Software Requirements Specifications

for

Defense Industry ERP Application (Process Management and Enterprise Resource Planning)

Version 1.0

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Change History

On October 6, 2020, the first version of this document was written within the scope of all required documents and according to IEEE Std 830-1998, IEEE specifications.

Preface

This document contains the Defense Industry ERP Application (Process Management and Enterprise Resource Planning) Software Requirements Specification (SRS), a project with the mission of managing the production planning system of CDK Savunma Company.

This document is organized according to all the features of the product, the authorization and the features of the users, the requirements for the users, the requirements for the system, the system assumptions and restrictions, all recommendations for the IEEE STD 830-1998 Specifications.

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1. Introduction

ERP Application (Process Management and Enterprise Resource Planning) system is an enterprise information system It is designed to integrate and optimize business processes, employees' performance, costs and processes of work in a company. The ERP Application (Process Management and Enterprise Resource Planning) is an industry-oriented concept and system and is universally accepted by the industry as a practical solution to achieve an integrated business. ERP Application (Process Management and Enterprise Resource Planning) system handles a wide range of planning, operation and accounting functions such as accounting, finance, logistics, production planning, stock management, production, quality management, human resources in an integrated manner. In this SRS document, we will include some basic preliminary information and more detailed details about this management system. We will cover the product perspective, software and hardware fundamentals, memory and database management, product functions and user characteristics.

1.1 Purpose

The technical explanation part of all software requirements required for Defense Industry ERP Application(Process Management and Enterprise Resource Planning) will be provided by this document.

The document will not only define the product functions, user characteristics, constraints, and specific requirements of the system but also serve as a basis for the Software Design Document that will be prepared according to IEEE Std 1016-1998 [1].

1.2 Scope

The Defense Industry ERP project is a web-based, fully protected (2048 bit) encrypted SSL certificate that requires user login, managing the relationship between unit supervisors, general manager and manager in business contexts, as well as project project resource management and collective stock tracking. The business tracking mission, which is the basis of ERP programs, will provide the management and control of each job, from product entry to shipment, in our system, specifically for the defense industry sector, as well as providing the company about cost calculations and employee performance reports. Will be able to manage all processes of the company by making interim reports when necessary.

Project objectives

-To ensure that the control of all the projects the company is working on is done through a single application, regardless of time and place.
-Eliminating paperwork.
-Making and recording performance criteria based on data.
-Taking advantage of online data retention methods.
-Minimizing manpower in project management.
-Instant tracking of cost reports after correct calculations from the right source

1.3 Definitions, Abbreviations, Acronyms

ERP	Enterprise Resource Planning
Company	CDK Savunma Company
M	Manager
GM	General manager
US	Unit Supervisor
PL	Production Level
T	Test Level
COC	Certificate of Conformity

1.4 References

[1] IEEE Std 1016-1998, Recommended Practice for Software Design Descriptions

[2] IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications.

[3] IEEE Std 1058-1998, IEEE Standard for Software Project Management Plans.

1.5 Overview

This document has been prepared and edited in accordance with the IEEE's Recommended Practice Specifications in line with the IEEE Std 830-1998[2] standards according to the explanations and references stated in Section 1.

Section 2.0 of this document, which provides product perspectives, product features and functions, authorization and characteristics of users, general restrictions and system restrictions, system assumptions and user acceptances, is designed to create a general definition of ERP. In addition to these, Section 3.0 has been prepared and edited to schematize and explain a software design in accordance with IEEE standards. It has addressed all the functionality and attributes required for the project, harmonizing the interface and database requirements for ERP.

2 Overall Description

This section has been prepared to provide information about all the requirements of the ERP implementation and all the reasons and factors that affect these requirements. This part of the SRS provides a basis and background for these factors. Detailed definitions are included in the 3rd part of the SRS.

2.1Product Perspective

The ERP system will provide internet-based services, project management, resource management, stock tracking, cost calculation, performance reports for the common purpose of the companies in the sector, and at the same time, it will provide information and control with the authorization system, regardless of time and place.

2.1.1 System Interfaces

Since we will develop a web-based application and due to security requirements, the program to be hosted on an independent web provider has no interface linked to another external application. (Apart from required providers such as Cpanel)

2.1.2 User interfaces

User interface and ease of use are very important for ERP. Checkboxes, combo boxes, text boxes, and radio buttons will take place in the user interface in order to increase the user experience. In addition, there will be download and restore sections for intermediate performance reports, which are required for the process, and these will be done with modern responsive designs, and mobile compatibility will be ensured. Transitions between processes (e.g. the transition of a project from the production phase to the testing phase) can be entered into the program in an easy and understandable way. The language of the system will be Turkish. It will be designed in accordance with flat designs and flat web design colors. Mouse clicks and keyboard functions can be used fully functioning on the system.

2.1.3 Hardware Interfaces

Today, the system can be accessed with all mobile and desktop devices that can actively connect to the internet.

2.1.4 Software Interfaces

The system will be hosted on ASP.NET WINDOWS Hosting, the management system will be controlled via Plesk, unlimited traffic, 1 Core CPU and 1 GB RAM features.

2.1.5 Communication Interfaces

For basic data transfer, the default communication protocol, encrypted communication control protocol, TCP / IP Internet protocol, the basic protocol provided by Windows Server and used between the web server with port 21 and the client will be used. Our connections can be made via FTP Filezilla or Plesk systems.

2.1.6 Operations

Some of the basic ERP functions that users need and will use are listed below.

- Introduction_Quality_Addition_Process
- Process_Product_Add_to_Repository
- Production_Process
- Quality_Control_ Process
- Performance_Assessment_Process

2.1.7 Site Adaptation Requirements

There are no adaptation requirements for ERP.

2.2 User Characteristics

Unit Supervisor

The unit supervisor manages the processes that manage the business processes and the progress of the process, such as the situations in the production and testing phase, taking data inputs and outputs, entering records for personnel, counting for the warehouse.

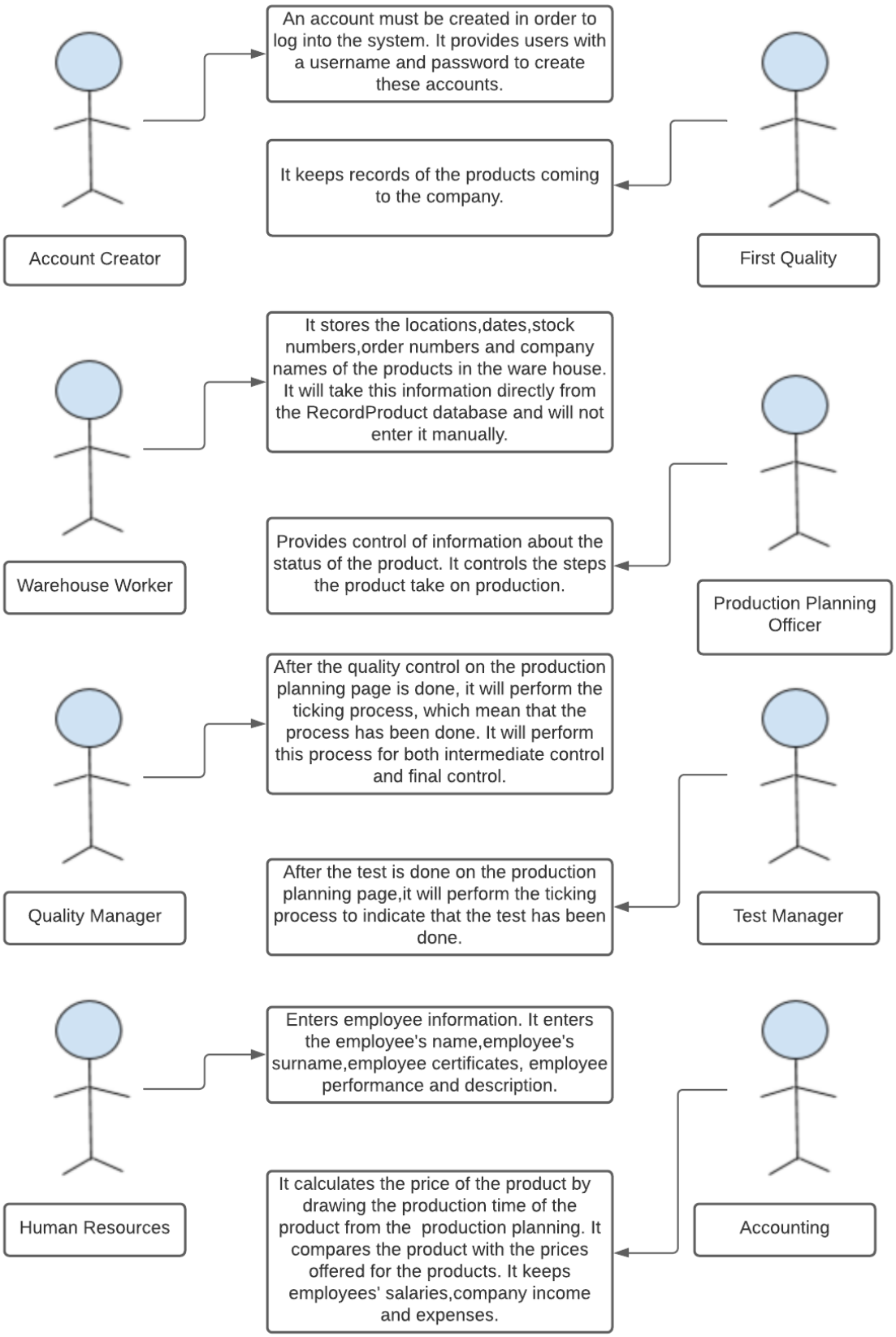
General Manager

The General Manager is the most authorized person of the company, who can view and edit all financial reports, performance criteria and business processes.

Manager

Managers can view and edit performance criteria and production-control processes in their field.

2.2.1 Use Case


An account must be created in order to log into the system. It provides users with a username and password to create these accounts.
It keeps records of the products coming to the company.
Account Creator
First Quality
It stores the locations,dates,stock numbers,order numbers and company names of the products in the ware house. It will take this information directly from the RecordProduct database and will not enter it manually.
Provides control of information about the status of the product. It controls the steps the product take on production.
Warehouse Worker
Production Planning Officer
After the quality control on the production planning page is done, it will perform the ticking process, which mean that the process has been done. It will perform this process for both intermediate control and final control.
After the test is done on the production planning page,it will perform the ticking process to indicate that the test has been done.
Quality Manager
Test Manager
Enters employee information. It enters the employee's name,employee's surname,employee certificates, employee performance and description.
It calculates the price of the product by drawing the production time of the product from the production planning. It compares the product with the prices offered for the products. It keeps employees' salaries,company income and expenses.
Human Resources
Accounting

2.3 Constraints

The software development team obeys the IEEE standards [1, 2, 3, 4, 5, 6] for the software development process stated in the references section.

Each user (general manager, manager, unit supervisor) must have a registered e-mail and password. Password criteria must be determined beforehand and the necessary personnel must be informed. In the application, the time of inactivity from time to time can be calculated and the system can log off for security purposes. When users log on, they are deemed to have accepted the company's privacy policy. The system only works on a web browser, it cannot be run on 3rd party applications.

2.4 Assumptions and Dependencies

It is assumed that each user logs into the system via a device and a browser that can actively connect to the internet and run various script codes. However, they are deemed to have accepted the usage and confidentiality principles set forth by the company.

2.5 Apportioning of Requirements

ERP Project is a web based software. User account creation is provided to the company by the software development team, and for security purposes, it can be entered with the Key Codes provided by the development team. The login screen is only available to users who are currently registered in the system.

3 Specific Requirements

3.1 External Interfaces

There are no external interface requirements on ERP Application.

3.2 Functions

3.2.1 All User Functions

3.2.1.1 All_User_Login Function

Introduction: All users can log in with the usernames and passwords given by the system administrator.

Input: username, password.

Action: Users will go to the login page and then enter their username and password. The function will check if the username and password match. According to the result, the system will grant access to the user or function will display an error message.

Output: The user will encounter an error message or the user panel will open.

3.2.2 System Manager Functions

3.2.2.1 Administrator_Add_User Function

Introduction: It will enable new users to be added to the ERP system and to define the roles of users to the system.

Input: first name, last name, username, password, role.

Action: Administrator activates the function and enters the new user's name, surname, username and role. The function checks if the user exists in the database, if there is another user with the same username, it returns a message to change. As a result, an error message occurs if the user cannot be added to the system, or a confirmation message if the user can be added.

Output: A "user created" message or error message is issued.

3.2.2.2 Administrator_Delete_User Function

Introduction: It will ensure that users are deleted from the ERP system.

Input: username.

Action: Administrator activates the function and enters the user's username. The activated function checks if the username exists in the database. As a result of the function, a message is given by the system that the user has been deleted or a message is displayed for the error that occurs in the system.

Output: Displays a message "User deleted" or a message for the error that occurred.

3.2.2.3 *Administrator_Update_User Function*

Introduction: Have an administrator in the ERP system update users' credentials.

Input: name, surname, username, role,

Action: The system administrator takes action to change the credentials of the selected user. New credentials are entered for user fields. This function used checks whether the username is in the database. As a result of the check made by the system, an error message is displayed indicating that the user information cannot be updated or updated.

Output: A confirmation message such as "User information has been updated" is displayed or an error message is displayed indicating that the function could not be performed.

3.2.3 Product Process Functions

3.2.3.1 *InputQuality_Process Function*

Introduction: The stage where the first checks of incoming products in the ERP system are made.

Input: job_ order, order_no, stock_no, quantity, date, company_name, Box_content_table {part_no, military_stok_no, p_order, incoming_add, lot_batch_no, remark}

Action: The expected records of the product that comes to the input quality stage are entered as input to the system. As a result of these inputs, if there are no missing parts, if there are no errors or troubles, approval is taken from the Entry Quality phase and the next step is passed.

Output: Error message or a confirmation message will be displayed.

3.2.3.2 Warehouse Function

Introduction: Products from the input quality phase are products reserved for use in a project. For this reason, they are entitled to enter the warehouse.

Input: job_ order, order_no, inventory_no, quantity, date, company_name, warehouse_place, input_date, delivery_field, exit_date, remark.

Action: The products that come out of the input quality phase take their places in the warehouse, the project of the products that arrive here and their location in the warehouse are determined. They are waiting here until the products are processed. The person managing and viewing the warehouse page can see the detailed information screen for the products.

Output: Error message or a confirmation message will be displayed.

3.2.3.3 Production_Process Function

Introduction: Products that leave the warehouse come to the 'Production' Phase, which is the first stage of production. Products are processed at this stage and sent to the next stage for control.

Input: depot_input_date, repository_input_date, update_date, production_type, harness_type, job_ order, order_no, stock_no, quantity, remaining_quantity, company_name, status, notification_no, production_responsible, remark.

Action: After products leave the warehouse phase, they come to the Production phase. Here, the production process of the company starts and this process continues until the first production phase of the products is completed. After the process of the product is completed, the product is kept ready to be tested and this is reflected in the system.

Output: Error message or a confirmation message will be displayed.

3.2.3.4 Quality_Control_ Process

Introduction: The quality control process consists of two stages. The product that is approved by the Intermediate quality control and the Final Quality Control goes to the delivery stage, meaning the production process is over. In Interim Controls, the product is subject to control after the operations in a certain process.

Input: job_ order, order_no, stock_no, quantity, remaining_mount, company_name, status, notification_no, control_person, remark.

Process: The product that comes to the Interim Quality Control process is checked for the processes up to that stage in the production phase, accordingly, the status is informed and returns to the production process. In the last Quality Control Phase, the final checks of the product are made, if it does not pose a problem and is ready for shipment, a COC file is created and forwarded to the shipping unit. If the product is found to be defective in the Final Quality Control phase, it is directed back to the Production Phase.
Output: Error message or a confirmation message will be displayed.

3.2.3.5 Test_Process Function

Introduction: Every product that is completely finished is tested. It is the stage to be done before the final quality stage.
Input: job_ order, order_no, stock_no, quantity, remaining_mount, company_name, test_type, test_entry_date, test_reports, test_output_date, remark.
Action: Before taking the product to the final control, it should be tested. During the test phase, the products should be tested for connection, sprinkler, electrical etc. enters the tests. Reporting is required for each test. Testing for the accuracy of the product sent to the customer is an important rule.
Output: Error message or a confirmation message will be displayed.

3.2.3.6 Shipment_Process Function

Introduction: The products that come to the delivery stage are products that have passed all kinds of controls and prepared the necessary documents.
Input: job_ order, order_no, stock_no, quantity, remaining_mount, company_name, shipment_date, invoice_number, shipment_count, remark.
Action: During the delivery phase, it is anticipated that all the processes of the products, namely the production, quality and preparation of the necessary documents, are completed. At this stage, the product is dismissed from the company and the product leaves the company to be delivered to the customer.
Output: Error message or a confirmation message will be displayed.

3.2.4 Human Resources Function

3.2.4.1 *Performance_Assessment_Process*

Introduction: Due to the number of employees of the firm and the diversity in the units, we have included this in ERP in order to transfer the performance reports to digital. The authorized manager can control all performance criteria, leaves and overtime hours of the personnel working in the institution. This information can also be provided by an authorized unit supervisor and can be entered periodically as input.

Input: p_name, p_surname, p_id, work_time, leave_day, extra_time, task, payment_information, tel_no, e-mail.

Action: The information of all personnel working in the institution is entered into the system, then the authorized unit supervisor regularly enters the performance criteria of the personnel in his team (eg extra work, used leaves, requested advances) The authorized manager can instantly access all performance reports at any time. . In addition to helping with decision making and promotions, it plays an important role in improving performance.

Output: Display for Manager

3.3 Performance Requirements

After the information is entered for each page in the process of the product from input quality to shipment, the process of saving and viewing should be very short.

3.4 Logical Database Requirements

In the 3.2 section, the inputs to be entered for each function we wrote and what will happen as a result of the output output of these functions are clearly stated. Template form is also available in Appendix section. If users receive error messages as a result of their transactions, they are either trying to perform transactions that are not within their competence or they have not entered the required values.

3.5 Design Constraints

3.5.1 Standards Compliance

Data Naming: All terms used on all screens must comply with the terminology used in CDK Savunma.

3.6 Software System Attributes

3.6.1 Reliability

System reliability is aimed to be kept close to one hundred percent. The ability to provide full-time active connection on an independent server supports the access reliability to the system.

3.6.2 Availability

The Web Server in Use is accessible whenever the Internet and electricity are available, as it only hosts this software. It is possible to log in and connect to the system with the help of any device that can actively connect to the Internet and run some basic Script collectors.

3.6.3 Security

One of the most important requirements for ERP and the sector where the company is prepared is security. In addition to high-level encryption and server improvements with SSL, access within the membership system has been closed directly, and it is envisaged that the process of adding new members will be transferred to manual indirectly.

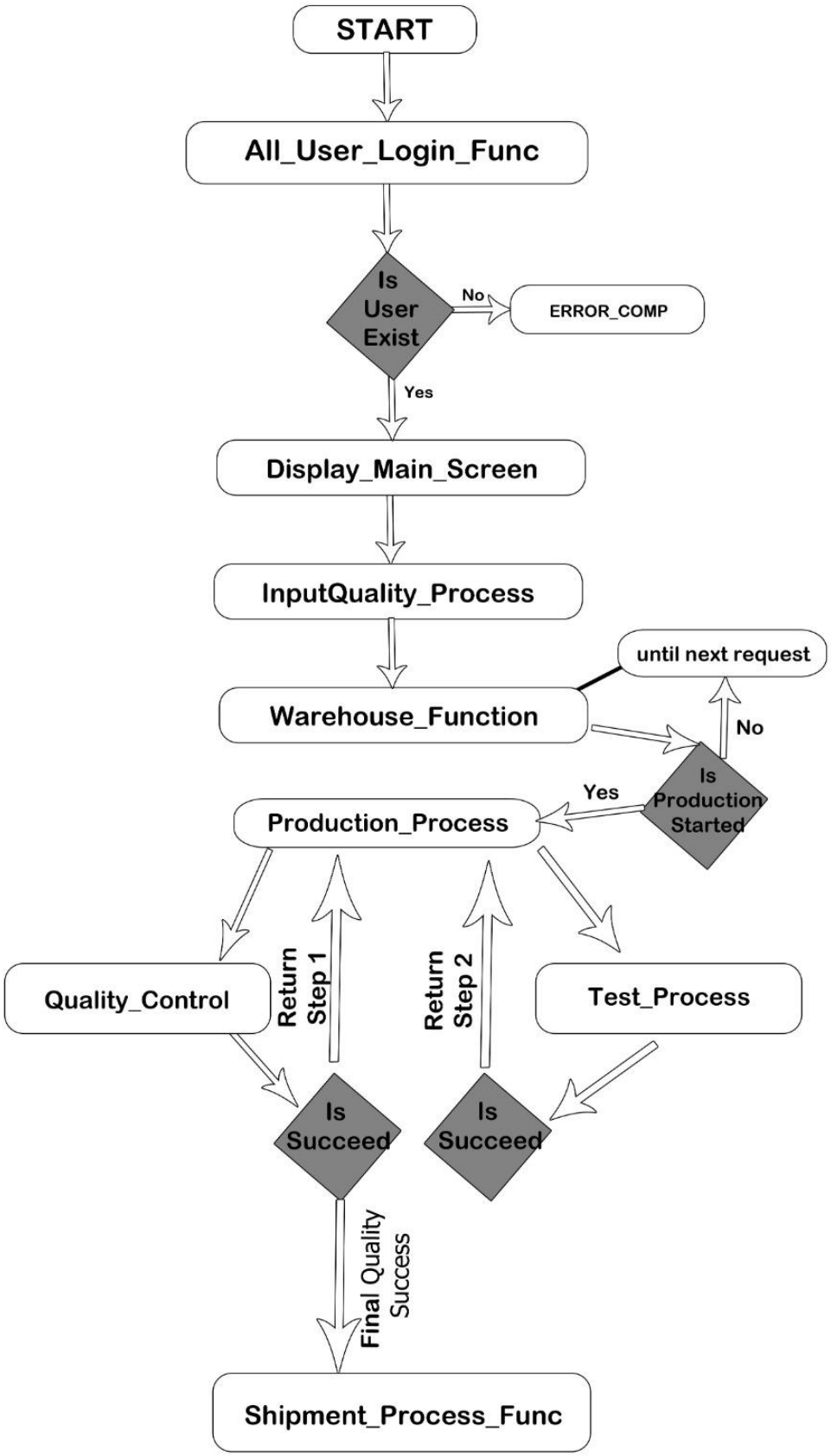
3.6.4 Maintainability

The system has been prepared by considering the basic operations of most medium and high-scale companies serving in the Defense Industry. For this reason, some sub-regulations allow this even if the basis remains the same as there may be innovations and features that can be added according to the company.

3.6.5 Portability

Codes to be uploaded to the remote WEB Server will be hosted on a Windows-based WEB Hosting, and all database records will be processed on this server. In addition to the system, the purpose of being Web-based in its application is to be able to manage the process regardless of time and place.

4 Appendix


START
All_User_Login_Func
Is User Exist
No
ERROR_COMP
Yes
Display_Main_Screen
InputQuality_Process
until next request
Warehouse_Function
No
Is Production Started
Yes
Production_Process
Quality_Control
Return Step 1
Return Step 2
Test_Process
Is Succeed
Is Succeed
Final Quality Success
Shipment_Process_Func