 Other requirements

aquí el texto]

Any other requirement that does not fit in any of the previous sections.

For example:

Cultural and political requirements

Legal requirements

4 Appendices

aquí el texto]

They can contain all kinds of information relevant to the SRS but which, properly speaking, is

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