

A project report on

COST AUTOMATION TOOL

Submitted in partial fulfillment of the requirement
For the award of the degree

MASTER OF COMPUTER APPLICATIONS Of



Visvesvaraya Technological University
Belgaum, Karnataka

By

VIDHYA N

1CY18MCA69



CMR INSTITUTE OF TECHNOLOGY
132, IT Park Road, Kundalahalli, Bangalore-560037
2019-2020

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Under the guidance of

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Ms. Ashwini Patil

Asst Professor, MCA Department
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Senior Engineer
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2019-2020

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CERTIFICATE

This is to certify that the project work entitled

COST AUTOMATION TOOL

*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
is a result of the bonafide work carried out by*

**VIDHYA N
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during the academic year 2019-2020.

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Name of the Examiners

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- 2.

Signature with date

DECLARATION

I, **Vidhya N**, student of 6th MCA, **CMR Institute of Technology**, bearing the USN **1CY18MCA69**, hereby declare that the project entitled “**Cost Automation Tool**” has been carried out by me under the supervision of External Guide **Mr. Venkata Sudarsan Tadala**, Senior Engineer, Collins Aerospace, Bangalore and Internal Guide **Ms. Ashwini Patil, Assistant 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 reports has not been submitted to any other University or Institute for the award of any degree or certificate.

Place: Bangalore

Vidhya N

Date:

(1CY18MCA69)

ACKNOWLEDGEMENT

I would like to thank all those who are involved in this endeavour 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 offer my special thanks to my external project guide Mr. Venkata Sudarsan Tadala, Senior Engineer, Collins Aerospace, Bangalore, and to my Internal Project guide Ms. Ashwini Patil, 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, Bangalore for his kind support in all respect during my study. I would like to thank Mr. Venkata Sudarsan Tadala, Senior Engineer, Collins Aerospace., Bangalore, who gave opportunity to do this project at an extreme organization 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 thecourse.

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Collins Aerospace
A United Technologies Company

May 26, 2020

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Vidhya Nagendra** studying in **CMR Institute of Technology** whose USN is **1CY18MCA69** has successfully completed her Intern project with Collins Aerospace. She supported the IT team on “Cost Automation Tool” project. Internship commenced from December 27, 2019 and will end on June 26, 2020 under the guidance of Mr. SidharthaRath.

We wish her good luck for future.

for Collins Aerospace

Sanjukta Sarkar
Director - Human Resources

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CHAPTER 1

INTRODUCTION

1.1 PROJECT DESCRIPTION

Analyzing, Designing and Implementing an Internal Web Application is called as “**Cost Automation Tool**”. Collins Aerospace follows a Process for Requesting the Make and Buy parts of an Aircraft from their respective Business Units. There are Total Eight (8) Units.

When a Requirement raises, the Requestor will place a Request via Email to the Admin for a Part with Details and the Admin in return Checks the Details Posted, Verifies the Cost Quote and Estimation from the SAP Database, Checks the Inventory, Price Validity and Forwards the Request to Business Approval. Once the Business Approval Approves or Rejects the Admin will take the necessary Action and Inform the Requestor the same.

The Challenges faced here are: Tracing of Requests, Origin and the Business Unit it belongs to, Duplication of the Requests, Maintenance of the Requests, tracking the History of Price Change for a Part and the Tedious Admin Job of keeping the Base Data for the Request.

The Proposed Solution will take over the Manual Effort of Managing the Request sent by the Requestor and also by taking the Necessary Action according to the Scope of the Tool.

The Tool has Two (2) Levels of Approval Process:

1. Approved by Admin.
2. Approved by Business Head.

There are Four (4) Types of User Roles and they are:

1. Requestor.
2. Admin.
3. Business Head.
4. Super Admin.

The Roles and Responsibilities are:

1. **Requestor:** Requestors are the Identified Individuals per Business Unit, and they will Search for the Desired Part from the Database and will place the Request to know about the Price, They can Request for the Multiple Parts as well, After the Request is placed the Requestor can Verify the Status of the Request which is usually done by Referring it to the Individual Dashboard from the Tool.

2. **Admin:** Admins are basically from the Finance Team, and they will manage the Requests coming from the Requestor, referring few of the Parameter they can also address the Request by Quoting the Price for the Requested Part and also by further Submitting it to the Business Head Approval and the Admin can Reject a Request by stating the Proper Justification, Admin can also Track the Activities and the Admin is also responsible for Creating the master Data for the Application and the Example is Managing Parts.

3. **Business Head:** Business Head are the Head of the Business Unit, once a Request has been placed and Approved by Admin then the Request comes for the Business Head Approval. And the Business Head can either approve or Reject the Request by providing the Proper Justification, Business Head can approve the Single or Multiple Request as Displayed on the Tools Dashboard.

4. **Super Admin:** Super Admin is the IT Developer, and he has the Option of managing the Users for the Tool by Adding or modifying their Details.

1.2 COMPANY PROFILE

Collins Aerospace is RTS, which is one amongst the Global Biggest Dealers of the Aircraft and in the Security or the Military Products its Head office is situated at Charlotte which is in North Carolina. Its Type is Subsidiary and the Industry is based on Aerospace. Some of the Families are: Hamilton Sundstrand, Goodrich Corporation, Hamilton Standard, Rockwell Collins and Sundstrand Corporation. UTAS was founded in 2012, Rockwell Collins was founded in 1998, and Collins Aerospace was founded in 2018. Its Headquarters is Located at Charlotte, North Carolina and the US. The Total of Localities where this Company is Located are in Five (5) Locations. Some of the Products in this Company are: Aero Structures, Actuation Systems, Aircraft Connectivity and Information Services, Air Data Management Systems, Airport Services, Avionics, Cabin Management, Communications, Displays, Electric Systems, Engine Components, Electronic Warfare Systems, Flight Decks, Engine and Control Systems, ISR Systems, Interiors, Navigation, Landing Gear, Sensors and Integrated Systems, Propeller Systems, Space Systems, Wheels and Brakes, Simulation and Training.

The **Services** which they undergo are: Engineering Services, Repair Services, Replacement Parts and Technical Support. The Income of this Company varies changes from: US\$ 14.691 Billion which is only for UTC in 2017, \$23 Billion with Collins Aerospace and the Working Income alone is from US\$ 2.370 Billion which is again only for UTC in 2017. The Number of Employees working here are: 78,000 as of 2020 and the Parent Head of this Company is the Raytheon Technologies. We also have some of the BU and there are of 6 BU.

The **History** is the United Technology Corporation Aerospace Systems was started in eighth month of 2012 when the Father UTC joined to the old Subsidiary Hamilton Sundstrand which was then later taken by Goodrich Corporation on 26 of eleventh month in 2018 the United Technology declared the complete of all its Rockwell Collins Locations and later it was acquired for Business with The United Technologies Corporation Aerospace Systems from the Collins Aerospace. The New Organization has said that Dollar 26 Billion of joint Sales was in 2019 and the employees working there were around 78,000 of employees.

The **Products** in the Company are involved in Manufacturing, Designing, Servicing Systems and the Parts for the Commercial Aviation, Business Aviation, Military and Defense, Helicopters, Space, Airports and other Industries as there are Eight (8) Units as such. It also

has Six (6) Strategic Units.

Aero structures was established in Chula Vista California and the Things which are Present in this are: Naval Composites, Flight Control Surfaces, Nacelle Systems and other Structural Components and Material.

Avionics was established in Cedar Rapids, Iowa and in this the Things which are Present in this are: Cabin Management and Content Systems, Commercial and Government Avionics Systems, Fire Protection, Aircraft Sensors and Information Management and Services.

Interiors was Established in Winston-Salem which is located in North Carolina and the Things which are Present in this are: Interior Systems, Aircraft Seating, Galleys and Gallery Inserts, Evacuation Systems, Life Rafts, Lavatories, Veneers, Lighting, De-icing Products and Potable Water Systems.

Mechanical Systems was established in Charlotte, North Carolina and the things present in this are: Actuation, Landing Systems, Flight Controls, Propeller, Hoist and Winch Systems, Pilot Controls, and Cargo Systems.

Mission Systems was established in Cedar Rapids, Iowa the Things Present in this are: Navigation and Guidance, Solutions for Safe Military Communication, Simulation, Missile Actuation, Strategic Command and Control, training and Range Instrumentation, Unmanned Aircraft Systems, Electronic Warfare, Intelligence, Surveillance and Reconnaissance and Space Solutions, Ejection Seats and Propulsion.

Power Controls was established in Windsor Locks, Connecticut, Power and the Things Present in this are: Engine Controls, Air Management and Airframe Controls, Electric Systems.

Ithaco Space Systems and the Owner of this is Collins Aerospace and this was previously maintained by Goodrich Company this Manufactured Things for the Area of Satellite Control from the time when 1962 such as Reaction/Momentum Wheels, Earth Sensors, Magnetic Torques and Magnetometers.

The **Services** Offered are:

1. **Cabin:** As we see today the Business Related Jet Travelers expect a Good Experience in light from the Landing to the Flying and here the Cabin Experience is of No Compliance To comfort or the Usability and so on. Since here we have ARINCDirect Customers or the People who Travel in the Flight can stay in touch with us and can also be informed us if there are any Complaints or Issues. In this we have: Aircraft Seating, Cabin Power and Data ports, Content and Entertainment, Wireless Router Cabin Management and Entertainment System, Evacuation Systems, Fire Protection System, Gallery Inserts, Lighting, Oxygen and Passenger Service Unit Systems, Structures and Power, System Integration, Thermal Management Systems, Ventilation Systems, Cabin Management Systems and Wood Veneers.

2. **Exteriors:** The Exteriors in Collins Aerospace are very fast and also Safety which improves the Effectiveness and the Maintainability and also the Sustainability, Collins Aerospace is also the one in the Biosphere's Major Providers of Avionics and Aerospace Parts, We help solve our Customer's Toughest Challenges. We were the one to First Introduce Ice Protection System which is named as Pneumatic De-Icing Boot-which was found more than 80 Centuries ago. Currently, we are the Leading De-Ice Boot supplier for Commercial Fast Aviation. Our De-Icers are Tradition Intended, Verified and specialized for each Airplane to Enhance Presentation it uses the Lighter Heaviness Resources, More Electronic Machineries, Improvement and Gradually Rapidity Systems may cover Landing stage Systems a chosen option and Business and the Commercial Airplane Global. New Inventions include: Fitness Checking and the Care Systems, which recover Landing stage Gear Presentation and also reduces the Airplane Lost time. In this we have some of the Thing like: Ice Detection and Protection Systems, Landing Systems, Lighting Systems.

3. **Flight Deck:** This is something where we think of Reduce the Pilot Job like Transporting the Correct Information at the Correct Time and our Open Construction Flight Deck Design supports the Other Party Something like the Third Party Application and allows for the easy Addition with Other Aircraft Systems.

In this we have Things like: Additional Flight Deck Automatic Dependent Surveillance Broadcast, Avionics Integration, Future Airspace Navigation Systems, and Head up Display (HUD), Pro Line Integrated Avionics System, Pro Line Fusion, Subscriptions and Services, Surveillance, Vision Systems.

4. **ARINC Direct Flight Support Services:** As a Pilot you have to manage the Different Systems for the Planning and Message or Mail like the Flight Scheduling and the Oil Services, Maintenance and Other Things. The ARINC Direct Aeronautical Care Facilities offer one, Complete Set of Facilities and Care for the Efficient, Aeronautical Processes

From Beginning to Arrival and All in Between Transversely Nation and Everywhere in the Globe. Our ARINC Direct Aeronautical Care Facilities Provide Finest in Aeronautical Preparation Global Journey Care, Log cabin Connectivity and Aircraft Operation Managing. In this we have Things like ARINC Direct Flight Support Services, Flight Planning and Weather, International Trip Support, Cabin Solutions.

5. **Platforms:** Know-How and the Globe-class Invention are what Set Collins Aerospace Business Aviation Products and Service. Invention in Aircraft Surface, Log cabin, Landing field and Announcement Machineries along with More Influential and Stretchy Globally Wind and Surface Networks are Motivating the Increase of the Aviation's Info Stage Currently. We have remained occupied to run into and Go above the Technology that will keep you ahead in Information Age Promotion to Stay Complaint and to Increase the Pilot Situational Alertness, Improve Passenger Experience and get the most Out of your Business Aircraft. In this we have Things like: Beechcraft, Boeing, Bombardier, Dassault, Embraer.

CHAPTER 2

LITERATURE SURVEY

2.1 EXISTING SYSTEM AND PROPOSED SYSTEM

2.1.1 Existing System:

This System of “Cost Automation Tool” based Project contains only Modules for Requesting for Make Part and Buy Part and Parts are related to Designing of the Aircrafts. The Make Part and Buy Part are from the Business Units as there are Totally 8 Units Respectively and Each Unit Works on Different Parts. Depending on Each Business Units the Aircraft Parts are Designed and when the Requestor or the User Requests or Place a Request which is Done by Raising a Request or Sending a Request via Email to the Admin for a Make or a Buy part with the Description or the Details of the Particular Make or the Buy Parts which is to be Designed. Sometimes even this Process has been carried out manually. And once the Requestor raises a Request with the Details or the Description the Admin in return Checks for the Details posted, Verifies the Cost Quote and Estimation from the SAP Database, checks the Price Validity and Forwards the Request which is sent by the Requestor to the Business Approval Team. Once the Business Approval Team Accepts or Rejects the Request the Admin will take the Necessary Action and Informs the Requestor or User the same.

2.1.2 Proposed System:

This System has many Modules which are integrated in One Tool that is: “Cost Automation Tool”. Proposed system has Different Modules related to make and Buy Parts that helps Users or Requestors and this Proposed System will take over the Manual effort of Raising the Request which is sent by the Requestor/User and taking the Necessary Action according to the Scope of the Tool. This Tool has 2 levels one is done or Approved by Admin and the other is similarly done or Approved by the Business Head. And there are also 4 types of Users in this such as: Requestor, Admin, Business Head and Super Admin. The Overcome of this system is to solve Issues which is faced by the Existing System. And to also take over the Problems which we are facing in the Existing System as said before.

2.2 FEASIBILITY STUDY

Once after the Completion of the Project “Cost Automation Tool” Learning and examining all the Current or the Essential Functionalities of System, The Subsequent Job is to do the Feasibility Study. It takes the project’s analyses factor that includes Economic, Technical, Legal and Schedule that considers the Project should be Completed Successfully and it is a Stage where the Project is Designed that Prescribes whether the Project is Possible or Not.

This Includes:

- Thought of all Possible Methods to make available Solution to Assumed Difficult. The Proposed Answer is to Fulfill all the User Requirements and should be Stretchy enough to that the Upcoming Variations can be Effortlessly Completed Centered on the Upcoming Requirements.
- It also takes the Projects Analyze factor that includes: Economic, Technical, Legal and Schedule that Considers the Project should be Completed Successfully, It is a Stage where the Project is Designed that Prescribes whether the Project is Possible or Not.

The Aim of Feasibility Study is:

- To Examine Whether the Web Application will meet Companies Requirements.
- To inspect if the Web Application can be done with Existing Technology within Particular Budget and Schedule.
- Can the Product be Coordinated with other Programming in the Application Area.

The Following are the Three Important Feasibility Study:

1. **Economic Feasibility:** it is a Very Significant Feature which needs to be considered while building a Project. We planned the Technology Centered on the Least Likely Price Feature. General we have estimated that all the Profits the Company is going to get from Proposed System will confidently overwhelmed the Preliminary Cost and Advanced on the Consecutively Costs of the System. The Economic Feasibilities Prescribes the Cost for Operation that is to Inspect whether the Project is completed within the Estimated Budget. Most of the Projects are done within the Budget with Usage of Open-Source Technologies available in Market.

2. **Technical Feasibility:** It Includes the Reading of Functions, Presentation and the Control that disturb the Skill to Attain an Satisfactory Systems for this and we study the Whole

Functionality to be provided in System as Termed in System Requirement Specifications and Tested of All that was Promising using the Changed Type of Frontend and Backend Platforms. The Technologies Feasibilities Prescribes that the Updated Web Technologies are used in the Project.

3. **Operational Feasibility:** No Hesitation in Proposed System is Fully Graphical User Interface based which is very User Friendly and all Contributions to be taken all Self-Descriptive, and appropriate Teaching has been led to let know the Spirit of Systems to the Users so that they feel Relaxed with the New System. And Study is Worried about the Clients or the Requestors and are Relaxed and Joyful as the Scheme has Changed down their Heaps and Responsibility. It Determines the Performance of Application whether the Application is able to Perform the Required Operation and able to Solve the Complications and whether it fulfils the Supplies recognized in Requirement Analysis Stage.

2.3 TOOLS AND TECHNOLOGIES USED:

The Programming Languages used to Develop this Applications is: Frontend.

The **Technologies** Used are:

1. **Hyper Text Markup Language (HTML)**: is a Typical Markup Lang for Designing WebPages and the Web Pages which are designed can be viewed in the Web Browser. It can be done using Tools like the: CSS and some of the Scripting Languages like: Java Script. All these Browsers receive Hyper Text Markup Language Documents from Server and in the End they display it like Multimedia Web Pages to us. This HTML usually describe the Arrangement of a Web Page which is nothing but like the thing or the Format how it is displayed to us in the Final. These Elements are Basic Structure Chunks of Hyper Text Markup Language Pages. The Hyper Text Markup Language concepts, pictures and other stuffs like communicating procedures may be fixed into a reduced Sheet. It also provides a means to create organized papers by representing the Organizational definition for Text such as: Titles, Passages, Tilts, Associations, Captions and other things. Hyper Text Markup Language features, basics or fundamentals are represented by Tags, written using Flower or Curly Braces, Tags such as image and input straightly lead content to the Page. Other Tags such as: paragraph mount and afford Info about Paragraph and also include other Tags as the Sub Elements. Browsers do not display the Hyper Text Markup Lang Tags, but use them to show Final output of that particular Page.

2. **Cascading Style Sheet (CSS)**: is a Style Page Lang which is used for Telling the Performance of a Script which is written in a Markup Lang like: Hyper Text Markup Lang, Cascading Style Sheet is a Foundation Skill of the WWW Consortium, along with Hyper Text Markup Language and JavaScript and this is Planned to allow parting of Demonstration and Satisfied, Plan, Shades and Letterings it is something like which is related to Style. This Parting can improve satisfied Convenience, and also offer more Elasticity and Resist in the Requirement of the Appearance Features, allow more Web Pages to Send Arranging by doing Needful and Related Cascading Style Sheet in a Single Cascading Style Sheet Folder or You can also Add the CSS File directly to the HTML File buy Adding the <style/> Tag, and Reduce Difficulty and Recurrence in the Physical Content. Cascading Style Sheet has regulation for Different Arranging if the Details is opened on a Phone. The Cascading Style Sheet Situations are maintained by the WWW. Internet Media Type (MIME type) writing or Cascading Style Sheet listed for usage with

Cascading Style Sheet.

3. **Bootstrap:** Is a Web Outline which Emphasizes on Limitation and Growth of Useful Web Pages. The Main Determination of including this to Web Page is to put on some of the Features like: shades, Dimensions, Lettering and Plan. The Main Idea for using this Bootstrap 3 and 4 is that it will be set to all the Devices something like it will be compatible with all the Devices such that the Code which we write it should be Applicable for all the Devices like: Laptop, Desktop, Mobile, Tab and many more....and the Bootstrap can also take addition of CSS. For Example, Sunny- and Shady-Colored Tables, Sheet Titles, Thoughts, and Letter or Word with a High point. And even there is something like Span according to the Devices in which the Look will be same and will be adjusted automatically for all the Compactible Devices and this something like: col-extra small, small, medium and large. The most Projecting Parts of Bootstrap are the Plan parts, as they disturb the Whole Web Page something like: col-extra small, small, medium and large. The Plan Part is called "Container", as each and every part in the Sheet is located in it. The Coders or Web Designers can select between a Fixed Width Container and Fluid Width Container. Although the final constantly blocks the Thickness of the Web Page, the Previous uses one of the four predefined Fixed Breadths, dependent on the Dimensions of the Curtain showing on the Sheet:

- Lesser than DLXXVI Px.
- DLXXVI to DCCLXVIII Px.
- DCCLXVIII to CMXCII Px.
- CMXCII to MCC Px.
- Greater than MCC Px.

When a Container is Dwelling, Extra Bootstrap Layout Components implements a Cascading Style Sheet Flex box layout through Describing the Number of Rows and Number of Columns.

4. **JQuery:** is Java Script Library which is intended to Shorten Hyper Text Markup Language Document Object Model Tree Traversal and Manipulation, and even the Event Handling, Cascading Style Sheet Animation and Ajax. It is of no cost and Open-Source Software which uses some License. As of the sixth month in 2019 this is used by 73% of the 10 Million Websites. Web Analysis indicate that it is the Most Broadly organized by Js Library. This is

planned to sort it Relaxed to Direct a Script, Hand-picked Document Object Model Essentials, Make Animations, and Handle Events and also grow Ajax Applications. It even makes the available Skills for Programmers to Create Plug-ins on Highest of Js Library. The Linked Method to JQuery Library lets Making of Dominant Active WebPages and even the Web Applications.

5. **JavaScript**: Frequently Shortened as JS, is a Program design Language and High-level Language which is Frequently Jit Compiled, and Double Paradigm. It has Flower Braces Syntax, Lively Typing, Prototype Based Object Orientation and the First Class Functions. This allows Communicating Web Pages and is Vital Part of Web Applications and most of the Website use it for Customer Side Sheet Performance. As it is a DP Language it supports Event Driven, Functional and Commanding Programming Styles. It has Application Programming Interface for Operational with Letter, Word, Number, Regular Expression and Normal DS and DOM. These Engines were first used only in Web Browsers but now they are fixed in Certain Servers and that is via Node.js as it is also surrounded by a change of Applications Formed with Frameworks Such as: Electron and Cordova. Even though there are Resemblances between Js and Java including: Language, Name, Syntax and their Standard Libraries where binary Languages are Dissimilar and Vary Importantly in Design.

The **Tool** used is: Visual Studio Code

6. **Visual Studio Code** is a Basis Code which is recognized by Microsoft for some of the Operating Systems. It usually gives Maintenance for Correcting and Underlining the Code Conclusion and Code Snippets. This is a User-Friendly Tool where the Programmers can change Theme and we also have some of the Keyboard Shortcuts and some of the Shortcuts for the Installation Purpose which the Extra Functionality. The Tool is of no Cost and it is Open Source which is unrestricted under the mit License this a Freeware and can be used anywhere as it is Open Source and Free Ware not need to pay. It can be used in different Programming Languages..... and all those Languages is usually based on some Electronic Framework and is generally used to Grow the Node.js Webpages which runs on the some Engine. Even though it uses the Electron Framework it doesn't use Atom and in its place it hires the Code named as Monaco which is used in Azure DevOps and this is usually called as "VSO and VSTS".

2.4 HARDWARE AND SOFTWARE REQUIREMENTS

2.4.1 Hardware Requirement:

Hardware basically refers to the item in a Personal Computer that can be touched and felt like: Keyboard, Monitor, Mouse and the system unit. Additional hardware components that can be added to the Personal Computer are Modem, Printer, and Scanner.

The hardware thus used here consists of:

- System : Intel core i5
- Hard Disk : 1Tera Byte
- Monitor : 15 Light Emitting Diode
- Input Devices : Keyboard, Mouse
- RAM size : 32Giga Byte
- Processor : core i5

2.4.2 Software Requirement:

There is use of a large software in developing this project. Software is essentially the logical program that handles different components which can't be touched or felt and it helps to interact with each other during a Hassle-free manner.

The software used here consists of:

- Operating System : Windows 10
- Coding Language : HTML, CSS, Bootstrap, JQuery, Javascript
- IDE : Visual Studio Code

CHAPTER 3

SOFTWARE REQUIREMENT SPECIFICATION

3.1 USERS

1. **Requestor:** Requestors are the Identified Individuals per Business Unit, and they will Search for the Desired Part from the Database and will place the Request to know about the Price, They can Request for the Multiple Parts as well, After the Request is place the Requestor can Verify the Status of the Request placed by Referring the Individual Dashboard from the Tool.

2. **Admin:** Admins are basically focal from the Finance Team, they will manage the Requests coming from the Requestor, referring few of the Parameter they can address the Request by Quoting the Price for the Requested Part and further Submit for Business Head Approval or can Reject a Request stating the Proper Justification, Admin can also Track the Activities is responsible for Creating master Data for the Application Example is Managing Parts.

3. **Business Head:** Business Head are the Head of the Business Unit, once a Request has been placed and Approved by Admin the Request comes for Business Head Approval. And the Business Head can either Approve or Reject the Request by providing Proper Justification, Business Head can Approve Single or Multiple Request as Displayed on the Tools Dashboard.

4. **Super Admin:** Super Admin is the IT Developer, he has the Option of Managing Users for the Tool by Adding or modifying their Details.

3.2 FUNCTIONAL REQUIREMENTS

The Functionality of the Application is been defined in the Functional Requirements. It depends on the Type of Software Used and the Users who use the Application. This defines what are the Major and Necessary Services or Functionalities which are carried in the Application. User can only Request or Update for the Make or the Buy Parts.

1. **Login:** The Users or the Requestors of the Application has to Login to the Application using the LDAP Account Details and Login to the Application in order to access the Application. With entering the Credentials the User can access the Application either the Username or Password is being entered in an Incorrect Format the User cannot Login to the Application and again it will ask for reentering the Login Credentials of Users who are having the LDAP Account Credentials. Any User or Requestor with a valid LDAP Credentials can login to the Tool to raise a request.

2. **Admin:** The Admin can Add/ Update/ Delete and Edit the Update Request and once it is Updated he sends the Updated Details to the Admin Side Edit Page and then the Details are displayed in the Updated Details of the Admin Page and also Admin can also generate the Master Data he can also Edit, Add, View the Master Data of that Part and once it is Updated he sends the Updated Details to the Admin Side Edit Page and displays the Updated Details at the Admin Page. Admin can Change the Service Status to Breakdown to carry the break down activities. Admin can change the Service Status like is it in Pending, Approved or Rejected.

3. **Approver:** The Approver can Approve or Reject the Parts based on the Make or the Buy part. Once a Request has been placed and Approved by Admin the Request comes for Business Head Approval which is Approver and Business Head can either approve or Reject the Request by providing Proper Justification and he can also approve the Single or Bulk Request as displayed on the Tools Dashboard.

4. **Logout:** The Users, Admin and the Approver can Logout after Manipulating the Necessary Things in the Application from the Logout Page of Application.

3.3 NON FUNCTIONAL REQUIREMENTS

These are entitled as Quantity Attributes. These are the Kind of Requirements where the Necessary Requirements can be approximately met while developing the Application. It specifies and defines how the System Works after it has been developed.

1. **Performance:** The Performance of the Application is based on how fast the Application works when there are Multiple Users who are Accessing the Application. It may include the Uploading of Files, Opening Multiple Pages at a Single time. How fast the Data is being processed when the Application is being used.

2. **Reliability:** It defines how the Application which is developed is Reliable to be used by the Users. It usually defines how and in what kind of conditions the Software fails to Work or the time in which it takes more to be processed. When there are Multiple Users using the Application at a Single time the Server might become busy and the Processing of data of the Users can become slow or may even stop sometimes for a long period of time.

3. **Maintainability:** The Project or App are useable by Multiple Users at a time. And system is being Developed in such a way that any modules or sub modules are added, updated, edited or deleted will not affect the rest of the other modules which are in state of working process.

4. **Portability:** Every Time there are a Group of People who put in their Efforts to Make an Application work successfully. The Application can be developed in Other Platforms and can also be updated to the Latest Technologies and the Versions available.

CHAPTER 4

SYSTEM DESIGN

4.1 SYSTEM PERSPECTIVE

Program writing Process Improvement frequently needs Solid connects to extend the Executives and Control Exercises, which are worried about Recognizing the Need of Procedure Change and Activating Improvement Activities. Task the Executives, then again, regularly comes up short at choosing suitable Programming Designing Strategies and Innovation that help to Guarantee Venture Achievement.

It Proposes a Model that Guides Venture Directors

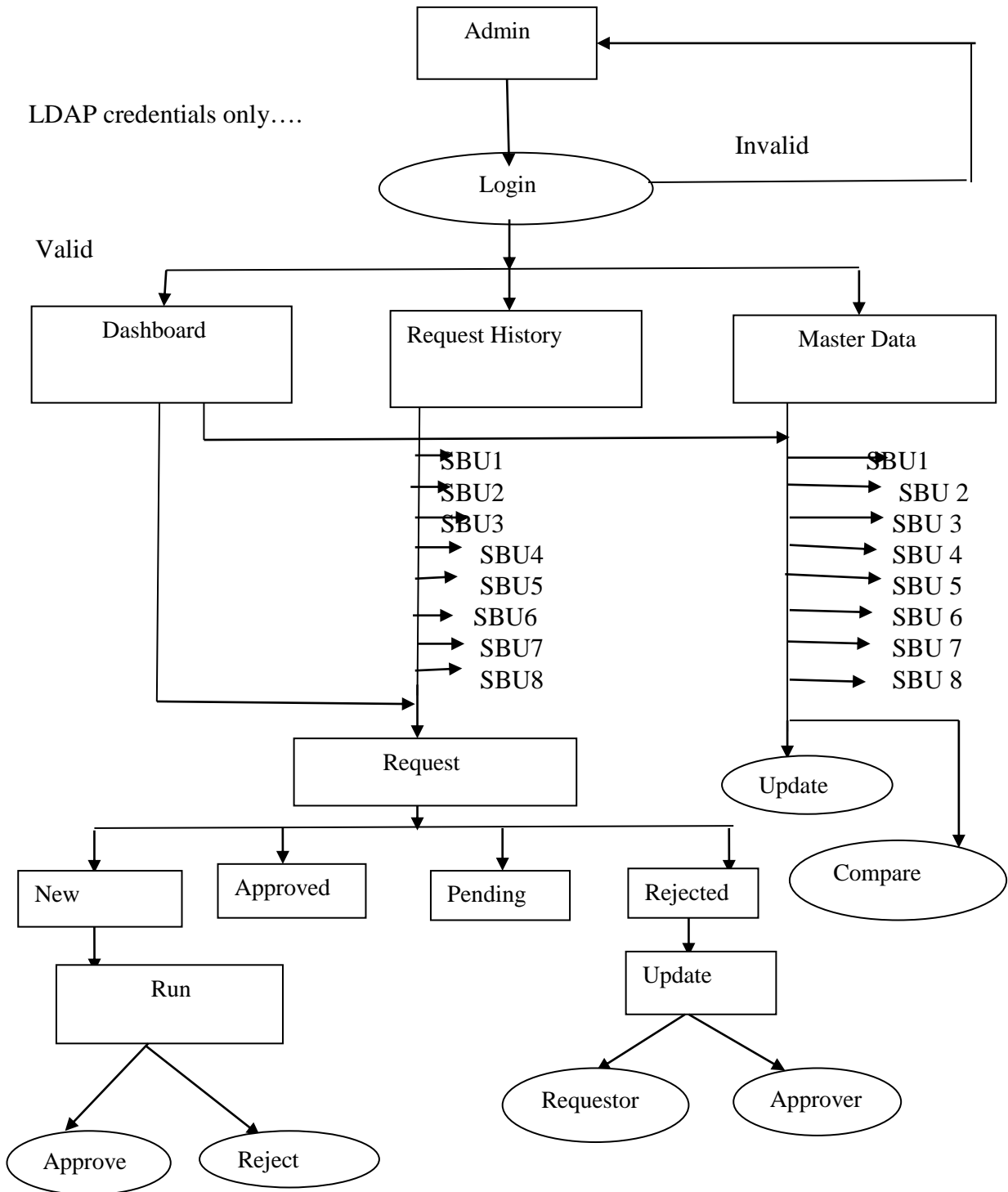
- To set up a Task with the Goal that it can achieve its Particular Objectives.
- To Identify Restorative Changes once an Undertaking is Danger of Fizzling its Objectives.

The Possibility of a Structure Viewpoint is to use a non-theory Method to Achieve the Job of Delineating the Belongings of Arrangement itself. In the Structure Viewpoint, when single has known the System as Different Moment of the World, single is not acceptable to persistently discrete the Arrangement into Remote Portions. Or maybe single is determined to represent the Structure total all. If individual used Segment into Portions, as a Segment of the Description of the Construction belongings that is Just Moment of an Absolute Representation of Lead of Aggregate.

In a System Perspective one ought to be Cautious about Thinking about the Framework with regards to Nature and not as a Confined Element. Along these Lines one ought to incorporate the Associations between the Framework and the Earth .In a System Perspective one ought to be cautious about thinking about the framework with regards to nature and not as a confined element. Along these lines one ought to incorporate the associations between the framework and the earth. This can be stated as the First Step to Identify the Solution from the Start of the Problem. The Main Aim of SDLC is: Identifying and Upgrading the Requirement of a System into Coding.

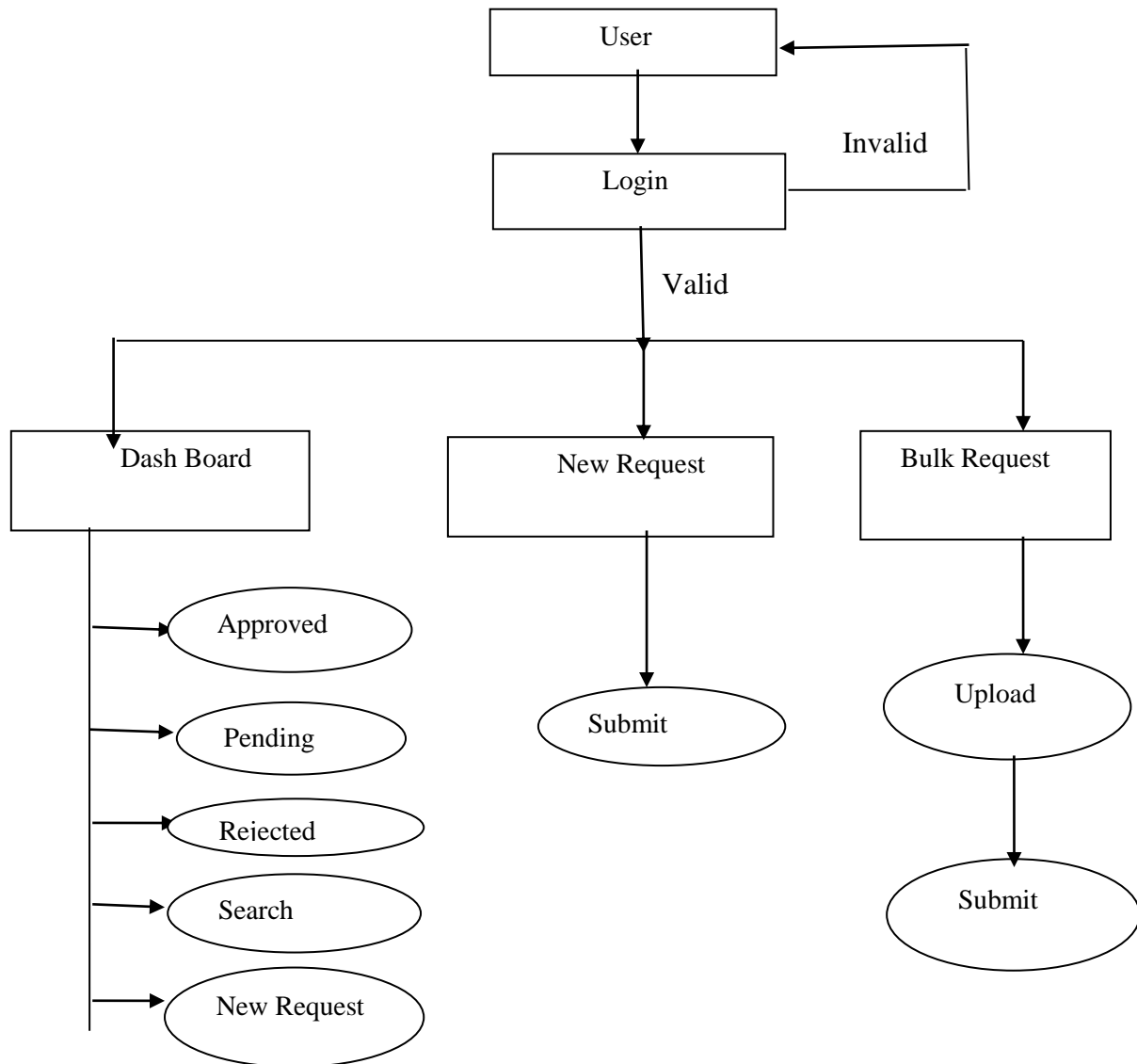
4.2 CONTEXT DIAGRAM

4.2.1 CONTEXT FLOW DIAGRAM OF ADMIN



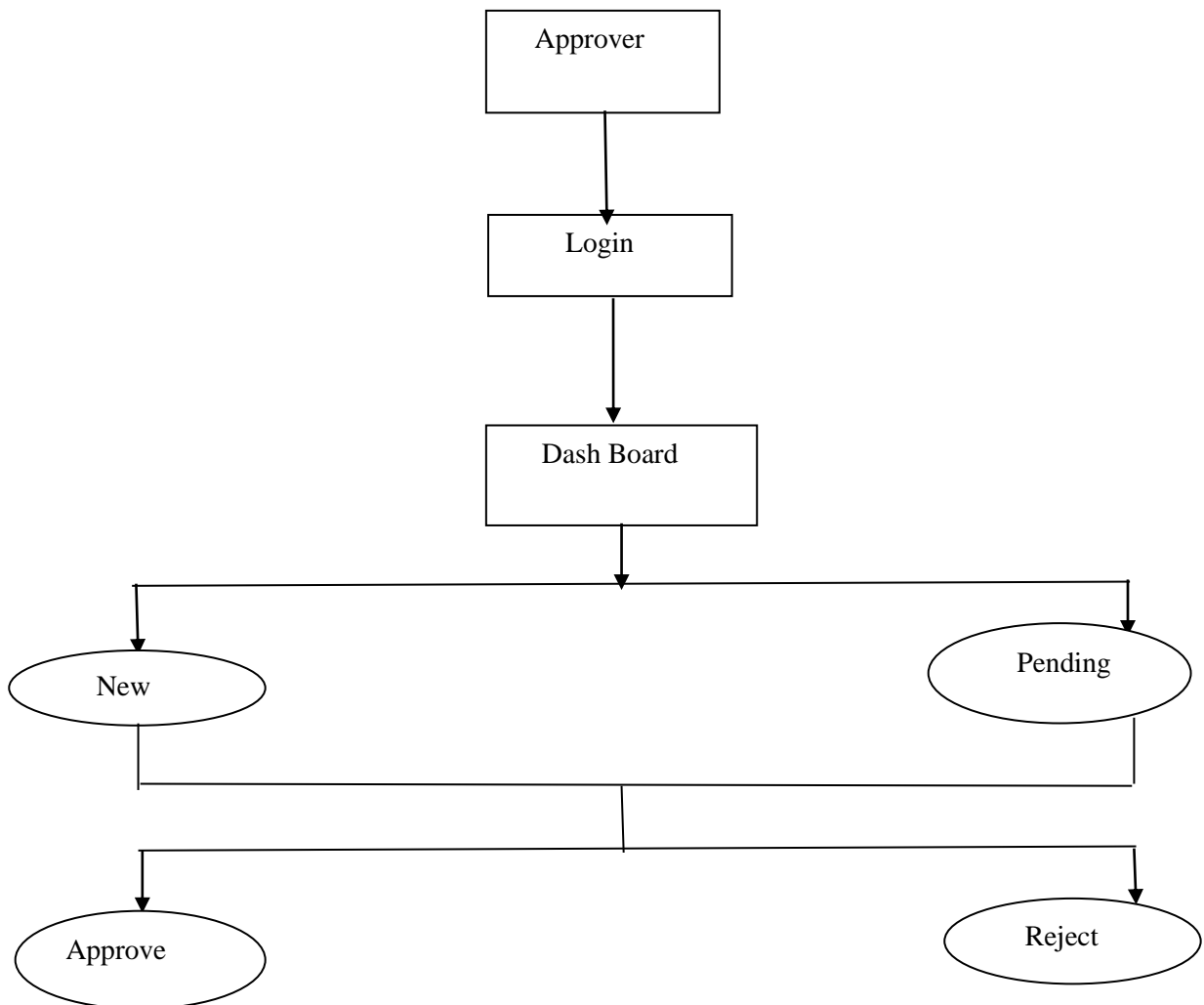
The Figure 4.2.1 is the Context Diagram for the Admin and it shows the Admin Side Context Flow and Describes the Admin Side Functionalities.

4.2.2 CONTEXT FLOW DIAGRAM OF USER



The Figure 4.2.2 is the Context Diagram for the User and it Describes the User Side Functionalities like: Login and if the Login Credentials is Valid it will go the Next Process else it will Again go back to the User and will ask Again for the Correct Login Credentials.

4.2.3 CONTEXT FLOW DIAGRAM OF APPROVER



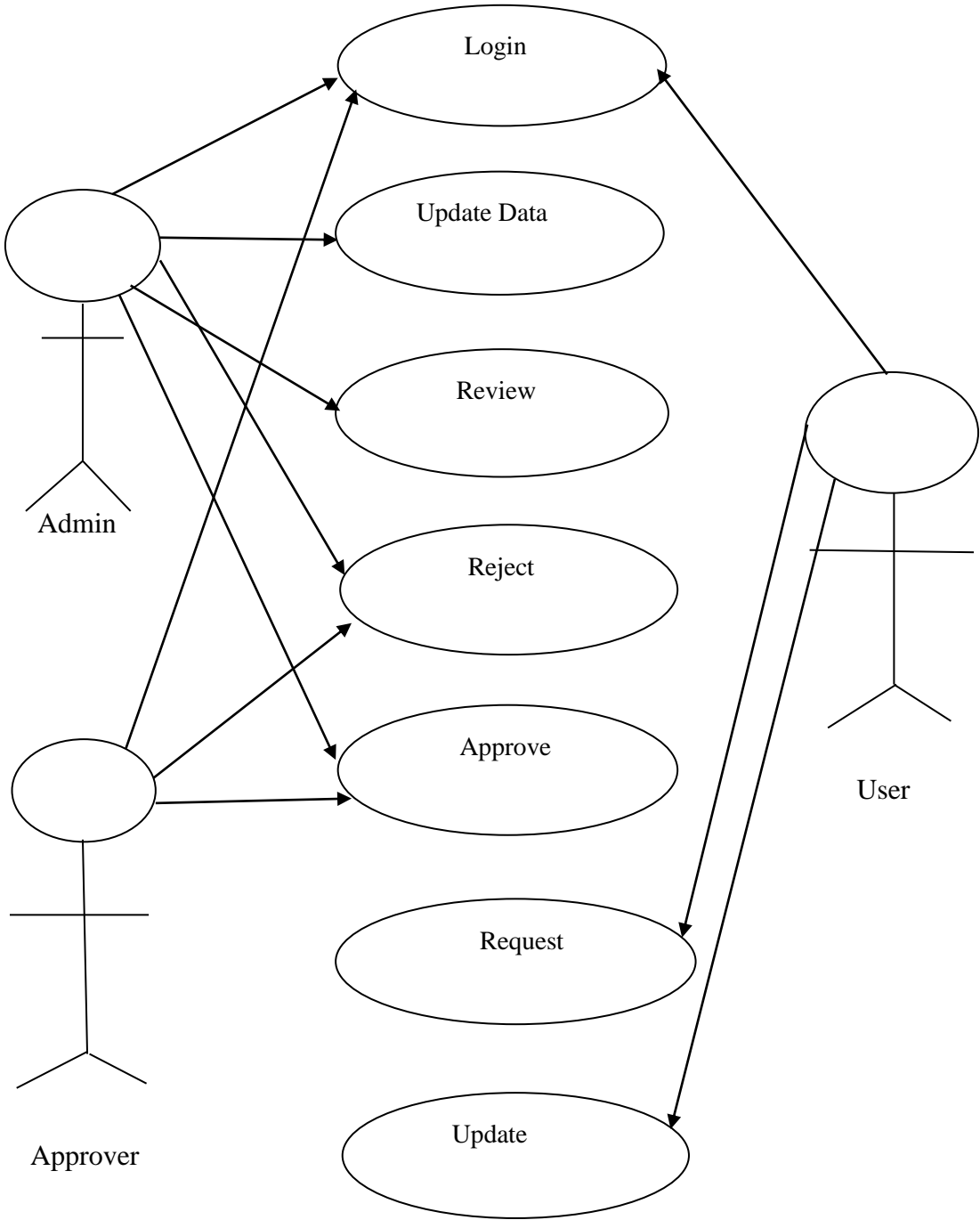
The Figure 4.2.3 shows the Approver Side Context Flow Diagram and Describes the User's Functionalities like: Login and if it is Valid it will go to the Next process such as: New, Pending, Approve and Rejected else it will again go back to the User and will ask for the Correct Login Credentials.

CHAPTER 5

DETAILED DESIGN

5.1 USE CASE DIAGRAM

5.1.1 USE CASE DIAGRAM FOR COST AUTOMATION TOOL



The Figure 5.1.1 Shows the Use Case Diagram for “Cost Automation Tool” and describes the Users like: Admin, User, Approver and the Functions what all they Perform.

UML Description:

In the Figure **5.1.1** it shows the Use Case Diagram for “Cost Automation Tool” and the Users here are: Admin, User and the Approver.

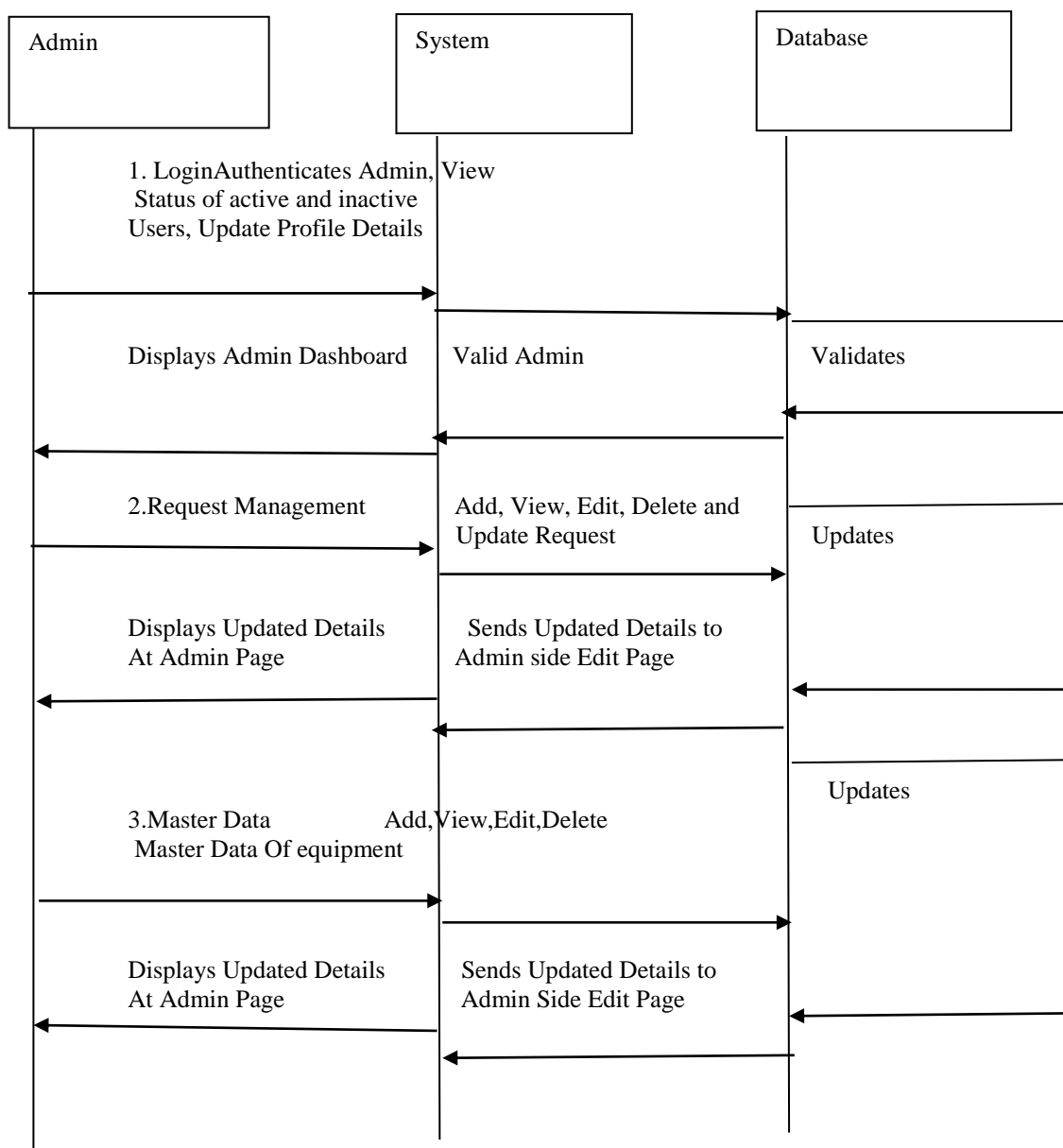
The Admin Functionalities are as Follows: Admin are basically for from the Finance System, They will manage the Request Coming from the User, and by Referring few of the Parameter they can Address the Request by Quoting the Price for the Requested Part and further Submit for Business Head Approval or can Reject a Request stating the Proper justification, Admin can Track the Activities for the Submitted Request from the Dashboard, along with that the Admin is Answerable for Creating Master Data of Application and the Example is: Managing Parts.

The User or the Requestor Functionalities are as Follows: Requestors are the Identified Individuals per Business Unit, Requestor will Search for the Desired Part from the Database and will place a Request to know about the Price, The Requestor can Request for the Multiple Part as well, After the Request is placed the Requestor can verify the Status of the Request Placed by Referring the Individual Dashboard from the Tool.

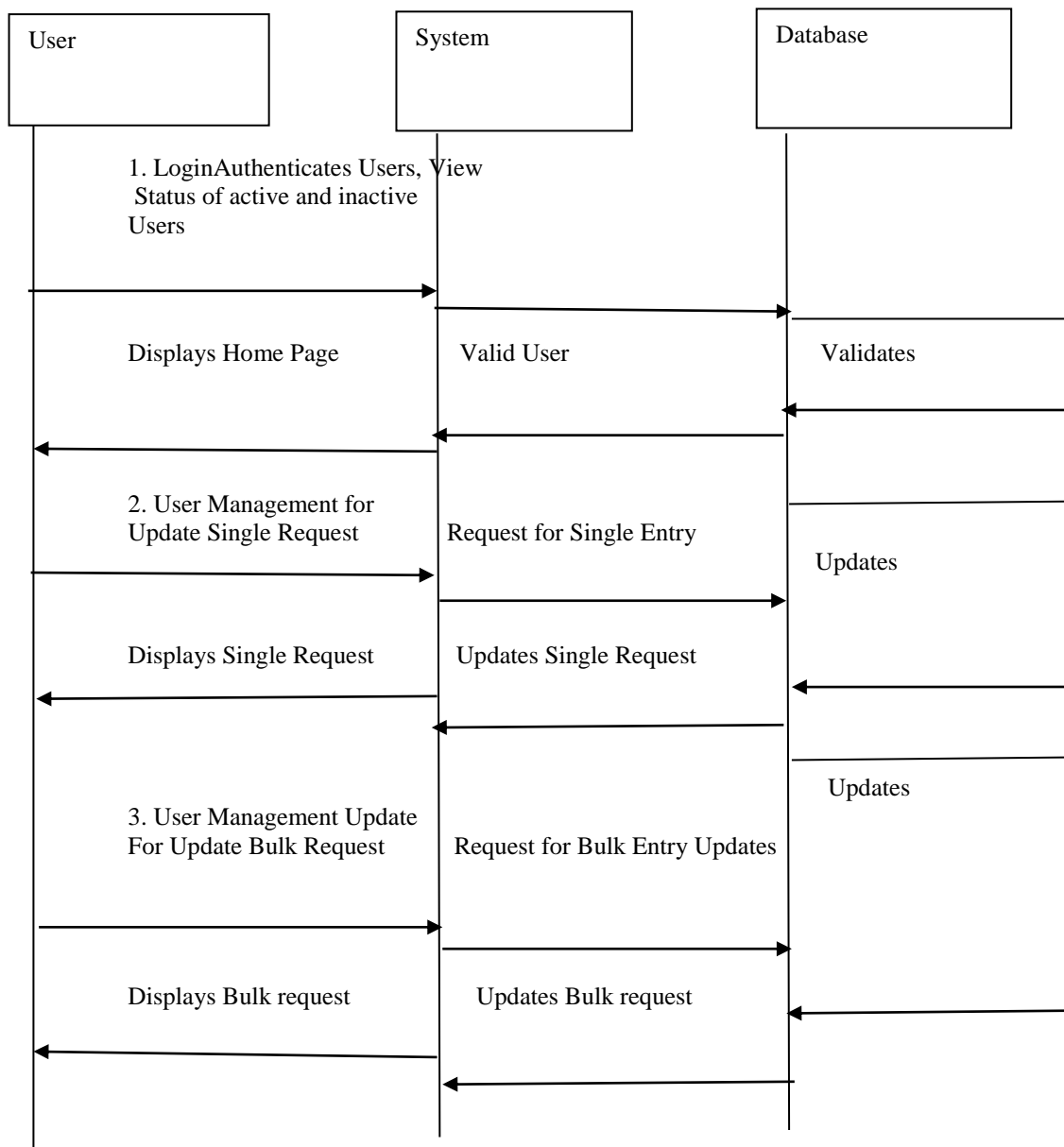
5.2 SEQUENCE DIAGRAM

Sequence Diagram are likewise Known as “Event Diagram” that refer to the Communication between Items and it describes the System Functioning Order and it focuses on the Message Exchange between the Lifelines. The Below Figure 5.2.1 and 5.2.2 Describes the Operations of Admin and Users in the “Cost Automation Tool” Sequentially.

5.2.1 SEQUENCE DIAGRAM FOR ADMIN



5.2.2 SEQUENCE DIAGRAM FOR USER

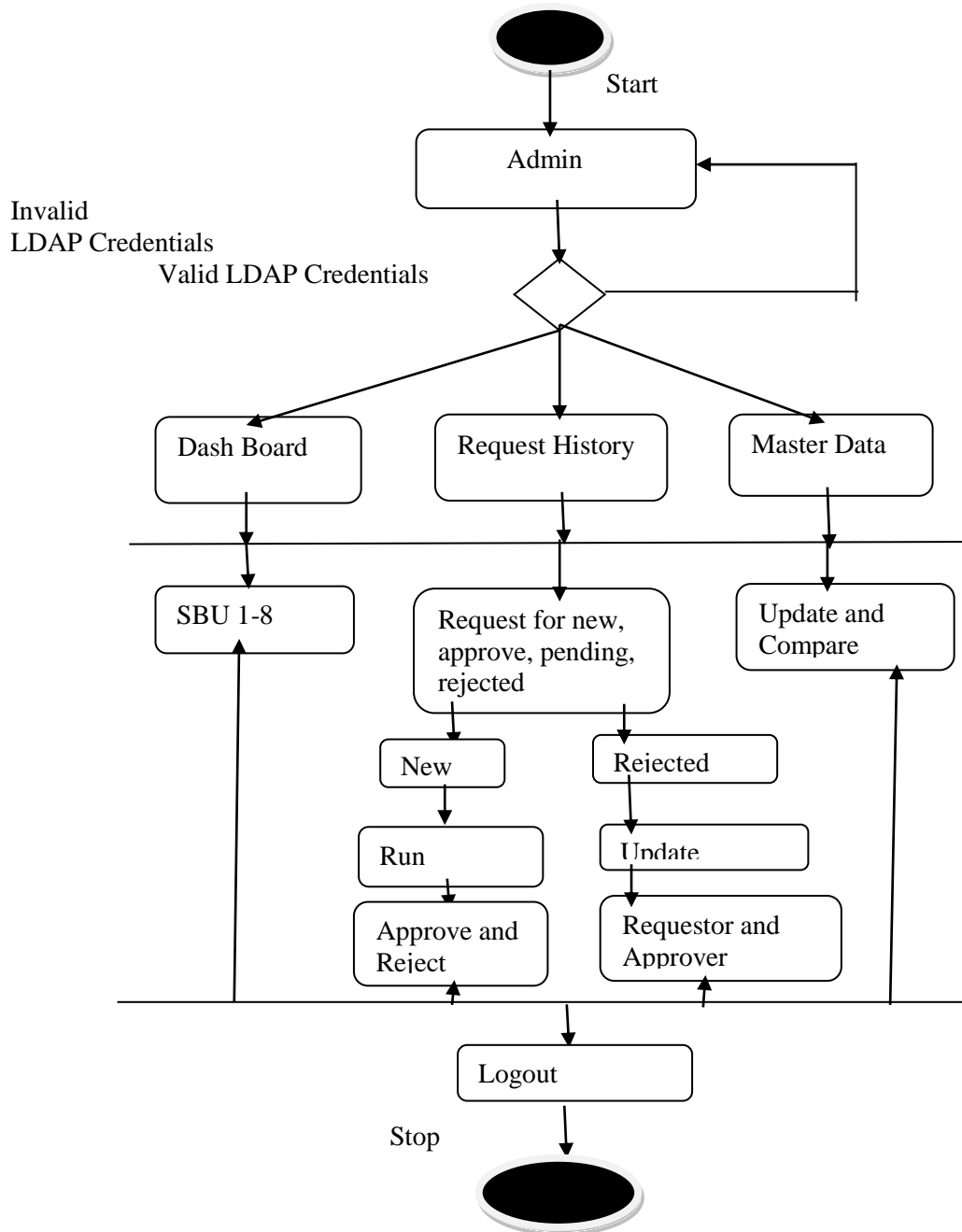


In Figure 5.2.1 and 5.2.2 it shows Sequence Diagram for Admin as well as User and that is how the Operations or the Functionality are Carried out Sequentially.

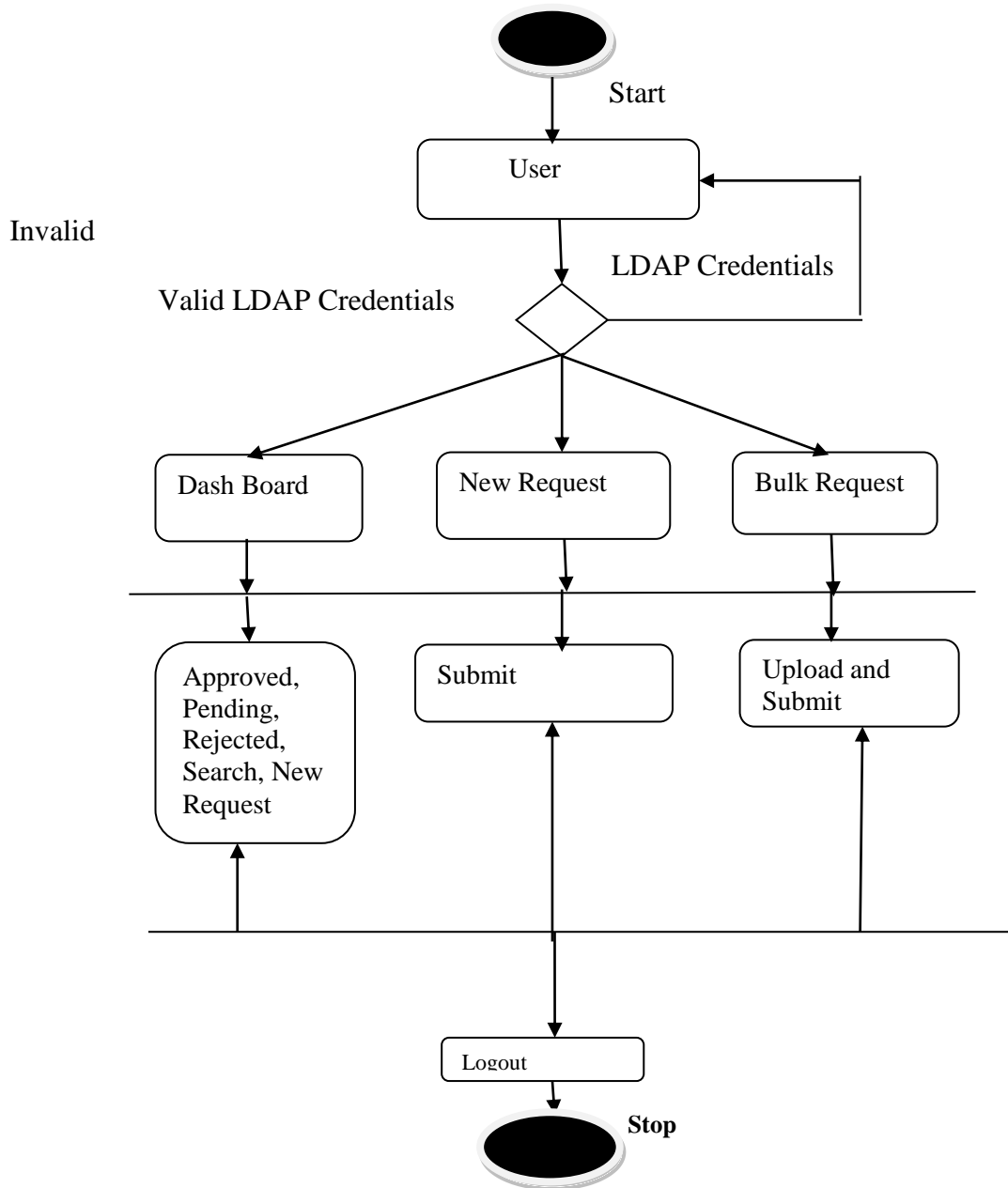
5.3 ACTIVITY DIAGRAM

Activity Diagram demonstrates the Movement of Control and it is also known as “Behavioral Diagram” that displays the Object Flow which Emphasis Sequence, Conditions of the Flow. A Movement Graph Outwardly Shows a Development of Activities in Outline like a Flow Chart. Stroke, Graphs are Frequently Used in Commercial Process Displaying. In Binary Circumstances an Act Outline will have an Initial and End.

5.3.1 ACTIVITY DIAGRAM FOR ADMIN



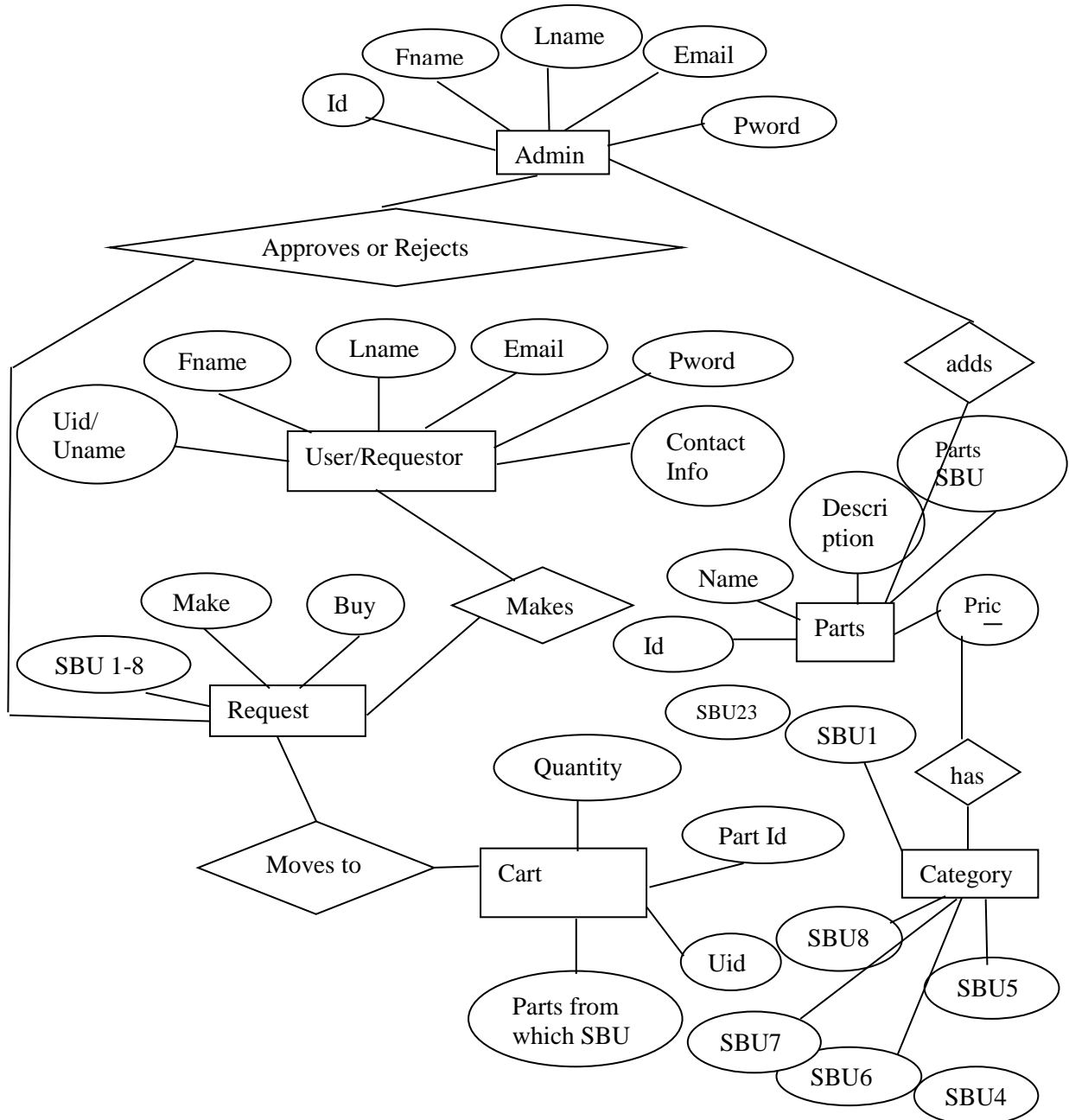
5.3.2 ACTIVITY DIAGRAM FOR USER



In the Figure 5.3.1 and 5.3.2 diagrammatically Represents the Activity Diagram for Admin and User which tells that How the Activities are Carried in the Admin Side and the User Side.

5.4 ENTITY RELATIONSHIP DIAGRAM

5.4.1 ER DIAGRAM FOR COST AUTOMATION TOOL



In the Figure 5.4.1 it shows the ER Relationship for “Cost Automation Tool” which represents the Database diagrammatically that Contains Entities, Attributes and Relationship Between all Entities.

CHAPTER 6

IMPLEMENTATION

Implementation is a Phase where Project Developer make Plans according to his Vision to make it real and to get Proper Outcome. Planning and Arranging is a Basic Part of any Fruitful undertaking. To complete a project the implementation plan that outrages the task is essential. Execution is the way toward structure the Web as indicated by its plan. A web expert makes Hypertext Mark-up language (HTML), CSS (Cascading Style Sheets), or potentially Bootstrap, J query or JavaScript. The practice Method takes after program design perfection since it includes using a specific punctuation for converting a program writing language in a proper language in computer records. In spite of the fact that there are robotized components to help with growth of HTML reports, an intensive launching in Hyper Text Markup Language improves the Web Specialist's ability.

6.1 SCREEN SHOTS



The Above Figure 6.1.1 displays the **Login Page**.

Request History

Approved Pending Rejected

*The price shown for make parts will expire by the end of every quarter

Req.No	Req.Date	Part No.	Part Description	Make / Buy	TP(E)	Validity
3445001	21 Aug 19	9BG412345	Lorem ipsum ipsum sasdas sdas	Make	321.03	21 Aug 19
3445002	29 Dec 19	9BG412345	Lorem ipsum ipsum sasdas dsadsada a	Make	31233	29 Dec 19
3445003	20 Nov 19	9BG412345	sdasdsadas asds asdsd vvdff dsad	Make	554	20 Nov 19
3445004	01 Jan 20	9BG412345	sdasdv dsds	Buy	5435	01 Jan 20
3445005	12 Jan 20	9BG412345	Lorem ipsum ipsum s	Make	345435	12 Jan 20
3445006	12 Sep 19	9BG412345	Lorem ipsum ipsum sasdas dsad	Buy	435	12 Sep 19
3445010	21 Aug 19	9BG412345	sdas	Buy	53445	21 Aug 19
3445220	03 Oct 19	9BG412345	asdsd korwe s d asda	Buy	345.6	03 Oct 19
3445001	21 Aug 19	9BG412345	Lorem ipsum ipsum sasdas sdas	Make	321.03	21 Aug 19
3445002	29 Dec 19	9BG412345	Lorem ipsum ipsum sasdas dsadsada a	Make	31233	29 Dec 19
3445003	20 Nov 19	9BG412345	sdasdsadas asds asdsd vvdff dsad	Make	554	20 Nov 19
3445004	01 Jan 20	9BG412345	sdasdv dsds	Buy	5435	01 Jan 20
3445005	12 Jan 20	9BG412345	Lorem ipsum ipsum s	Make	345435	12 Jan 20
3445006	12 Sep 19	9BG412345	Lorem ipsum ipsum sasdas dsad	Buy	435	12 Sep 19
3445010	21 Aug 19	9BG412345	sdas	Buy	53445	21 Aug 19
3445220	03 Oct 19	9BG412345	asdsd korwe s d asda	Buy	345.6	03 Oct 19

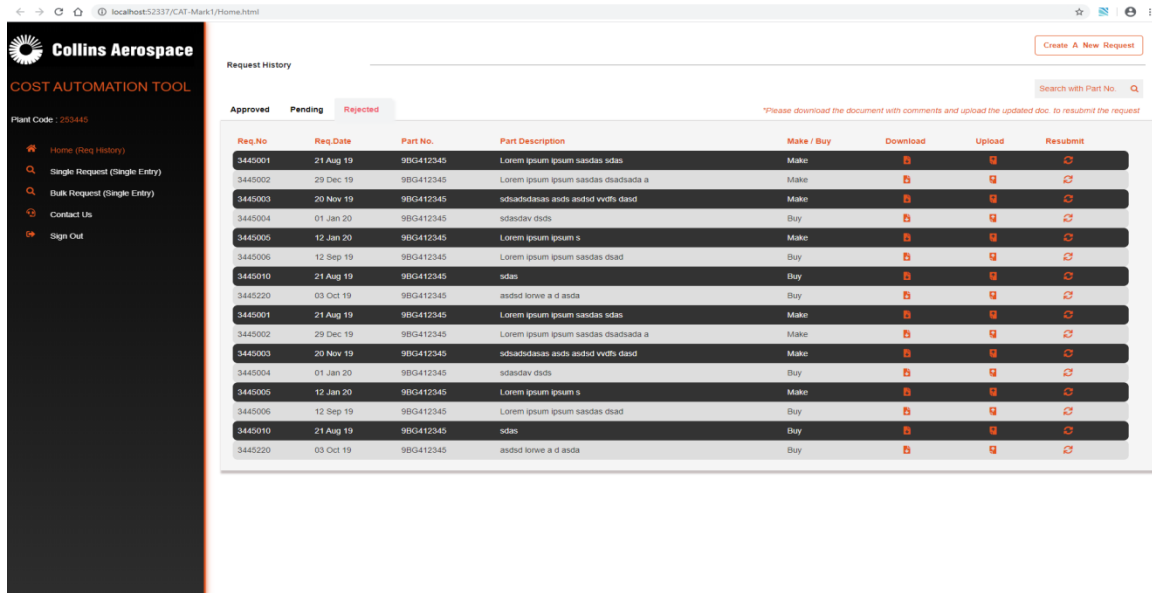
The Above Figure 6.1.2 displays the Home Page for Approved.

Request History

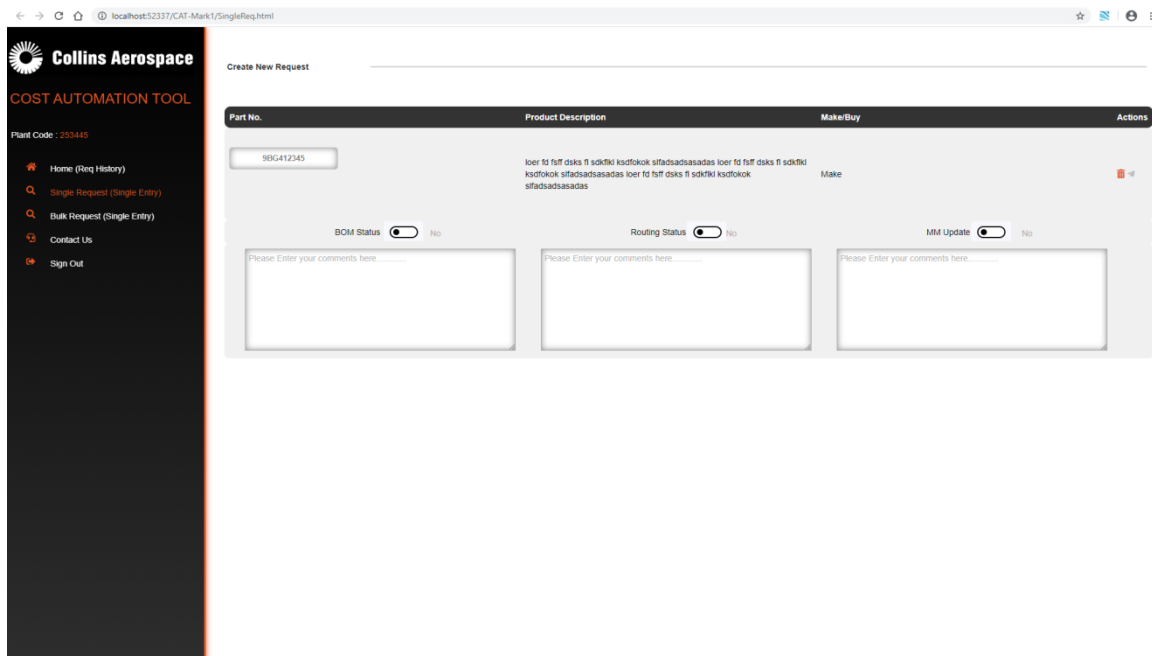
Approved Pending Rejected

Req.No	Req.Date	Part No.	Part Description	Make / Buy	Status	Validity
3445001	21 Aug 19	9BG412345	Lorem ipsum ipsum sasdas sdas	Make	With Approver	21 Aug 19
3445002	29 Dec 19	9BG412345	Lorem ipsum ipsum sasdas dsadsada a	Make	With Business	29 Dec 19
3445003	20 Nov 19	9BG412345	sdasdsadas asds asdsd vvdff dsad	Make	With Business	20 Nov 19
3445004	01 Jan 20	9BG412345	sdasdv dsds	Buy	With Approver	01 Jan 20
3445005	12 Jan 20	9BG412345	Lorem ipsum ipsum s	Make	With Approver	12 Jan 20
3445002	29 Dec 19	9BG412345	Lorem ipsum ipsum sasdas dsadsada a	Make	With Business	29 Dec 19
3445003	20 Nov 19	9BG412345	sdasdsadas asds asdsd vvdff dsad	Make	With Business	20 Nov 19
3445004	01 Jan 20	9BG412345	sdasdv dsds	Buy	With Approver	01 Jan 20
3445005	12 Jan 20	9BG412345	Lorem ipsum ipsum s	Make	With Approver	12 Jan 20
3445002	29 Dec 19	9BG412345	Lorem ipsum ipsum sasdas dsadsada a	Make	With Business	29 Dec 19
3445003	20 Nov 19	9BG412345	sdasdsadas asds asdsd vvdff dsad	Make	With Business	20 Nov 19
3445004	01 Jan 20	9BG412345	sdasdv dsds	Buy	With Approver	01 Jan 20
3445005	12 Jan 20	9BG412345	Lorem ipsum ipsum s	Make	With Approver	12 Jan 20
3445002	29 Dec 19	9BG412345	Lorem ipsum ipsum sasdas dsadsada a	Make	With Business	29 Dec 19
3445003	20 Nov 19	9BG412345	sdasdsadas asds asdsd vvdff dsad	Make	With Business	20 Nov 19
3445004	01 Jan 20	9BG412345	sdasdv dsds	Buy	With Approver	01 Jan 20
3445005	12 Jan 20	9BG412345	Lorem ipsum ipsum s	Make	With Approver	12 Jan 20

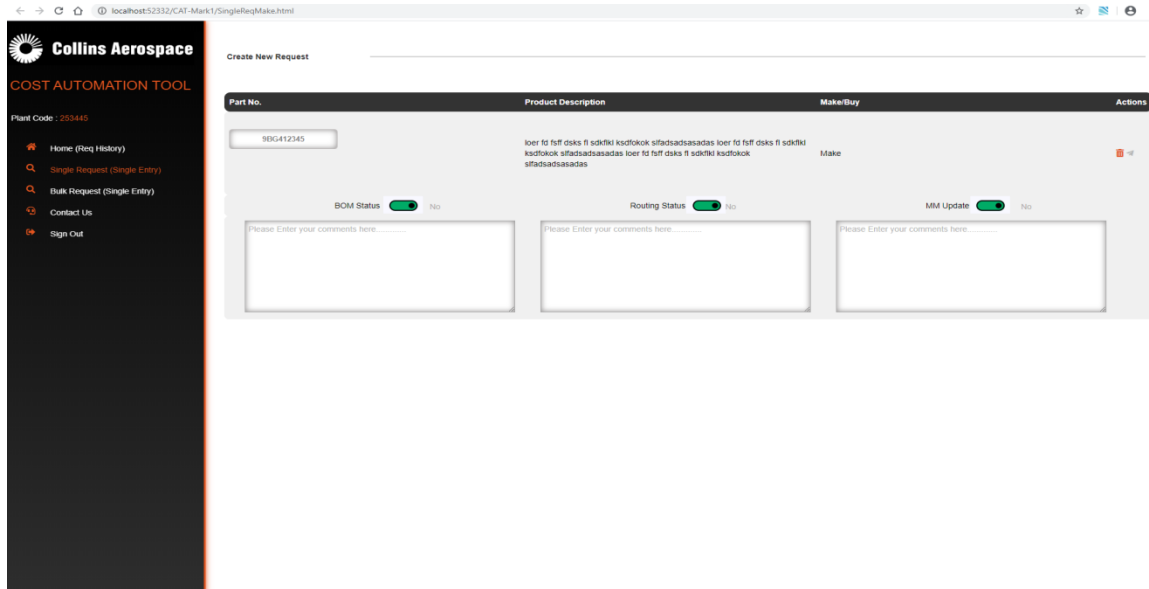
The Above Figure 6.1.3 displays the Home Page for Pending.



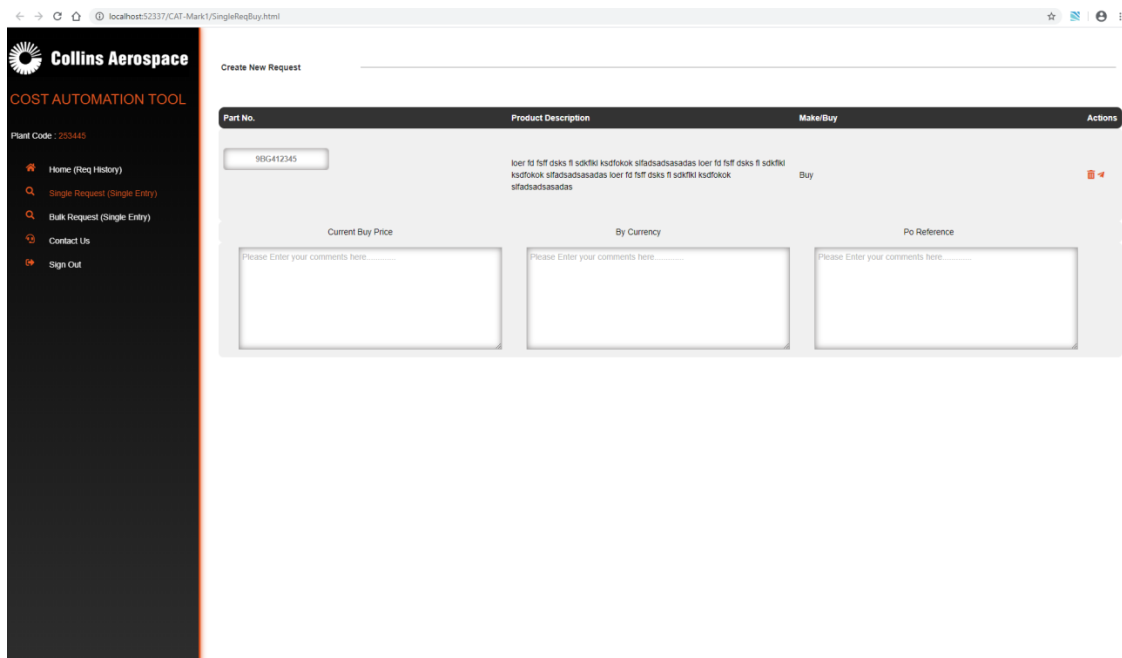
The Above Figure 6.1.4 displays the Home Page for Rejected.



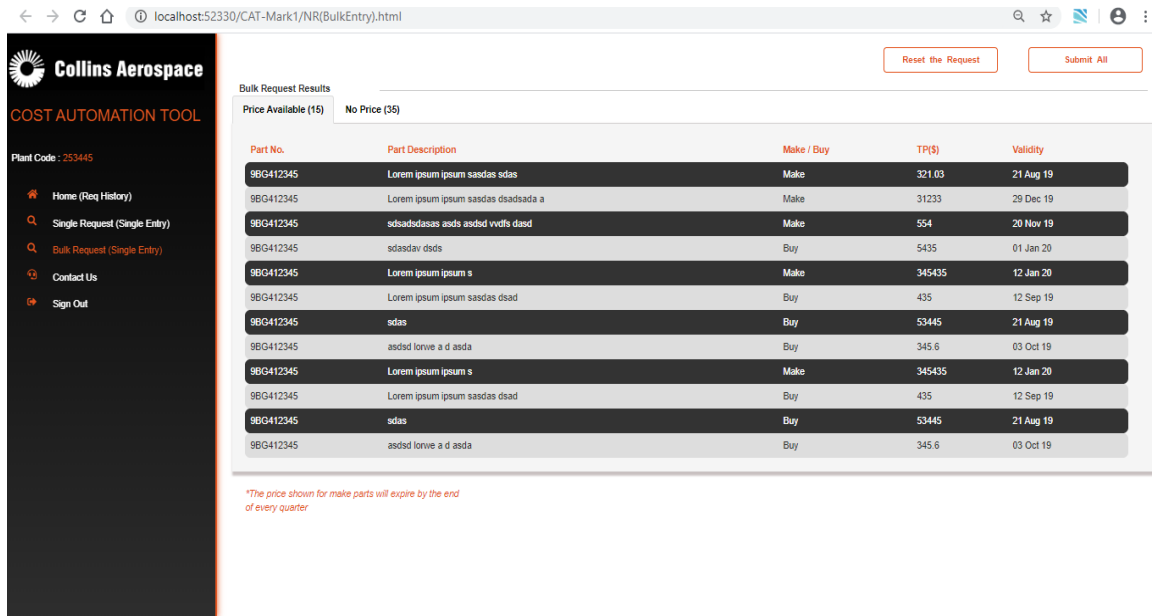
The Above Figure 6.1.5 displays the New Request Single Entry Screen.



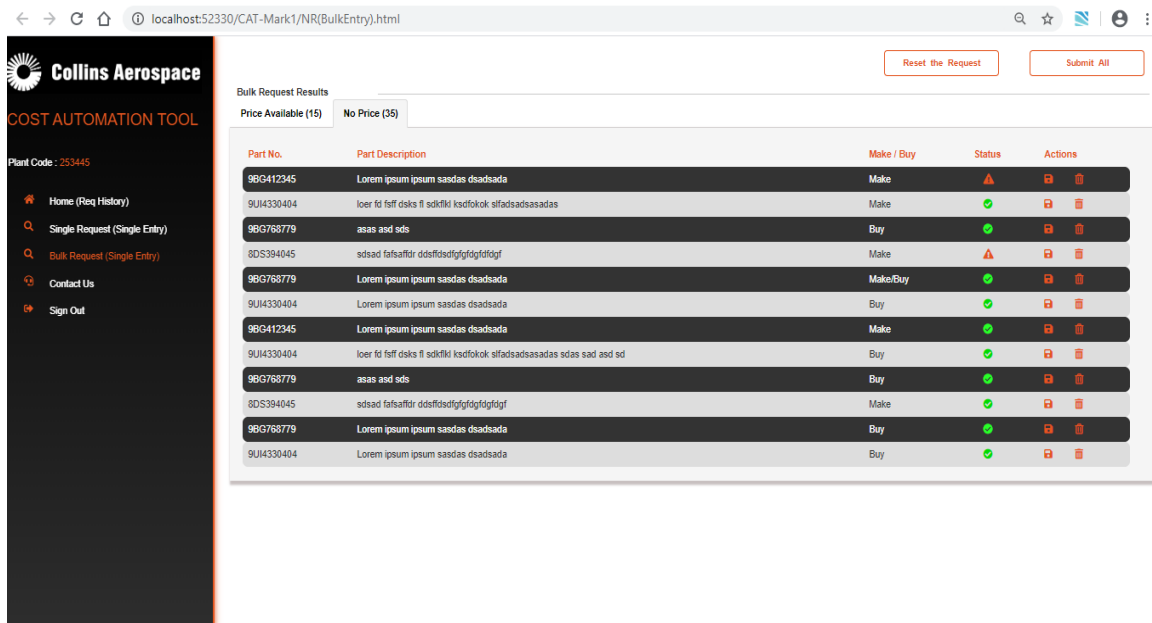
The Above Figure 6.1.6 displays the New Request Single Entry Screen for Make.



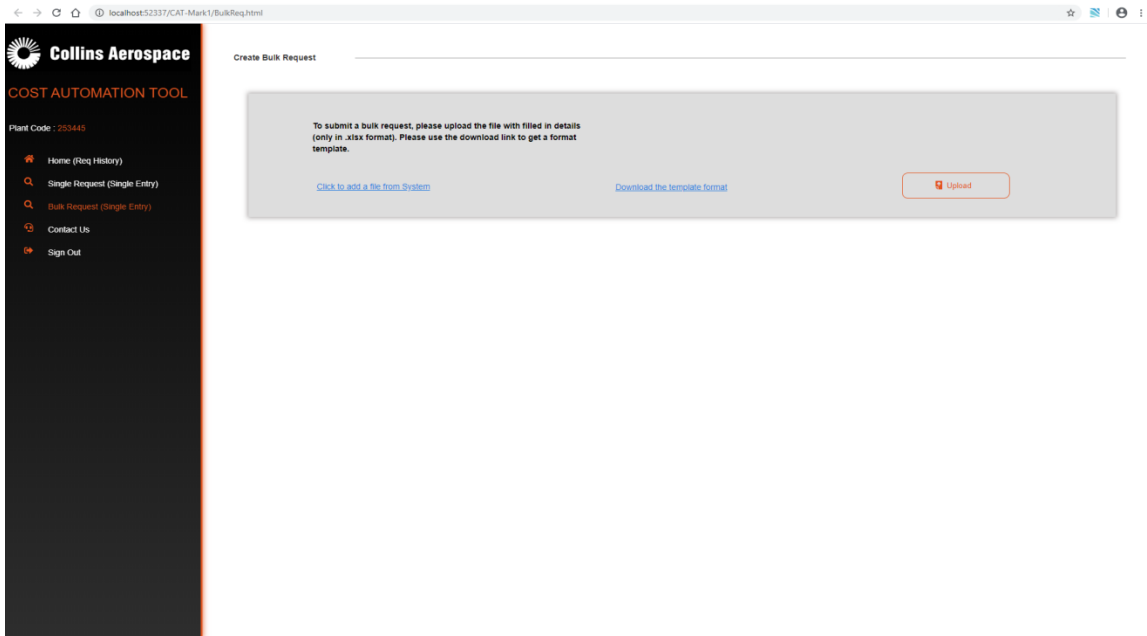
The Above Figure 6.1.7 displays the New Request Single Entry Screen for Buy.



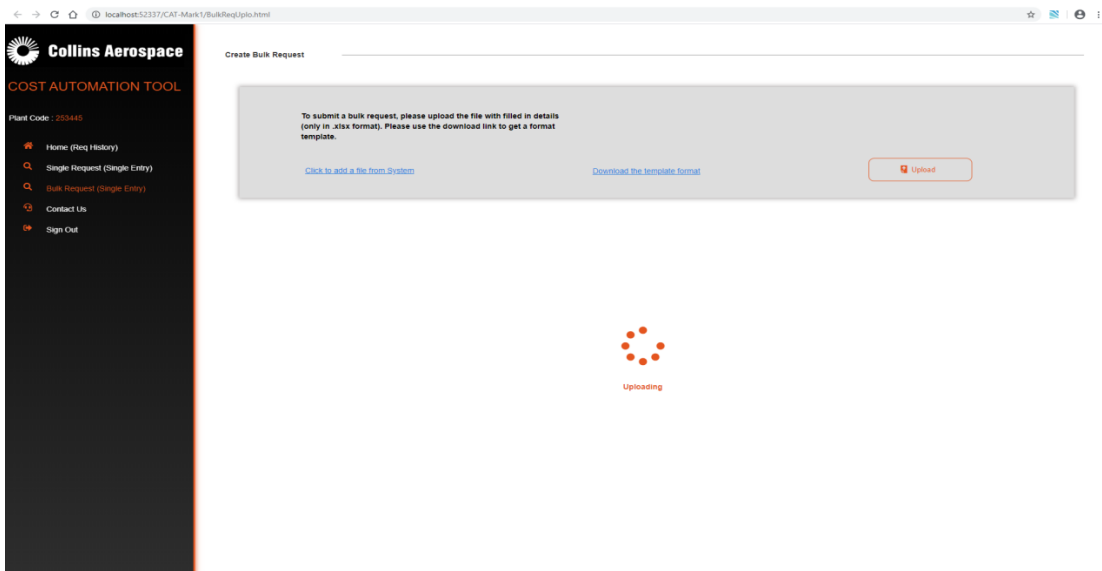
The Above Figure 6.1.8 displays the New Request Bulk Entry Screen for Price Available.



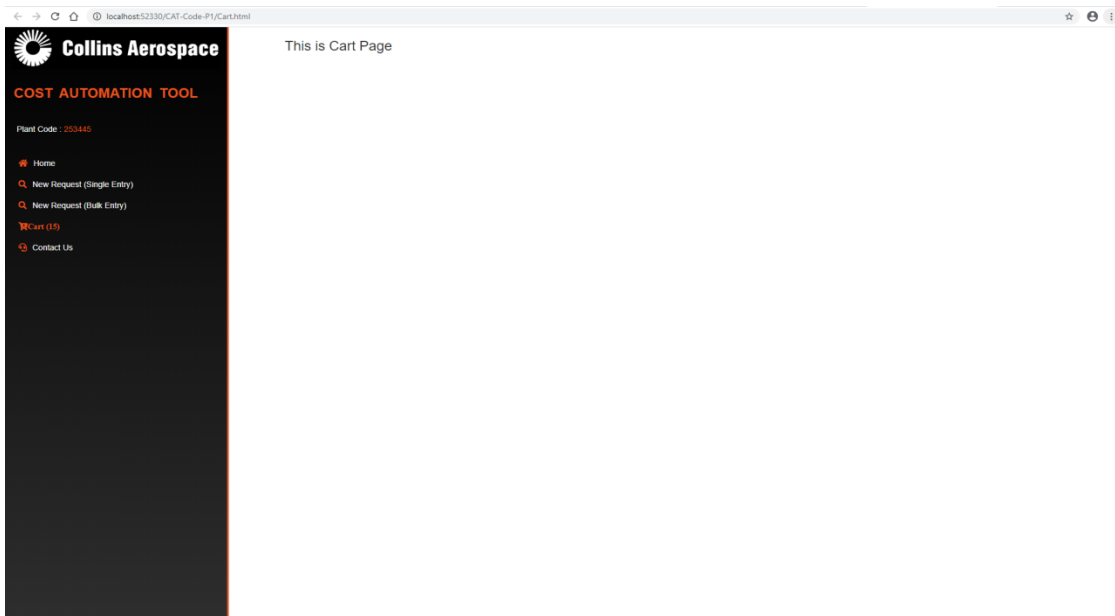
The Above Figure 6.1.9 displays the New Request Bulk Entry Screen for No Price.



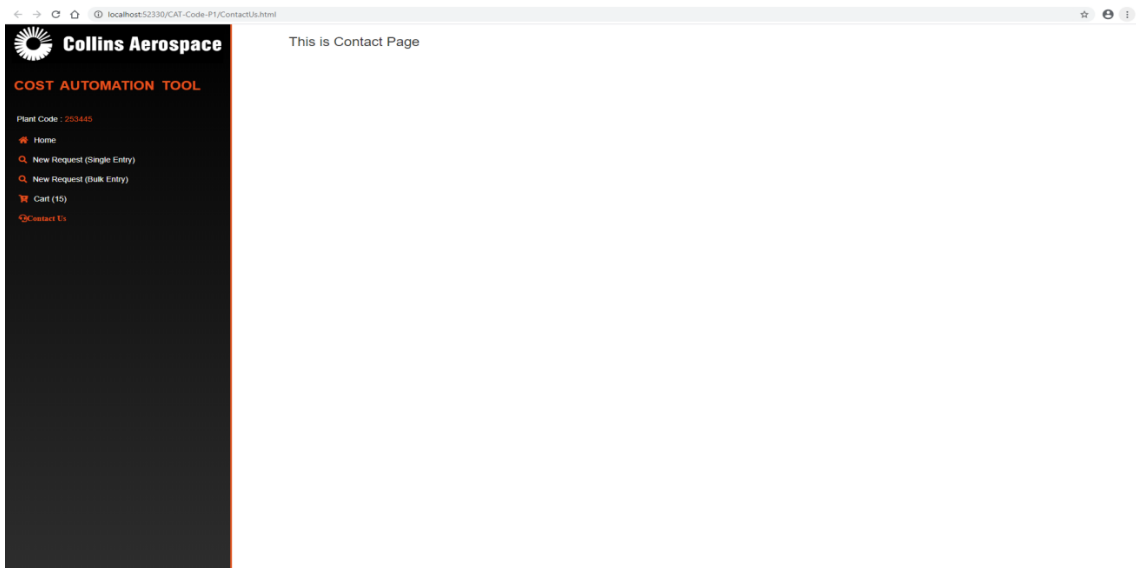
The Above Figure 6.1.10 displays the New Request Bulk Entry Screen for Upload.



The Above Figure 6.1.11 displays the New Request Bulk Entry Screen for Upload with Icon.



The Above Figure 6.1.12 displays the **Cart Page**.



The Above Figure 6.1.13 displays the **Contact Us Page**.

6.2 CODE SNIPPET

Login Screen:

```
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js lt-ie9 lt-ie8 lt-ie7"> <![endif-->
<!--[if IE 7]> <html class="no-js lt-ie9 lt-ie8"> <![endif-->
<!--[if IE 8]> <html class="no-js lt-ie9"> <![endif-->
<!--[if gt IE 8]><!-->
<html class="no-js">
<!--<![endif-->

<head>
  <meta charset="utf-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <title>CAT Sign In</title>
  <meta name="description" content="">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap-theme.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/1.12.4/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
  <link rel="stylesheet" href="fontawesome-free-5.11.2-web/css/all.min.css">
  <link rel="stylesheet" href="css/signIn.css">

</head>
<body onload="randombg()">
  <p class="browsehappy">You are using an <strong>outdated</strong> browser. Please <a href="#">upgrade your browser</a> to improve your experience.</p>
  <![endif-->

  <div class="container-fluid">
    <header>
      <div class="row">
        <div class="logo-img pull-left">
          
        </div>
        <div class="heading-title pull-right">
          <h3 class="headtitle">COST AUTOMATION TOOL</h3>
        </div>
      </div>
    </header>
    <div id="random-bgm" class="body-section">
      <div class="signIn-section text-center">
        <div class="username">
          <span><i class="fa fa-user"></i></span><input type="text" class="form-control" name="User" placeholder="User Id">
        </div>
        <div class="password">
          <span><i class="fa fa-key"></i></span><input type="password" class="form-control" name="password" placeholder="Password">
        </div>
        <div class="submit-btn">
          <button class="btn btn-primary">
            Sign In
          </button>
        </div>
      </div>
    </div>
  </div>
</body>
</html>
```

```
<div class="submit-btn">
  <button class="btn btn-primary">
    Sign In
  </button>
</div>
<div class="info">
  Please use your LDAP Account Credentials
</div>
</div>
</div>
<footer>
  <div class="row">
    <p><b>Warning: </b>Use of this system is restricted to Authorized Users</p>
    <p>This computer system is the prvte property of the company and may only be used b
y those individuals authorised by Company management in accordance with Company electronic
communications system policies. Unauthorized, illegal or improper
    use may result in disciplinary action and civial or criminal prosecution. Your use of thi
s system is subject to monitoring and disclosure in accordance with Company policy and applicab
le law. By continuing to access this system, you
    agree that such access and use is subject to the foregoing.Please do not enter any tech
nical, EAR/ITAR or any other controlled data in the application.</p>
  </div>
</footer>
</div>
</body>
<script>
  function randombg() {
    var random = Math.floor(Math.random() * 3) + 0;
    var bigSize = ["url('img/image_one.jpg')",
      "url('img/image_three.jpg')",
      "url('img/image_five.jpg')"
    ];
    document.getElementById("random-bgm").style.backgroundImage = bigSize[random];
  }
</script>

</html>
```

CHAPTER 7

SOFTWARE TESTING

Test Cases: Test Case is a Condition that Checks or Matches the Definite Result with the Predictable Result which determines whether the Software is Validated, Verified and Bug Free. It Contains Test Case ID, Description, Actual Outcome, Expected Outcome and Status which Prescribes whether the Actual Outcome is same as the Expected Outcome and it States whether The Test Case is Pass or Fail.

Test Plan: Test Plan is an Approach that Prescribes the Scope of Software Testing and its Activities. It is a Detailed Document that Contains the Strategy, Resources, Objectives, Schedule, Estimation and the Test Deliverables. Test Plan give s out a Blue Print to Process Software Testing which is Monitored and Controlled Every Minute by the Testing Manager.

Test Data: Test Data is a Material or a Content that is used in Tests than can be a Computer Program, If a Plan Gives out a Blue Print to Process Software Testing which is Monitored and Controlled by Every Minute by the Testing Manager and in some ways it Tests with the Existing Functionalities to get the Expected Outcome.

Test Report: Test Report is said to be Test Cases which contains Detailed Description of Tests to be performed and it Contains the Data of Actual Outcome from the Software or an Application which is compared with the Expected Outcome that Results displaying a Status whether the Test Case is Pass or Fail.

Signup or Sign in Test Cases:

Test CaseID	Test Description	Steps	Expected Output	ActualOutput	Status
TC1	Login as Admin	The Admin should enter the Username and Password and the Username and Password should be of LDAP Credentials	Should redirect to the Admin Page	Admin Page is Displayed	PASS
TC2	Login as User	The User should enter the Username and Password and the Username and Password should be of LDAP Credentials	Should redirect to the User Page	User Page Displayed	PASS
TC3	Login with Invalid Username	The User should enter the Invalid Username and the valid Password	Should Display the message as Invalid Username please enter the Valid Username	Invalid Username please enter the Valid Username	PASS
TC4	Login with Invalid Password	The User should enter the Valid Username and Invalid Password	Should Display the message as Invalid Password please enter the Valid Password	Invalid Password Please Enter Valid Password	PASS
TC5	Login as Approver	The Approver should enter the Username and Password and the Username and Password should be of LDAP Credentials	Should redirect to the Approver Page	Approver Page is Displayed	PASS

Admin Operation Test Cases:

Test Case ID	Test Description	Steps	ExpectedOutput	ActualOutput	Status
TC6	Login as Admin	The Admin should enter the Username and Password and the Username and Password should be of LDAP Credentials	Should redirect to the Admin Page	Admin Page is Displayed	PASS
TC7	Checks for all Request	The Admin checks for all the Request from User or Requestor and this Request is Displayed in Admin Page	Should redirect to Admin Page with all the User Requests Displayed	Admin Page is displayed with all the User Requests	PASS
TC8	Checks for New Request	The Admin checks for New Request and he will run them and if there is any issues he will Reject else he will Approve them	Should display the message as Approve if the New Request is Approved else it should display as Reject if the New Request is Rejected	The message Approved is Displayed if there is no issues or Reject is displayed if there is issue present	PASS
TC9	Checks for Approved Request	The Admin checks for Approved Request	Should display the message as Approved	The message Approved is Displayed	PASS
TC10	Checks for Pending Request	The Admin checks for Pending Request	Should display the message as Pending	The message Pending is Displayed	PASS
TC11	Checks for Rejected Request	The Admin checks for Rejected Request and he updates this to the Requestor or Approver	Should display the message as Rejected and updated to requestor or Approver	The message Rejected is Displayed and it is updated to requestor or Approver is Displayed	PASS
TC12	Creates the Master Data for 8 SBU	The Admin creates the Master Data for 8SBU and he also Updates and Compares them	Should Display the Message as Updated and Compared	The Message Updated and Compared is Displayed	PASS

User Operation Test Cases:

Test Case ID	Test Description	Steps	Expected Output	Actual Output	Status
TC13	Login as User	The User should enter the Username and Password ad the Username and Password should be of LDAP Credentials	Should redirect to the User Page	User Page is Displayed	PASS
TC14	Search for the Desired Part in the Dashboard and will place the Request	The User will Search for the Desired Part in the Dashboard and he will place the Request	Should Display the Message as Request Placed	The Message Request placed is Displayed	PASS
TC15	Select Newrequest and click on Submit	The User will select Newrequest and he will click on Submit	Should Display the Message as Newrequest is Submitted	The Message Newrequest is Submitted is Displayed	PASS
TC16	Selects Bulkrequest	The User will select Bulkrequest if he wants and he will Upload all them and click on Submit	Should Display the Message as Bulkrequest Uploaded and Submitted	The Message Bulkrequest is Uploaded and Submitted is Displayed	PASS
TC17	In Dashboard checks the Status of the Request of the Individual Parts Requested	The User will check the Status of the Parts like: Approved, Pending, Rejected and search	Should Display the Message as checked Status of Approved, Pending, Rejected and Search	The Message Approved, Pending, Rejected or Search is Displayed	PASS

CHAPTER 8

CONCLUSION

“Cost Automation Tool” Web Application is developed to help the Users or the Requestors who are in the need of the Aircraft Parts as there are 8 Business Units and each Department or the Units will have different Parts. Cost Automation Tool now works as a User Friendly Website which becomes more popular in the Organization for placing the Requests by User and the Requests are for the Make and the Buy Parts of the Aircrafts as there are Eight Units in Collins Aerospace and Each Unit works on the different parts with their unique Functionalities and Operations. The Main aim of this Cost Automation Tool is to make the work easier for the Users or Requestors to place order or to raise the requests for the make and buy parts in which it will also be easier for the Admin and the Approver to know which are request that has to be Approved, Pending and Rejected. The requests will be usually rejected by both Admin and Approver but usually the Approver will only reject the Request. The request can also be rejected by the Admin if he or she feels that there is some issue in the Request. And the Request which is Rejected, Approved or in Pending the User or the Requestor can login through their LDAP Credentials and check in the Dashboard for all the Approved, Pending and Rejected Requests and again they can place their Request using New request button and also they can place many request using the Bulk request option and they can upload all the Parts they are looking for and click on the Submit this will place all the Bulk request in large. The reason why sometimes the Admin will reject the Request is the Details posted by the Requestor might be wrong and he might not have been seen the prices properly so the Admin checks the prices from the SAP Database and if the prices is wrong he might reject the Request and the Approver might also check once again all the Details posted and he will also Reject the Request. We can conclude finally that the Cost Automation Tool is very helpful for the Requestors to place the Request which is also a User Friendly Tool.

CHAPTER 9

FUTURE ENHANCEMENTS

These are some of the Future Enhancements:

Cost Automation Tool will be developed as more User-friendly where Users or Requestors can Login easily using LDAP Credentials or without the LDAP Credentials. The Details will be posted in the Dashboard for all the Parts as there are Eight Business Units in the Collins Aerospace. Each Business Units works on Different Parts and the Functionality and the Operation of the each part is Similar. With these it will be useful for the Requestors or Users to Choose or place the Parts which they are in need and the Process might also not take much time. The Prices of each Part might also be place right next to the Details or the Description of the Part so that this might also be easier as it would not go wrong anywhere and there might be less Possibility of Rejecting the Request by Approver or the Admin. And there might be some of the Image also added for some of the Parts which the User places the Request as placing the Images it might look more efficient and convenient to look and therefore these might also be carried out in the Future Process. The Dashboard might also include the Earlier History or the Orders or Request they have placed before this might help them by reducing the Time and once again if they need to place the Request no need to go to the New Request instead they can click on that Part which they wanted and Select them by Clicking on Submit.

APPENDIX A

BIBLIOGRAPHY

Reference Books:

- Learn to Code Hyper Text Markup Language and Cascading Style Sheet: Develop and Style Websites 1st Edition by Shay Howe.....
- Bootstrap: Responsive Web Development by Jake Spurlock.
- J Query in Action by Bear Bibeault.....
- JavaScript : The Good Parts by Douglas Crockford.....

Reference Websites:

- w3schools
- stack overflow
- tutorials point
- java t point

APPENDIX B

USER MANUAL

I. Request Details

- Should introduce pagination.
- Should introduce filtering mechanism.
- Comment Box to be included.
- “Part No” to be replace with “Part Number”.
- If there are Multiple Requests for the same parts it should be notified with the different color.

II. Approved, Pending or Rejected Details

- Should introduce pagination.
- Comment Box to be included.
- Should mention the date of when it is Approved, Pending or Rejected.
- Different colors to be added for the different status like different colors to be added for Approved, Pending and Rejected.

III. Part due for return

- Part which are already issued which are due for return should be displayed here.
- Option to contact the User.

IV. Comment Dashboard

- All the comments from user should be populated in this screen.
- Comments to be linked to the test request.

V. Single and Bulk Request

- Text area or the comment section to be added more rows.
- Details of how many bulk parts are requested before.
- How many times single and bulk request are requested.

VI. Fault for feedback

- Functionality not used correctly
- Should have the option to add the parts to breakdown list.

VII. Request and Part issue

- Option to reject the request after approval.
- Project name change in this screen should reflect in the test case.
- Auto populate the current date and it should be editable.
- Text boxes should be legible.
- Error messages should be informative.
- Option to move the part locations

VIII. Part Request Approval

- Typo Error- part request issue to be changed as Cost automation request approval
- Text boxes are not legible.
- Comment section is getting auto populated from remarks of the cost automation this has to be removed.
- Comments approved by the Approver should be included in the notification mail to the user.
- Comments should be added to the comment box popup.
- Error message should be informative.

IX. Part return acknowledge

- Auto populate the utilized hours and it should be editable.
- Separate textbox for actual utilized hours.
- Comment box to be mapped into the report and comment dashboard.
- Customers or users verification box to be renamed as user reference.
- Error messages should be more informative.

X. Outputs

- Complete history reports.
- Working as expected.

- Service loss time report.
- Functionality not in use.
- Should have a calendar option to select a particular date and get the job schedule till that date.
- Keyword total report
- Part list should have the option to download the list based on the part ownership and the asset ownership.