

A project report on

AUTOMATION PROJECT

Submitted in partial fulfillment of the requirement

For the award of the degree

MASTER OF COMPUTER APPLICATIONS

Of



Visvesvaraya Technological University
Belgaum, Karnataka

By

Meghana K M

1CR18MCA71



CMR INSTITUTE OF TECHNOLOGY

132, IT Park Road, Kundalahalli, Bangalore-560037

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2019-2020

CMR INSTITUTE OF TECHNOLOGY
Department of Master of Computer Applications
Bangalore - 560037



CERTIFICATE

This is to certify that the project work entitled

AUTOMATION PROJECT

*Submitted in partial fulfilment of the requirement
for the award of the degree of
Master of Computer Applications of the
Visvesvaraya Technological University, Belgaum, Karnataka
bonafide work carried out by*

**MEGHANA K M
1CR18MCA71**

during the academic year 2019-2020.

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PRINCIPAL, CMRIT

External Viva

Name of the Examiners

Signature with date

- 1.
- 2.



TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Meghana K M** is an intern of Qess Corp Limited with Emp.ID. **2001465671** (Formerly IKYA Human Capital Solutions). She is assigned with an intern project at our client Huawei Technologies India Pvt Ltd. She is undergoing an internship project on **Automation Project** from 3rd Feb 2020 till 3rd Aug 2020

This letter is being issued to her as proof of internship and not be consider as experience letter until the internship is completed

For IKYA Human Capital Solutions
(A Division of Qess Corp Limited)

A handwritten signature in black ink, appearing to be 'K. M. Meghana'.

Authorized Signatory

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DECLARATION

I, **MEGHANA K M**, Student of 6th semester MCA, **CMR Institute Of Technology**, Bangalore, bearing USN **1CR18MCA71** hereby declare that the project entitled **“AUTOMATION PROJECT”** has been carried out by me under the supervision of external guide **Mr.Srinivas Reddy**, Project Manager and internal guide **Dr. Helen Josephine.V.L. Associate Professor Dept. of Master of Computer Applications** and submitted in the partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications by the **Visvesvaraya Technological University** during the academic year 2019-2020. The report has not been submitted to any other University or Institute for the award of any degree or certificate.

Place: Bangalore

Meghana K M

Date:

(1CR18MCA71)

ACKNOWLEDGEMENT

I would like to thank all those who are involved in this endeavor for their kind cooperation for its successful completion. At the outset, I wish to express my sincere gratitude to all those people who have helped me to complete this project in an efficient manner.

I would like to thank Mr. Srinivas Reddy, Project Manager and Huawei Technologies Co. Ltd, Bangalore, who gave opportunity to do this project at an extreme organization, and to my Internal Project guide Dr. Helen Josephine.V.L., Associate Professor Department of MCA, CMRIT, Bangalore without whose help and support throughout this project would not have been this success.

I am thankful to Dr. SANJAY JAIN, Principal, CMRIT, and Bangalore for his kind support in all respect during my study. Most of all and more than ever, I would like to thanks my family members for their warmness, support, encouragement, kindness and patience. I am really thankful to all my friends who always advised and motivated me throughout the course.

MEGHANA K M
(1CR18MCA71)

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AUTOMATION PROJECT

CHAPTER 1

INTRODUCTION

1.1 Project Description

The Warehouse DN is automating the given demand that has been developed through HUAWEI to supply the vital practicality and visibility of the timely records needed for the effective management. The aim is to automate operations with less manual power increases massive commercial enterprise to perform iteration of services, paintings, labor-intensive duties.

The overall cost on the finest solution of Warehouse DN helps in requirement to hold tasks on time. They must be handled by those workers who are able to handle the errors and that are not able to reach best standards always.

RPA refers to robotic process automation and considered as a part of the business process automation in general sense. Robot process automation is a technology that enables computer software to stimulate and integrate the interactions between humans and digital systems.

AntRobot is an RPA tool that supports project design and development, automatic command execution and robot management. This tool executes workflows triggered locally and quickly designs automation workflows for you with basic programming knowledge. It enables you to control, manage, and monitor robots.

VBA is employed to regulate the practicality of Microsoft surpass and the other Microsoft workplace application Visual Basic for Applications allows building user-defined functions (UDFs), automating processes and accessing Windows API and alternative low-level practicality through dynamic-link libraries (DLLs). It supersedes and expands on the skills of earlier application-specific macro programming languages like Word's Word BASIC. AntRobot and VBA language useful in workflows with efficiency in coding. VBA having the

process called recording macros in developer tab that helpful for recording actions done in respective excel sheet.

XML that is Extensible markup language coding plays a vital role in supporting with Ant Robot tool which helps in need with functionality of repeated operations in a easiest manner by providing simple commands to written. It supports both in local app type and web type.

Warehouse DN automation this requirement offers easy way to reach business users need inventory worldwide.

This results in following benefits

- Iteration of operation
- Reliability
- Portability

Building Blocks of Warehouse DN

- **Business User Specification**
- **Insert the input to fetch data**
- **Exporting data from header to excel**
- **Config settings**
- **Filtration, Successive data sent**

- **Business User Specification**

Main building block where the initiative of interaction with business user and worker, specification includes description of project containing scope of activities that will be carried out within it.

Business user specifies their requirement preferably in the form of convenient attachment such as text, email etc. It consists of all goals, functionality, and details required for a development team to satisfy the vision of the business user.

It has a high degree of abstraction, and developers would like nice clarity concerning what they have to try and do. Such a high level of abstraction makes it even a lot of necessary for you to induce your project specifications right.

- **Insert the input to fetch data**

The main file as developer creates a *extraction* of requirement sheet, makes it flexible to the end user, Facility-independent (with explicit Configuration information on it), and Should be followed without causing corruption of data. Associated xml file is specific to everyone which the developer may manipulate/customize/modify being xml terribly in human-readable form.

Before entering into extraction phase, warehouse page will have enormous of data consisting in it with different code, names and status of project. So ensuring the valid and right input to the required fields makes enablement of displaying data. Sometimes loading of data causes interruption due to traffic arises in delay and timeout, delaying ensures the time difference between from one phase to next phase that is task and timeout ensures that the time taken for a particular task execution.

- **Exporting data from header to excel**

It is necessary to maintain some principles during completion of workflow of the project, after the data is displayed in a page we loaded, it will have collection of exporting formats.

First we should enable select all pages where it includes DN status, DN number, code and name so that it takes all the information we need in warehousing then on the export option I have taken the option DN header to excel where business requirement satisfies, after exporting it is re-directing to the report download page.

- **Config settings**

When the page report download takes place, it will be having the preview of what it consists of such as bill no. , generation date, source code and report status. In the report status, it will be showing generating as status you should be refreshing the page until download status arrived, I'm doing it manually by putting commands like getText with help of xpath and testing if xpath matches to download one then we are redirecting the page to download. But before download it should ask path where it need to be saved, so moving to settings configuration and enabling toggle in download option gives the choice of asking path before it stored on your desktop. Download only particular data needed for specification. This encodes real-world business rules that describes how data extracted, stored and changed. Workflows of software system also ensuring how data is sending to different users without interruption.

- **Filtration, Successive data sent**

Once the download part over it got saved to particular folder, now filtration action takes place where the excel sheet having so many different kind of data in particular sheet. So using VBA I'm filtering the data and makes sure different data sent to different user through mail by VBA code manually. Hence successive data obtained to deploy in business user desktop and monitors them for how it is working and tells them about the advantages. The Successive Result is provided, to the Clients who gives the task performed manually. Once the Completion of *filtered* data in excel sheet, which is used to initialize the partaking to different users.

The Business Logic is carried out on the basis of given inputs, later when once planning and committal to writing is finished. Then the sequential output is extracted. Whereas the output is precisely matches with the output that is shared by the Business User. One of the biggest advantages of an automatic system is that the rise in safety it provides for worker.

1.2 COMPANY PROFILE

Huawei is a foremost global provisioner of statistics and applied science understructure or realistic utensils. Ourselves will have propensity which accomplish for dispossession digitalized to one and all individuals, accommodation and corporation meant for append, quick-witted globe. In this company there have 194,000 employees which we handle in supplemental aside from a hundred and seventy territories , sectors, helping utterly 3 billion people's circular the globe.

Huawei GSC recommend the integrate assistance of globe network operation centre, network Integration services, webwork forthcoming accompanied by development and IT integration being a comprehensive perspective with regard to user-central functional replica. The India GSC furnish until the end of infusions in extremely mutli-network, multi-technology, multi-vendor context. India GSC convey figures out the co-occurrence with India R&D centre for expeditious and indeed productive practical infusions, synthesized with apparatus and shareware structure A&S globe assistance delivery centre for ICT infusions. It will offer robust proficiency in the control assistance, structure incorporation, petition evolution and preservation collectively generates valuable in relation to globe operative, retributing their functional , internal organization.

Huawei's India GSC provides an infrastructure of different assistance with global network operations centre , network integration services, network planning and optimisation and IT integration services. China's leading telecom gear maker, Huawei is setting up its biggest Global Service Centre (GSC) in Bangalore at an investment of Rs.136 crore. The new GSC will support Huawei's domestic and international telcom carrier users in 30-plus markets across Asia, Africa and the middle east.

The new R&D team in Grenoble was expected to grow to thirty researchers by 2020, a forementioned the corporate. The corporate aforementioned that this new addition dropped at 5 the amount of its R&D groups within the country.

CHAPTER 2

LITERATURE SURVEY

2.1 EXISTING SYSTEM:

Automation, where it reduces human resources that is totally client-based, that automates the operation and persuades the amount of work it has done to help business users have trust legally and make use of efficient report daily, weekly, monthly, quarterly and yearly basis.

Many data, world resources, are terribly sophisticated procedures for optimizing orders and increasing demand for faster delivery. Throughout this situation, there will be a foul arrange to work manually, resulting in high predictions, large amount of essential orders, overtime work by the employees, and cannot be categorized.

In light of this, there will be high costs and lack of user service and maintenance. They domain takes load of it slow to manually alter and human resources may vary reckoning on the business goals. Business goals are used for the number of in operation hours or the because of collect and alter data, so this methodology takes tons of it slow to undertake and do all types of tasks. Therefore, the persuading system is behind time.

Manual Testing is a Software Testing where Testers hand operate to execute test cases without any help of automation tools. It need high endeavor but it's important to ascertain automation feasibility. It may not required any tool information.

It is the classical technique of all testing kinds and helps understand errors in package systems. It's sometimes conducted by associate ball-hawking tester to accomplish the package testing technique.

2.1 PROPOSED SYSTEM:

In Automation, developers write code/test scripts to switch check execution. We've a bent to use acceptable automation tools to develop the check scripts and validate the pc code. The goal is to complete check execution throughout a less amount of time.

Developer must ensure pre-coding check that runs manually to match actual result with users expected results. This helpful for worker to work out whether or not application performs evidently.

Although the procedures should carry under policies and regulations of enterprise system, It needs some manual effort to check all the coding scripts until users won't believe why the automation is thus tough to form. After that, they could understand that it will build their explicit task should never let dispensed by someone.

In here reportage stating that requirement needs to be complete in different form that is, I should export it into excel format by capturing image of that part with help of xpath. I also extracted requirements without causing any corruptions in between. Existing system modifies to new form without interruption in left out other things.

Automation was ne'er meant to interchange anybody. Its objective is to let folks be plenty of productive and work on creative draw back resolution rather than being cursed data input/output tasks.

Highlights:

1) Enhance user experience: Appointing an robotic process automation cleans up the sources, so that they are going to bring your user success back to the frontline defining success. Ensures the success in enterprise system.

2) Low Price: By automating the tasks, cost savings of about 30% are often succeeding on the assembly of productivity. Software robots also spend less and works more quite a full-time employee.

3) Low functional threat: Erasing the users faults like fatigue, insufficient data, robotic process automation decrease speed of faults, hence reducing the extent of functional threat.

2.2 FEASIBILITY STUDY

The Feasibility study will be outlined as associate estimate that the known user needs will be met by mistreatment current computer code and hardware needs. it's unbroken in mind that the planned system are going to be effective from considering the business perspective and will also conjointly examine whether or not it can develop inside a budget constraint.

There are some ambitions of feasibility study

- To suggests possible alternative solutions.
- To determine whether the software can be combined with other legacy software.
- To check the complexity of the project.
- To examine whether the software will meet organizational requests.
- To check whether the software can be done using existing technology and in any particular budget and schedule.

There are 3 Feasibilities for the project

- **Operational Feasibility**
- **Economic Feasibility**
- **Technical Feasibility**

1. Operational Feasibility

Operational practicability refers to the effectiveness of the project when it's been developed. It primarily defines whether or not it solves the matter and conjointly provides insight into the opportunities known throughout the scope reinitialize on and also the means it satisfies demands known within the requirement analysis section.

2. Economic Feasibility

Economic feasibility determines operational prices that square measure acceptable, that is, to see whether or not it's attainable to finish the project at intervals the planned budget. Because of use of open package offered within the market, most of the time is completed at intervals the project budget.

3. Technical Feasibility

It is accustomed outline the technical and Configuration needs for the project i.e., all the tools and technologies required to develop a project ought to be created offered among a mere budget. It goes hand in hand with alternative varieties of behavior.

2.3 TOOLS AND TECHNOLOGIES

As mentioned before, Huawei employees in different objectives. I was allocated to testing team. Thus I had learnt many of things with product for testing and automate the given requirements and webpages.

2.3.1 Tool

At my internship period in HUAWEI I got instructed to use escort tools.

- ❖ **AntRobot**
- ❖ **EXCEL VBA**
- ❖ **XML**

1. AntRobot

The *RPA* (Robotic Process Automation) tool developed by Huawei that is designed to stimulate and enhance the interaction between humans and machines and perform repeated day-to-day operations automatically is *AntRobot*.

- **Applications**
 - Web Application
 - Local Applications like java. citrix, etc
 - citrix remote desktop and remote applications
- **Working mode**

The working mode AntRobot involves three steps namely, Script Recording, Orchestration script and layout. In simple words, this tool reads the script, executes and processes it in real-world.

All the files/scripts are written .xml format on a suitable editor. Here, I used notepad++, since this editor enables the programmer in many platforms viz, HTML,

C, XML, etc. The programming in XML is very similar to HTML language which includes action, command, value, and target in open and close tags.

Due to its simplicity to code and ease to use, this tool is one among the recommended RPA tools in Huawei. But its use is limited to only Huawei clients.

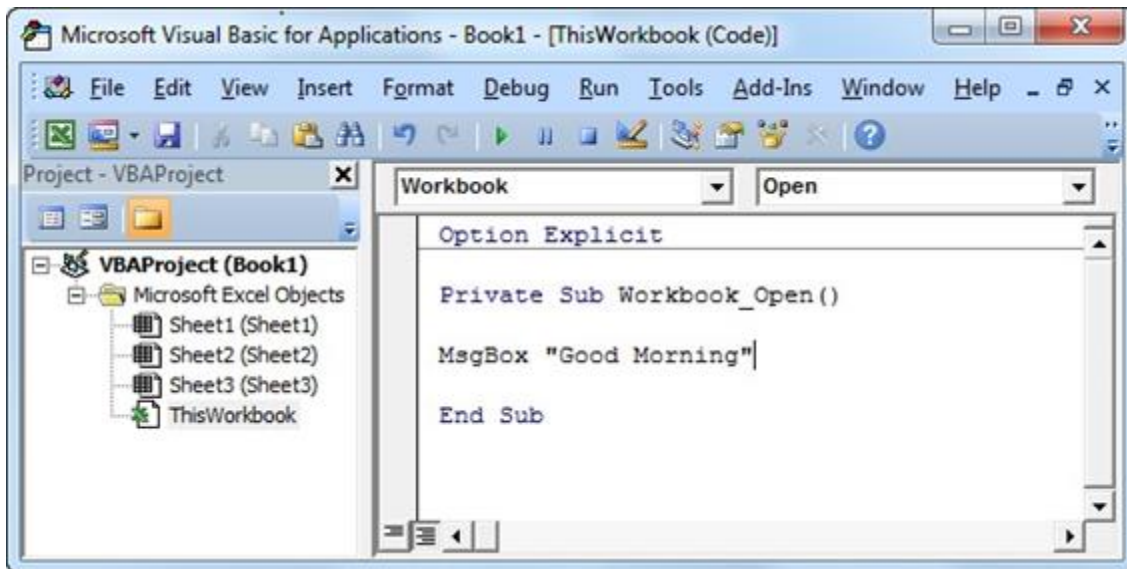
2. EXCEL VBA

VBA indicate Visual Basic for Applications. It is a programming language from Microsoft's for Office programs, like Word and PowerPoint as well as Excel. It is helpful to control whole excel sheet through coding.

To obtain Excel VBA window, open an excel sheet where you can find a developer tab click on it then we need to choose tab visual basic tab. Although users cannot directly modify the excel sheet, there is a special way of making macros to reduce time. In my project I had learnt record macros in two ways.

The first method is by clicking on macros tab under developer option in the excel, where all actions need to be done by user and save that as a method called as macro. As soon we ends the recording procedure we can see that code in a VBA with the name we saved it.

The second method is to build through coding employ VBA. To obtain the VBA window, click alt+F11 in any office program. Here I'm calling macros through Ant Robot by using module name in function called sub.



3. XML

Full form is eXtensible markup language is language which specifies group of conditions designed to store, transport data.

3.1 XML Scheme Description

During orchestration of script, parameters in the XML file need to be processed. The XML format is as follows:

```
<antrobot>
  <procedures>
    <procedure driver_type="selenese">
      <action...>
    </procedure>
  </procedures>
</antrobot>
```

As shown in the preceding figure, the XML file contains four layers of labels:

- Layer 1 label: <antrobot> is the root tag of the entire XML file. The tag name must be antrobot.
- Layer 2 label: <procedures> is the execution process of the robot. The name can only be procedures. It can be composed of multiple procedure tags.
- Layer 3 label: <procedure> is the execution paragraph which contains the service logic. The tag attribute driver_type is mandatory, which indicates the type of execution paragraph. The options are as follows: uiautomation(local app type) and selenium/selenese (web type).
- Layer 4 label: <action> is the service label.

Example of the web type:

```
<antrobot>
  <procedures>
    <procedure driver_type="selenese">
      <action>
        <command>type</command>
        <target>css=input[type="text"]</target>
        <value>asdfasdf</value>
        <delay>500</delay>
      </action>
    </procedure>
  </procedures>
</antrobot>
```

Example of the local app type:

```
<antrobot>
  <procedures>
    <procedure driver_type="uiautomation">
      <action>
        <command>click</command>
        <target>OK</target>
        <targettype>ButtonControl</targettype>
        <by>Name</by>
        <delay>1500</delay>
      </action>
    </procedure>
  </procedures>
</antrobot>
```

2.4 HARDWARE AND SOFTWARE REQUIREMENTS

The hardware are the devices required for developing the applications. The high performance hardwares help to maximize the performance the web applications and allows an increase of speed of development process.

The softwares are the IDEs(Integrated Development Environment) that provides the environment for software development.

Hardware Requirements

- ❖ RAM - 8GB
- ❖ Hard disk - 1TB
- ❖ Processor – Intel core i5
- ❖ 3.20 GHz or higher speed

Software Requirements

- ❖ Operating System – Windows 7 & above
- ❖ Tools – Ant Robot
- ❖ XML & Excel VBA

CHAPTER 3

SOFTWARE REQUIREMENT SPECIFICATION

It is the representation of software system that evolving with non-functional and functional needs and it includes test cases which describes user interaction with software system.

3.1 USERS

- **Developer**

Developer is that the important role who handle all the actions of the whole entire software system or application. He has get permission to all or any the modules and has the proper to form required changes that needed within utilities. He performs blueprint of the project, evolution steps according the client needs.

Developer is also responsible for the draw up schema of the project, monitoring progression, and build reports by finishing at the time limit.

- **User /Customer**

Manually attempting out is not correct in any respect times because of human error, for this reason it's miles abundant less reliable. Manual finding out is long, absorbing human assets. Backing is required for human assets. Guide checking out is just realistic whereas things square measure run once or doubly, and customary repetition isn't needed guide checking out permits for human remark, which could be further helpful if the aim is user-friendliness or continued patron experience and doing manually consumes longer.

3.1 FUNCTIONAL REQUIREMENTS

Functional needs could also be accustomed specify what the device to try and do. It depends upon on form of software package program that's developed, the number of members for the software package that's accustomed get entry to taken by method of the management whilst writing needs. It conjointly defines the particular state to require delivery of by method of the management, it's been taken from the patron requirements report and characterized that helpful needs could also be written at special degrees of part. With regard to the convention, useful demand specification of a system should be persistent wherever the first defines all the offerings needed by the person and also the latter defines that the wants should do not have Conflicts.

- **Insert the input to fetch data:**

The main file as developer creates a *extraction* of requirement sheet, makes it flexile to the end user, Facility-independent (with explicit Configuration information on it), and Should be followed without causing corruption of data. Associated xml file is specific to everyone which the developer may manipulate/customize/modify being xml terribly in human-readable form.

Before entering into extraction phase, warehouse page will have enormous of data consisting in it with different code, names and status of project. So ensuring the valid and right input to the required fields makes enablement of displaying data. Sometimes loading of data causes interruption due to traffic arises in delay and timeout, delaying ensures the time difference between from one phase to next phase that is task and timeout ensures that the time taken for a particular task execution.

Highlights of this phase is inserting data from both manually or using excel sheet in input folder of project, giving right xpath always cause no failures. Another advantage is that if we inserting right code of project it auto writes up the project name so there will be no problem occurring in between spaces or spelling of name. Status takes up the values like approved, delayed, rejected like that

Common mistakes happen in this phase is failed to load page properly due to occurrence in interruption of delay, sometimes page need more time to load the data but it fails if we give less timeout and then shows no data displayed. So make sure giving more timeout causes no problem and refreshing the page at particular intervals of time.

- **Exporting data from header to excel:**

It is necessary to maintain some principles during completion of workflow of the project, after the data is displayed in a page we loaded, it will have collection of exporting formats. First we should enable select all pages where it includes DN status, DN number, code and name so that it takes all the information we need in warehousing then on the export option I have taken the option DN header to excel where business requirement satisfies, after exporting it is re-directing to the report download page.

Highlights of this phase page will have collection of exporting formats.

Common errors occur in this phase is no data is displayed due to improper refreshment of page so action need to be taken while giving proper timeout to refresh the page until we get all the data to be displayed.

A Business demand ordinarily relates to what have to be compelled to be finished with a read to allow or get a business rule. Business necessities to boot relate to reaching enterprise desires or goals, which could not relate to an advert enterprise rule however measure actuated by victimization these pointers. To feature detail to business enterprise requirements, helpful requirements ought to be evolved to in point of fact define however associate enterprise demand can be self-addressed or done. purposeful necessities offer precise steps to extend and implement an advert enterprise demand.

- **Config settings:**

When the page report download takes place, it will be having the preview of what it consists of such as bill no. , generation date, source code and report status. In the report status, it will be showing generating as status you should be refreshing the page until download status arrived, I'm doing it manually by putting commands like getText with help of xpath and

testing if xpath matches to download one then we are redirecting the page to download. But before download it should ask path where it need to be saved, so moving to settings configuration and enabling toggle in download option gives the choice of asking path before it stored on your desktop. Download only particular data needed for specification. This encodes real-world business rules that describes how data extracted, stored and changed. Workflows of software system also ensuring how data is sending to different users without interruption.

Highlights of this phase is it enables the option of toggle in download settings configuration and makes you store the data in correct path. Common error occurs at this stage is sometimes download occurs after few refreshment happens and if toggle enable option fails it download to default folder in your desktop.

- **Filtration, Successive data sent:**

Once the download part over it got saved to particular folder, now filtration action takes place where the excel sheet having so many different kind of data in particular sheet. So using VBA I'm filtering the data and makes sure different data sent to different user through mail by VBA code manually. Hence successive data obtained to deploy in business user desktop and monitors them for how it is working and tells them about the advantages.

The Successive Result is provided, to the Business User who gives the task performed manually. Once the Completion of exporting data different excel sheet is sent to different ID's which consists of different data in it. The Business logic performed on the basis of the provided inputs, after once designing and coding is done. Then expected output id fetched, which leads to customer satisfaction. Obtained result confirms that outcome is fetched in safer manner by automating webpages and sheets.

Highlights of this phase is filtration by easy kind of coding in VBA and sending to different user by looping the data in auto filter mode of code. Common errors we face in this stage is filtration fails if data does not arises, or if you give invalid mail id in code.

3.2 NON FUNCTIONAL REQUIREMENTS

These are those features which is not proportional to the customize approach provided by the system. They are dependent on some of the system properties, however it define condition on the system such as the ability of the IO devices and how the data is represented using system as an interface.

These are not always connected with independent system features, however these requirements include the characteristics of the system that are more crucial situation than functional requirements. Declining to fit these requirements can mean that the whole system is ineffective.

Some of the important characteristics of Non Functional Requirements

- **Proficiency**
- **Authenticity**
- **Maintainability**
- **Serviceability**
- **Flexibility**
 - **Proficiency**

It should be made sure that the system resources such as memory and processor cycles are not wasted.

- **Authenticity**

It specifies what the conditions in which the software would fail are and what are the measures that needs to be carried on to get rid of it. For example, when there are multiple

applications running the server would become busy which leads to slow response in this situation though the server is slow the data is not misused.

- **Serviceability**

It specifies how easy to use software system and also focuses on the appearance of the user interface and how people interact with it.

- **Maintainability**

It specifies the durability of the application. It checks the layout of the module and depicts the changes that has to be done.

- **Flexibility**

It should be made sure that the moving of the petition to the unlike manifesto, these units should be compatible with all the platforms.

CHAPTER 4

SYSTEM DESIGN

4.1 SYSTEM PERSPECTIVE

The system of software development method will be outlined as a group of phases depicting the varied procedures within the development process. System perspective involves the performance and functionalities of the system which might describe the system.

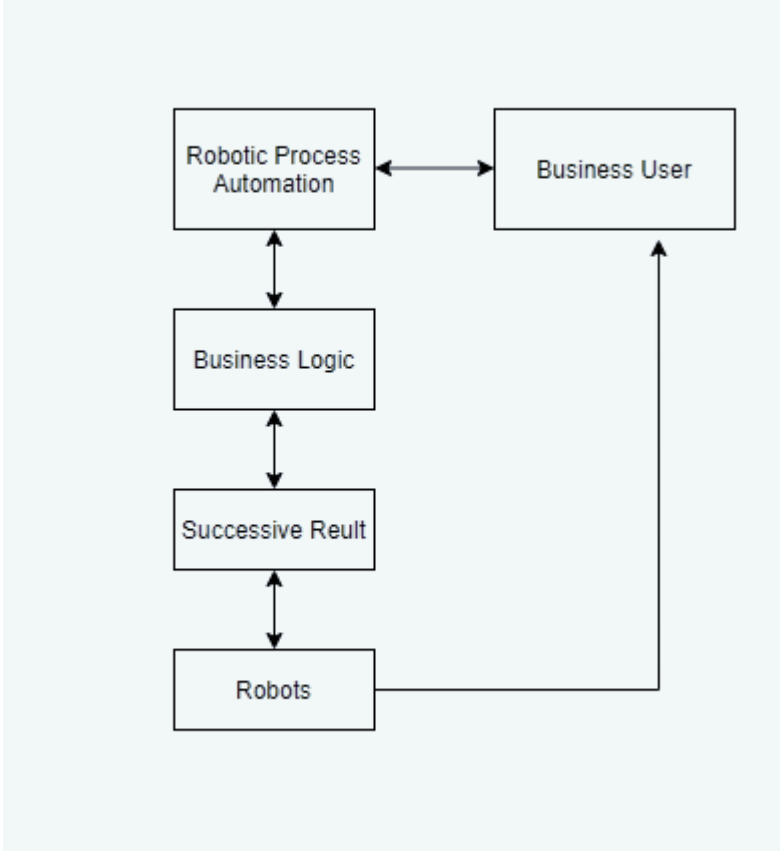
This can be defined as an initial step for identifying the solution from the start of the problem. The design can be defined as an intermediary between the stages of implementation. The output at this stage is a design of the document. In the view of a system one should not consider the system as an isolated entity.

The main goal of SDLC is identifying and upgrading the requirement of a system in to code. Here we basically define how different modules of a system communicate and what the dependencies between each modules of the system are.

4.2 DATA FLOW DIAGRAM/ CONTEXT DIAGRAM

Context Diagram is conventional method for envisage the details moves in the system. This can also be defined as a high level diagram or which indicates the relationship among the system and its foreign entities.

DFD gives symbolized visualization of glide statistics, between the structure and other external entities.



4.2(a) Context diagram for Warehouse DN

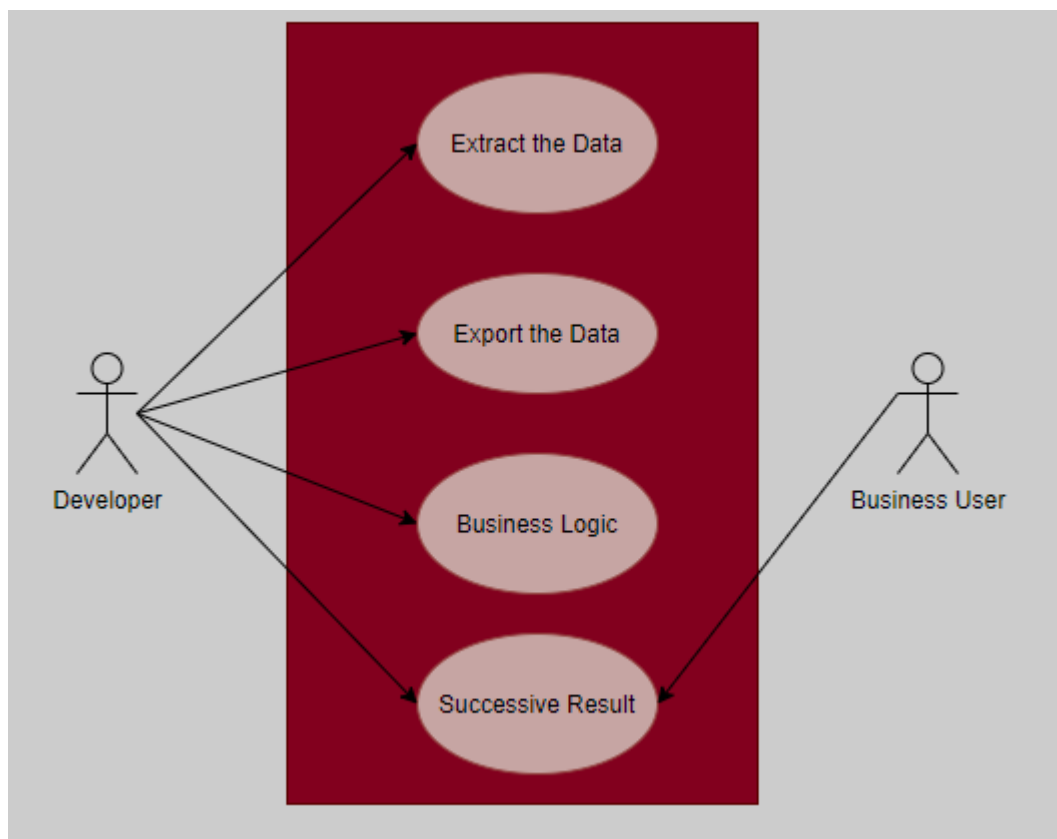
CHAPTER 5

DETAILED DESIGN

5.1 USE CASE Diagrams

It describes relationship among user and system. It mentions the use cases where the user is to be involved, they are used to gather requirements of the organization.

Accompanied by assisting this diagram requirements of structure is observed, recognized. It is a description of how users will performs task in a software system

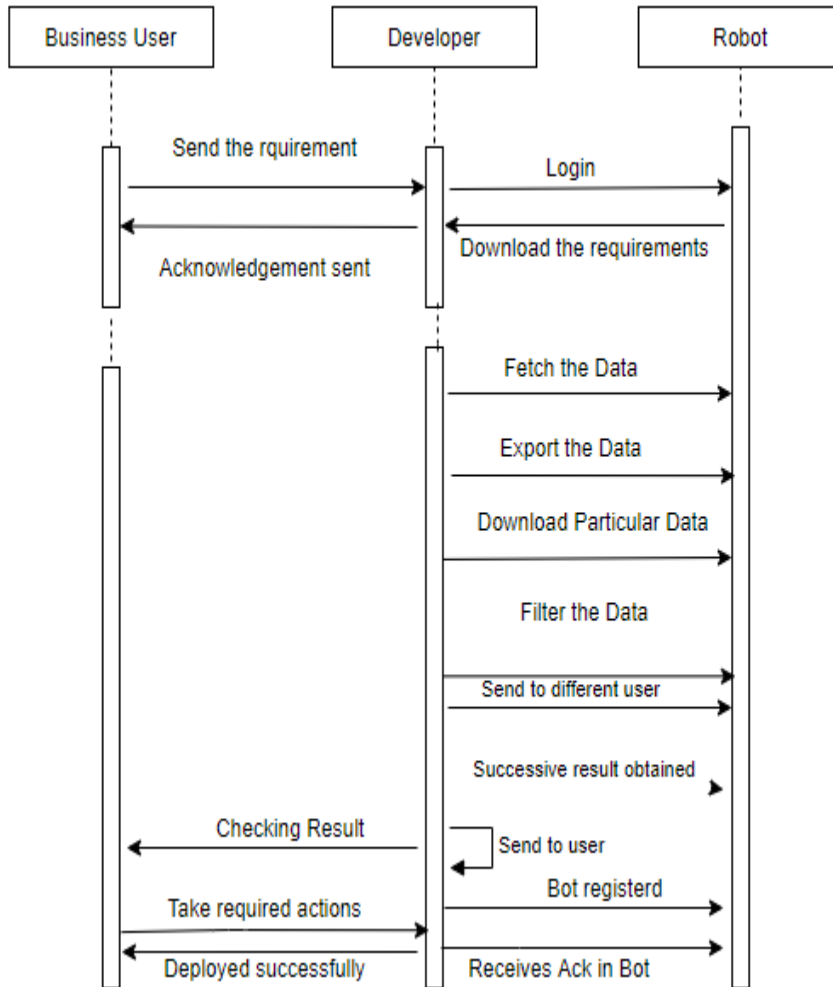


5.1 Use case diagram for Warehouse DN

5.2 Sequence Diagrams

It's far the diagram which represents the flow of interest in a sequential way. The interplay of the objects are being illustrated. The diagram represents the sequential waft of the messages which is being exchanged from one object to the alternative.

Sequence diagram describes how operation carried out in a sequence, it gives complete idea about workflow of the project and ensures the interaction between active objects in a system.



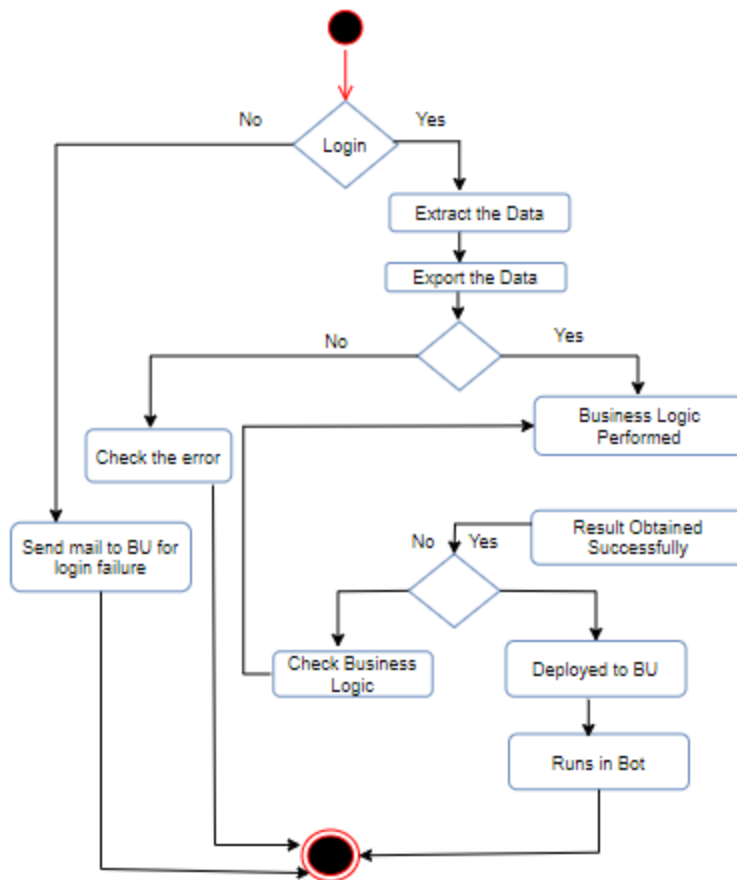
5.2 Sequence diagram for Warehouse DN

5.3ACTIVITY DIAGRAMS

Activity diagram could also be delineated as a flow sheet that depicts the glide from one interest to each different interest. It primarily defines the sequence of steps that are followed to perform associate activity.

It is targeted on human action a particular side of structure vigorous exploits.

- Diamond symbol represents the action
- Begin of the manipulate go with the flow is indicated by means of the stable Circle.
- Strong circle inside the whole circle represents the termination of the control Flow.
- Arrow is used as connector among collection of activities.

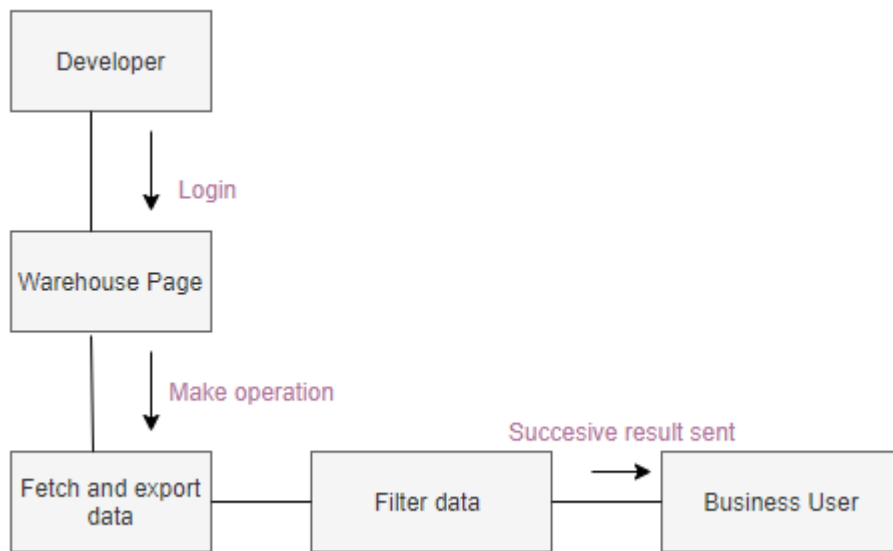


5.3 Activity diagram for Warehouse DN

5.4 Collaboration Diagram

This illustrates relationship among the entities during a organization. Rather than visioning drift of communication, this portrays construction of the thing inhabits within the structure because that is predicated on object oriented programming.

An entities includes diverse characteristics, different entities there within an organization or a structure is having link to one another. This diagram additionally referred to transmission figure which represents the entity construction inside an system.



5.4 Collaboration diagram for warehouse DN

CHAPTER 6

IMPLEMENTATION

This phase of the project includes finishing of enterprise accompanied by the aid of carrying product by watching progression to task set up. Watching is often outlined as management of the project implementation to stay estimation target, attain outcome of the gauge.

A design and demand documents serve the aim of project completion of guidelines. It additionally checks with issues of quality, performance, baseline, libraries, and debugging. In this regard the company's or industry coding standard guidelines are follow as per developer's choice. The final solution is the product itself.

The implementation phase includes the following:

- Appropriate planning.
- Sequence of activities carried out.
- Examining the system and its conditions.
- Estimating the transition method.

6.1 SCREEN SHOTS

6.1.1 Inserting Input to fetch data

The screenshot displays a web application interface for an SCM system. The browser address bar shows the URL: `Warehouseing > Outbound > Query (1)`. The page title is "Search Result". The search criteria on the left include: MR No., DN No., DN Status (Please Select), Project Code, Project Name (Smart LTE Rollout 2017), Contract No., DU ID (Search query is allowed), Item, Warehouse, B2B Status (Please Select), RAD From, RAD To, and More. The search results table has columns: DN No., DU ID, DU Name, MR No., DN Status, and Actual Pickup Date. The first row shows a result with DN No. 1. Below the table, there are tabs for "DN SPU/Items", "DN Repack", and "DN Header Details". The "DN SPU/Items" tab is active, showing a table with columns: Box Name, Site Type, Site Description, Box Type, and C/L No. The first row in this table shows a result with C/L No. 1. The page includes navigation buttons like "Select All Pages", "Export", and "Export Query".

6.1.2 Selecting pages before exporting

The screenshot shows a web browser window displaying a search results page. The browser's address bar shows the URL: <https://app.huawei.com/scm/scmui/invui/huawei/deploy/index.html#/scm/inv/outbound/queryDN/indexUI>. The page title is "Query DN".

The application interface includes a navigation menu with the following items: Home, Interact with ERP, WH Expense, Shipment Schedule, **Warehousing**, Domestic Onway, and Site INV. The "Warehousing" menu item is highlighted in red.

On the left side, there is a "Search Condition" panel with various filters and search criteria. The "Search Result" panel on the right displays a table of search results. The table has the following columns: DN No., DU ID, DU Name, MR No., DN Status, and Actual Pic. The table contains four rows of data, each with a checkbox in the first column. The "Export" button is highlighted in the top right corner of the search results area.

DN No.	DU ID	DU Name	MR No.	DN Status	Actual Pic
<input checked="" type="checkbox"/> DPH12005180273	V3704_PH789_WL_EX...	270_SUN-Cebu City-I...	MPH12005180368	Approved	
<input checked="" type="checkbox"/> DPH12005180274	V3607_PH19_WL_New	SUN-Ormoc City-San ...	MPH12005180373	Approved	
<input checked="" type="checkbox"/> DPH12005120023	V3703_PH4_DC	270_SUN-MANDAUE C...	MPH12005110644	Approved	
<input checked="" type="checkbox"/> DPH12005120024	V5311_PH4_DC	270_SUN-Cebu City-A...	MPH12005110645	Approved	

Below the table, there is a pagination control showing "1 - 20 of 1817 items".

6.1.3 Exporting header to Excel

chrome is being controlled by automated test software.

Home (Select Site) Permission Apply Network Speed Inquiry_PH English

SCM Home Interact with ERP WH Expense Shipment Schedule Warehousing Domestic Onway Site INV

Warehousing > Outbound > Query DN

Search Condition

Select Search Template--

No. No. Status Approved Project Code Philippines Smart LTE F Contract No. ID Batch query is allowed Warehouse Status Please Select D From D To

Search Result

Select All Pages Export Export Query

DN No.	Repacked Result	Site Name	MR No.	DN Status
<input checked="" type="checkbox"/> DPH120051802	Original DN to Excel	JN-Cebu City-I...	MPH12005180368	Approved
<input checked="" type="checkbox"/> DPH120051802	Multi-DN to One ZIP File	irmoc City-San ...	MPH12005180373	Approved
<input checked="" type="checkbox"/> DPH120051200	DN Header to Excel	JN-MANDAUE C...	MPH12005110644	Approved
<input checked="" type="checkbox"/> DPH120051200	DN General to Excel	JN-Cebu City-A...	MPH12005110645	Approved

1 2 3 4 5 >>

DN SPU/Items

Box Name	Site Description	Box Type
+ 6080103G332		C

1 - 20 of 181

Details

Reverse P/L Simplized DN

6.1.4 Download preview

Bill No.	Generation Date	Source Code	Report Status		
DPH12005180273	2020-05-19 17:42:43	IEXCEL	Download	Print	Preview
DPH12005180273	2020-05-19 08:02:16	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-18 08:02:16	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-17 15:08:59	IEXCEL	Download	Print	Preview
DPH12005120023	2020-05-17 08:02:17	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-16 08:02:18	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-15 08:02:16	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-14 08:02:14	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-13 08:02:29	IEXCEL	Downloaded	Print	Preview
DPH12005110023	2020-05-12 08:02:25	IEXCEL	Downloaded	Print	Preview
DPH12005080080	2020-05-11 08:02:23	IEXCEL	Downloaded	Print	Preview
DPH12005080080	2020-05-10 08:02:19	IEXCEL	Downloaded	Print	Preview
DPH12005080080	2020-05-09 08:02:17	IEXCEL	Downloaded	Print	Preview

6.1.5 GetText MessageBox

Bill No.	Generation Date	Source Code	Report Status		
DPH12005180273		IEXCEL	Generating		
DPH12005180273		IEXCEL	Downloaded	Print	Preview
DPH12005120023		IEXCEL	Downloaded	Print	Preview
DPH12005120023		IEXCEL	Downloaded	Print	Preview
DPH12005120023		IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-16 08:02:18	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-15 08:02:16	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-14 08:02:14	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-13 08:02:29	IEXCEL	Downloaded	Print	Preview
DPH12005110023	2020-05-12 08:02:25	IEXCEL	Downloaded	Print	Preview
DPH12005080080	2020-05-11 08:02:23	IEXCEL	Downloaded	Print	Preview
DPH12005080080	2020-05-10 08:02:19	IEXCEL	Downloaded	Print	Preview
DPH12005080080	2020-05-09 08:02:17	IEXCEL	Downloaded	Print	Preview

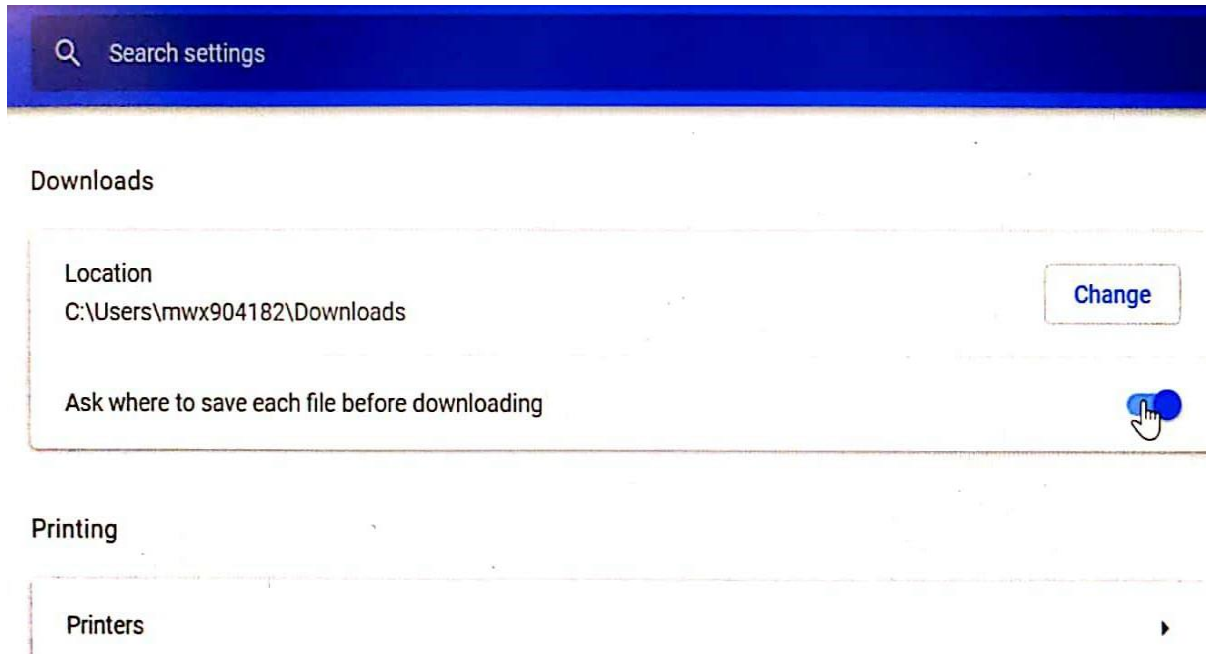
A 'MessageBox' dialog box is overlaid on the table, displaying the text 'Generating' and 'OK' and 'Cancel' buttons.

Bill No.	Generation Date	Source Code	Report Status		
DPH12005180273		IEXCEL	Downloaded	Print	Preview
DPH12005180273		IEXCEL	Downloaded	Print	Preview
DPH12005120023		IEXCEL	Downloaded	Print	Preview
DPH12005120023		IEXCEL	Downloaded	Print	Preview
DPH12005120023		IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-16 08:02:18	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-15 08:02:16	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-14 08:02:14	IEXCEL	Downloaded	Print	Preview
DPH12005120023	2020-05-13 08:02:29	IEXCEL	Downloaded	Print	Preview
DPH12005110023	2020-05-12 08:02:25	IEXCEL	Downloaded	Print	Preview
DPH12005080080	2020-05-11 08:02:23	IEXCEL	Downloaded	Print	Preview
DPH12005080080	2020-05-10 08:02:19	IEXCEL	Downloaded	Print	Preview
DPH12005080080	2020-05-09 08:02:17	IEXCEL	Downloaded	Print	Preview

A 'MessageBox' dialog box is overlaid on the table, displaying the text 'Download' and 'OK' and 'Cancel' buttons.

1 - 20 of 748 items 20

6.1.6 Download settings config



6.1.7 Review of outlook mail

The screenshot displays the Outlook interface for the inbox of meghana.k.m@huawei.com. The top ribbon includes the 'Quick Steps' group with options like 'Move to?', 'Team Email', 'Reply & Delete', 'To Manager', 'Done', and 'Create New'. Other groups include 'Move', 'Rules', 'Unread/Read', 'Categorize', 'Tags', 'Follow Up', 'Search People', 'Address Book', and 'Filter Email'. A yellow banner indicates that some add-ins have been disabled. The email header shows it was received on Wednesday, February 19, 2020, at 4:12 PM from Meghana K M. The subject is 'Test Email From Excel VBA'. The 'To' field lists Meghana K M. A 'Follow up' task is set for Wednesday, February 19, 2020. The message content includes a 'Message' icon and an attached 'File.xlsx (71 KB)'. The body of the email reads: 'Hi, This is my first email from Excel Regards, VBA Coder'.

Inbox - meghana.k.m@huawei.com - Outlook

Online Support

Move to: ? To Manager
Team Email Done
Reply & Delete Create New

Quick Steps

Move Rules Unread/Read Categorize Follow Up
Tags Find

Search People
Address Book
Filter Email

as been disabled. View Disabled Add-ins...

Reply Reply All Forward IM

Wed 2/19/2020 4:12 PM

Meghana K M

Test Email From Excel VBA

To Meghana K M

Follow up. Start by Wednesday, February 19, 2020. Due by Wednesday, February 19, 2020.

Message File.xlsx (71 KB)

Hi, This is my first email from Excel Regards, VBA Coder

CHAPTER 7

SOFTWARE TESTING

It is characterized as a method of investigation of a software system and distinctive the distinction and among the particular and needed conditions and additionally to validate the characteristics of the system or element. It will be represented as an action of eliminating the software system errors from an application. The method of testing is nothing but determinative the bugs in an application. It's the foremost activity throughout the software system development. The program is being performed by exploitation many check cases and exploitation of these check cases the output of the program is evaluated to envision if the applications are functioning in step with the user necessities or not. Software system testing is that the most vital activity that exhibits the ultimate analysis of style and code generation.

Levels of Software Testing

1. Unit Testing:

This is the test which is carried on to test whether the individual programs are working correctly. Unit testing exercises a unit in isolation from the remainder of the system. A unit is often a operate or little assortment of functions (libraries, classes), enforced by one developer.

The main characteristic that distinguishes an international organizations is that it's sufficiently little to check completely, if not thoroughly. Developers square measure ordinarily answerable for the testing of their units and these square measure ordinarily white-box tests. the tiny size of units permits a high level of code coverage. it's conjointly easier to find and take away bugs at this level of testing.

2. Integration Testing

This is organized pilot which happens by illustrative knowledge. A necessity for this testing is to examine the comprehensive structure production. The procedure of integrating the different exploratory ship to bearing trials for examining the misconception inside the embrasure between elements is defined to be 'integration testing'.

3. System Testing

This testing helps to illustrate the desired needs wherever an whole integrated software is tested.

System testing involves following:

- Meets the requirements that guided it's design and development
- It correctly responds to all kind of inputs.
- Performs it's function within an acceptable time.
- Examine the software bugs and verify software product is fit for use

4. User Acceptance Testing

It is the final step which deal with needful responsibilities in global eventualities by users to test the software. Also referred as beta-testing.

Types of Testing

- **White Box Testing**
- **Black Box Testing**

1. Black Box Testing

It also referred to Behavioral Testing. It examines functionality of a system without interfering the internal structures of the system. This can be applied on different levels of testing to check the correctness of the software it just checks whether or not the requirements are satisfied without entering the internal structure of the software. All codes of my project were successfully checked for errors and ensured that there were no errors.

2. White Box Testing:

Although tests build for unwrap fallacy, these helpful to signify that structure purpose being operative, code will appropriately undertake and outcome produced accurately, thus rectitude of exterior statistics is sustained.

All input screens were thoroughly tested for data validity and smoothness of data entry operations. Test cases were so formulated to verify whether the system works properly in rare conditions also. Error conditions were checked. Data entry operations are to be user friendly and smooth. Care was taken to make data entry as smooth as possible. Flow of object was made convenient to the data entry operations. It is also called as Glass testing.

TESTING STAGES

1. TEST PLAN

This describes testing extent, approximate, assets and scheme for meant activity. Among several of test items this recognizes characteristics takes place for assessment, and assigning which will do what task, how freelance the tester is, the environment in which the test is going to be done, what are the design techniques that are to be used and therefore risks involving contingency planning. In general, it defines the test planning process.

2. Test Data

Testing Data is that the one which may use for testing the qualities? Test data is employed to perform testing.

3. Test Report

Test Report is needed to estimate the results in a formal way. It's miles a record that records information were given from an assessment try in an exceedingly manner, depicts the natural or running conditions, and demonstrates the examination of check comes approximately with take a glance at targets.

Test 1: Sign Up / Sign in Test

Cases

Test ID	Test Case	Purpose	Output	Result
1	Login into the Respective webpage, For fetching the data	Login success full	Raw data is fetched	✓ Pass
2	While login into the webpage, check for the network connection	To check whether the login happens successfully or not	Error Occurred	✓ Pass
3	If the user enters wrong password and wrong user name the Login into the webpage	To login and enter into to page	Error Occurred: Incorrect Password and Incorrect Username	✓ Pass

4	After Logging into the webpage , if Page doesn't Load or Re-loads	Data is not fetched	Error in Internet Need to be rectified	✓ Pass
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Test 2: Insert the Data

Test Case Components	Input	Expected Output	Output	Result
1. Fetching Raw data	i)Page not loaded resulting blank entry for this field	Data Should be fetched	Cannot collect the required output.	✓ Pass
	ii)Page loaded , once data is fetched , The Business User Requirements are Listed	Data is fetched	Import process can be started and Design Phase is started	✓ Pass
2.Download required filename	If File Name Is incorrect	The given Macro doesn't work	The output isn't generated	✓ Pass

	File Name Matches	The given Macro works successfully	The output is generated	✓ Pass
3. Download settings	i) Download settings toggle turn on	Ask Path before download	Download generated with required path	✓ Pass
	ii)Download settings toggle turn off	Automatically download to default path	Failed to ask path before download	✓ Pass
4. Excel Sheet operations	User figures out for respective data in columns	Respective data is found for further process	Generated output is ready for filtration	✓ Pass
	Data name is not found	Condition fails for filtration	Error message is thrown	✓ Pass
5. Config Filtration	Different data need to be filtered for different users	Filtered data expected to send	Generates a Successive result	✓ Pass

	Sheet contains error or missing files	The filtration fails	Doesn't do any Operations	✓ Pass
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Test 3: Import/Export

Test Components	Case	Input	Expected Output	Output	Result
1. Export		Data not found to export	Page refreshing cause error	Doesn't produce successive result	✓ Pass
		Invalid export file or invalid file with incorrect extension	Process fails	Process Fails and error report is sent In form of message box	✓ Pass

CHAPTER 8

CONCLUSION

The technology is trending very quickly in nearly all the areas, not just in a minute but during every Second. With this fast development an era, outstanding growth has been discovered within the worldwide enterprise even in automation field. The usage of automation ways is in the non-stop boom and its miles anticipated for the sure future.

The robotic procedure automation is one among the revolutions at intervals the automation trade, and it's miles anticipated to extend higher capability in phrases of usage and cluster of employees implementation within the close twelve months. Robotic methodology Automation, above all focuses on the system automation of these industries which may be additional usually than not business familiarized and square measure handled by means that of humans.

The primary objective of RPA is to lower the requirement for the larger workers, to hold out the huge amount of IT jobs that area unit associated with the guide the remote infrastructure, workflow, and alternative again-workplace methods related to the financial space, accounting, human assets, customer offerings and provide chain management. With RPA, it's possible to hold out the paintings seamlessly, as a result of it saves quite a few times and boot helps to scale back the probabilities of human mistakes.

The use of RPA, all the operations can be machine-controlled simply, however, its miles foretold that it'll update the human jobs as a result of at intervals the destiny the artificial intelligence oriented automatic gear may be enormously effective. The golem technique

automation is a code whereby a robotic is concerned and wont to perform human sports. These robots are won't to do the structure tasks and that they are ready within the form of method that they'll manipulate any statistics or movements for these programs that are wont to perform various business enterprise approaches. The operations which are automatic involves an extensive variety of manipulation of records, activating responses and improving communications inside numerous structures.

CHAPTER 9

FUTURE ENHANCEMENT

It is taken into amount of consideration that the usage of repetitive tasks is replaced by RPA which is having powerful practical mechanism that would rather than using statistical jobs which might complicate obligations, fast protocols or set of rules flexible by usage of RPA.

Likewise with the improving technologies and advancing tools of robotics knowhow, its miles foretold that in a number of issue of your time RPA can be ready to perform all those operations that a person's will today.

The growth rate within the nature of RPA is positive shot and thus can offer higher technological potentials within the direction of appreciably lowering the danger of inaccurate restrictive reporting's together with makeshift analytics and higher facts accuracy.

RPA is growing in enormous rate with providing more opportunities in varies fields. Offering a helping hand for developing monitor methods and thus scale back the repeated operations, it's created the obligations easy and sleek to perform.

That is why Robotic process automation having a greater scope and high implementation within the close to destiny and therefore the potentialities of activity factors during this discipline is growing day by day. After all, who likes to waste cash, time and resources for a job which a single robot software can do it in a fraction of seconds.

APPENDIX

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