# Agricultural Heavy Machinery Renting/Sales Management System

# Software Requirements Specification

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# **Revision History**

| Name | Date | Reason For Changes | Version |
|------|------|--------------------|---------|
|      |      |                    |         |
|      |      |                    |         |

#### 1. Introduction

India ranks second worldwide in farm output. Agriculture and allied sectors amount for 13.7% of the GDP. Agricultural processes can be optimized by using machineries like tractors, harvesters, tillers etc. in an efficient manner. Renting these equipment's can be the best solution for low cost farming, which is widely prevalent in India. Agriculture heavy machineries sales and rental system aim to optimize the usage of the agricultural machinery by farmers and provides profit to the company or government by efficient management.

#### 2. Purpose

The purpose of this Software Requirements Specification (SRS) document is to describe the overall behavior of Agriculture Heavy Machinery Sales and Renting Management System. This SRS defines and describes the operations, performance, and quality assurance requirements of the Agriculture Heavy Machinery Sales and Renting Management System that is to be developed. This document also describes the nonfunctional requirements. It also describes the design constraints and technologies that are to be considered when the system is to be designed, and other factors necessary to provide a complete description of the requirements for the system. This Software Requirements Specification (SRS) captures the complete software requirements for the system. Requirements described in this document will be used as guidelines to develop the Agriculture Heavy Machinery Sales and Renting Management System.

## 3. Scope

Agricultural heavy machineries sales and renting management system aims to automate the following process:

- Availability of machineries at low rent rates throughout the year by predictions using previous transactions
- Discounts on machineries if purchased in large scale.
- Status tracking of rented machineries per day basis/ per week/ per month basis
- Universalization of commission rates
- Daily profit/loss tracking using transaction tables.
- Region wise availability and need for machineries report generation.
- Bonus for agents based on the number of customers he/she registers.

# 4. Definitions, Acronyms and Abbreviations

| Abbreviation | Designation   |
|--------------|---|
| AHMS or SMS  | Agriculture Heavy Machinery Sales and Renting Management System |
| SRS          | Software Requirements   |
|              | Specification   |

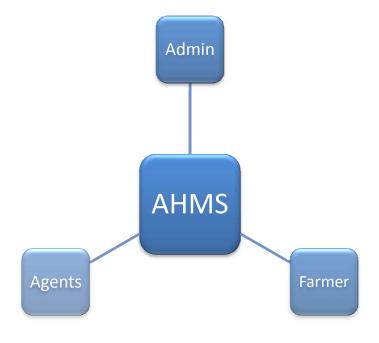
#### 5. References

Agriculture Machinery Records and User details

#### 6. Overall Description

#### **6.1 Product Perspective**

Agriculture Heavy Machinery Sales and Renting Management System will help the farmers get the machineries at low rent rates throughout the year and thereby help them from incurring loss by paying high rents for agricultural machineries from private local lenders.



Overview of the proposed system

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#### **6.2 Product Functions**

The following are the user requirements for the system

- 6.2.1The Farmer or agents who are in need for the machinery have to first register/signup by entering the following details
  - 6.2.1.1 Firstname
  - 6.2.1.2 Lastname
  - 6.2.1.3 Email id
  - 6.2.1.4 Contact details/number
  - 6.2.1.5 Username
  - 6.2.1.6 Password
  - 6.2.1.7 Confirm password
  - 6.2.1.8 Address
  - 6.2.1.9 Aadhar number
  - 6.2.1.10 Register as agent or farmer
  - 6.2.1.11 Agent Id (only for Agent)
  - 6.2.1.12 Agent Information/Details (only for agent)
  - 6.2.1.13Create Account
- 6.2.2 Buy machinery: The farmer can buy the machineries by entering the following details:
  - 6.2.2.1 Login to your Account
  - 6.2.2.2 Search for machines
  - 6.2.2.3 Select the machines from the available list
  - 6.2.2.4 Enter the number of machines needed
  - 6.2.2.5 Confirm Purchase
  - 6.2.2.6 Make Payment

#### 6.2.2.6 Logout from your account

- 6.2.3 Rental machinery: The farmer can rent the machineries by entering the following details:
  - 6.2.3.1 Login to your Account
  - 6.2.3.2 Search for machines
  - 6.2.3.3 Select the machines from the available list
  - 6.2.3.4 Enter the number of machines needed
  - 6.2.3.5 Select Date(From date and to date)
  - 6.2.3.6 Check Availability of machines for the selected date
  - 6.2.3.7 Confirm Booking
  - 6.2.3.8 Make Payment
  - 6.2.3.9 Logout from your account
- 6.2.4 Buy machinery(Agent): The Agent can buy the machineries by entering the following details:
  - 6.2.4.1 Login to your Account
  - 6.2.4.2 Search for machines
  - 6.2.4.3 Select the machines from the available list
  - 6.2.4.4 Enter the number of machines needed (Bulk Booking)
  - 6.2.4.5 Gets Commission for the purchase
  - 6.2.4.6 Gets Bonus for the purchase
  - 6.2.4.7 Confirm Purchase
  - 6.2.4.8 Make Payment
  - 6.2.4.9 Logout from your account
- 6.2.5 Rental machinery (Agent): The agent can rent the machineries by entering the following details:

| 6.2.5.1 Login to your Account  |
|--|
| 6.2.5.2 Search for machines  |
| 6.2.5.3 Select the machines from the available list  |
| 6.2.5.4 Enter the number of machines needed  |
| 6.2.5.5 Select Date(From date and to date)   |
| 6.2.5.6 Check Availability of machines for the selected date                                     |
| 6.2.5.7 Gets the commission for the purchase   |
| 6.2.5.8 Gets the bonus for the purchase  |
| 6.2.5.9 Confirm Booking  |
| 6.2.5.10 Make Payment  |
| 6.2.5.11 Logout from your account  |
|  |
| 6.2.6 The Admin can add the details of available machineries by entering the following           |
| 6.2.6.1 Machine name   |
| 6.2.6.2 Machine description  |
| 6.2.6.3 Machine Type   |
| 6.2.6.4 Cost of machinery  |
| 6.2.6.5 Available or not   |
| 6.2.6.6 Rent per day   |
| 6.2.6.6 Rent for a week  |
| 6.2.6.6 Click on Add machine button  |
|  |
|  |
| 6.2.7 The Admin can Edit /Update the details of available machineries by entering the following: |
| 6.2.7.1 Machine name   |
|  |

| 6.2.7.5 Available or not  |
|---|
| 6.2.7.6 Rent per day  |
| 6.2.7.6 Rent for a week   |
| 6.2.7.6 Click on Update machine button                              |
|   |
| 6.2.8 The Admin can delete the machineries as follows:              |
| 6.2.8.1 Click on the delete machine link                            |
| 6.2.8.2 Get the list of available machineries                       |
| 6.2.8.3 Delete machine by clicking Delete button                    |
|   |
| 6.2.9 The Admin view the booking status as follows:                 |
| 6.2.9.1 Click on the view booking status button                     |
| 6.2.9.2 Get the number of bookings for each available machineries   |
| 6.2.8.3 Click on Go back button                                     |
|   |
|   |
| 6.2.10 The Admin view the machine status as follows:                |
| 6.2.10.1 Click on the view machine status button                    |
| 6.2.10.2 Get the number of machines available for each machine type |
| 6.2.10.3 Click on Go back button                                    |
|   |
|   |

6.2.7.2 Machine description

6.2.7.3 Machine Type

6.2.7.4 Cost of machinery

6.2.10 The Existing users /famers can login by entering the following details 6.2.10.1 Username 6.2.10.2 Password 6.2.11 Email Confirmation 6.2.11.1 User gets an order confirmation through email when he confirm the purchase 6.2.12 Detailed invoice for customer 6.2.12.1 Display detailed invoice for current order once it is confirmed 6.2.12.2 Optionally allow user to print the invoice. 6.2.13 Allow multiple payment methods. 6.2.13.1 Display available payment methods for payment 6.2.13.2 Allow user to select the payment method for order 6.2.14 Make payment: The user can make payment the order made as follows: 6.2.14.1 Login to the account 6.2.14.2 Select a purchase item 6.2.14.3 Click on confirm purchase button 6.2.14.4 Proceed to make payment 6.2.14.5 Click on make payment button 6.2.14.6 The user enters the payment information 6.2.14.7 Payment has been done 6.2.14.8 Logout from account

#### 6.3 User characteristics

The Graphical User Interface and online help must be sufficient to educate the users on how to use the system without any problems. End users without any basic knowledge of computer systems will be able to adapt to the form based user interfaces offered by the system with sufficient documentation and end user training

#### 6.4 Constraints

- 6.4.1 Migration of all existing machinery details to the database
- 6.4.2 Integration of the farmer, agents and machinery management systems with the Agricultural heavy machinery management system for data synchronization

#### 6.5 Assumptions and dependencies

- 6.5.1 The user can only book the machines added by the admin or available in list.
- 6.5.2 A farmer can only buy a maximum of two machines
- 6.5.3 An agent can make bulk amount of machine booking
- 6.5.4 User and machine information should be in sync with the user and machine databases

## 7. External Interface Requirements

#### 7.1 User Interfaces

- 7.1.1 The system will provide graphical user interface for the users.
- 7.1.2 An admin can perform tasks such as add machinery, edit machinery, remove machinery, view booking status view machine status.
- 7.1.3 The system allows user to register to AHMS.
- 7.1.4 The system allows user to login to account and buy or rental machines.
- 7.1.5 The system should provide a uniform look and feel between all the web pages.
- 7.1.6 The system shall provide a digital image for each product in the product catalog.

#### 7.2 Hardware Interfaces

7.2.1 The application must run over the internet, all the hardware shall require to connect internet. Modem, WAN – LAN, Ethernet Cross-Cable..

#### 7.3 Software Interfaces

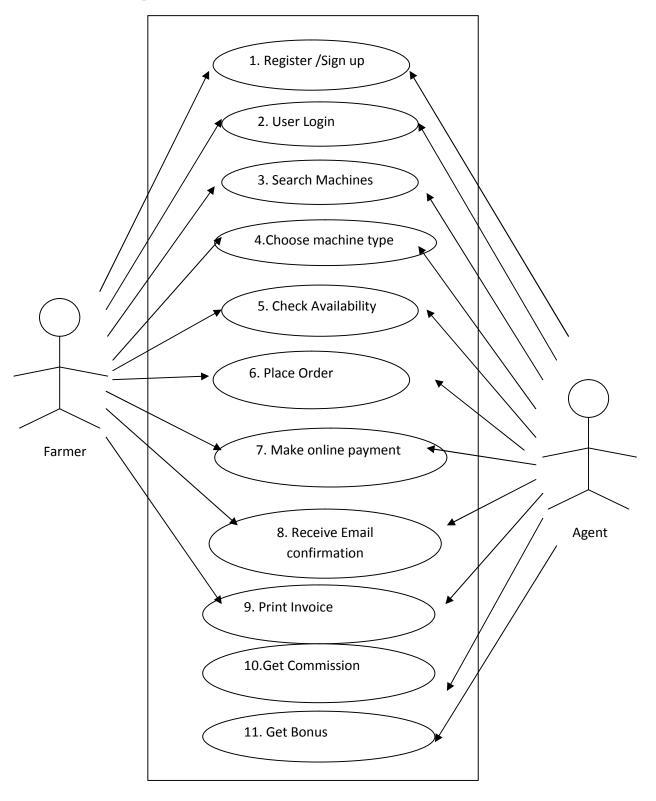
- 7.3.1 The system will have an interface with the details of farmers and agents and validation of data
- 7.3.2 The system will communicate with the content manager to get the product specifications.
- 7.3.3 The system shall communicate with billPayment system to identify available payment methods, validate the payments and process payment
- 7.3.4 The system shall communicate with Sales system for order management.

#### 7.4 Communications Interfaces

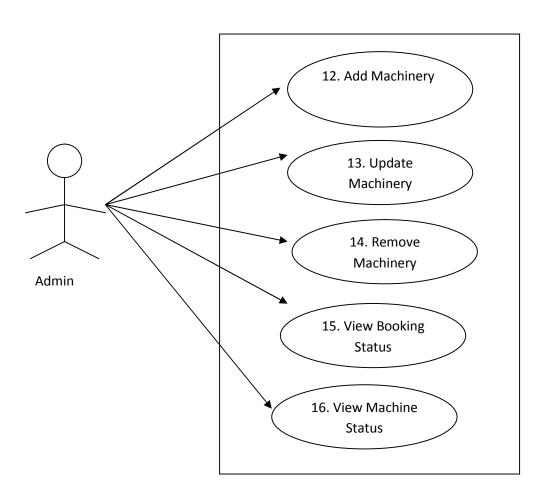
- 7.4.1 This project supports all types of web browsers. We are using simple electronic forms for the registration forms, booking.
- 7.4.2 The system will use the HTTP protocol for communication over the internet and for the intranet communication will be through TCP/IP protocol suite.

# 8. Functional Requirements

#### **8.1 Use Case Diagrams**



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# **8.2 Use Case Scenario Description**

| Use Case ID                  | 1   |
|------------------------------|---|
| Use Case name                | Register/Sign up  |
| Summary                      | A new user can register or create an account by entering the following details                              |
|                              | ➤ Firstname   |
|                              | Lastname  |
|                              | ➤ Email id  |
|                              | Contact number  |
|                              | Username  |
|                              | > Password  |
|                              | ➤ Confirm Password  |
|                              | Contact Address   |
|                              | Register as Agent or farmer   |
|                              | > Agent id  |
|                              | Agent Information   |
| Preconditions                | An unregistered customer  |
| Success End<br>Condition     | Registration Successful Confirmation Message is displayed to the user                                       |
| Failed End<br>Condition      | Please fill in the required fields Message to the User when any of the given fields is blanks or all zeroes |
| Primary,<br>Secondary Actors | Customer  |
| Trigger                      | This use case is initiated based on the request from the customer   |
| DESCRIPTION                  | Step   Action   |
|                              | 1 The End user clicks on the Registration button  |
|                              | The customer id is auto generated by the system and displayed to the end user                               |

|            | 3    | The end user enters the First Name, Last Name, Contact number, Email id, username password, Registration Number, address, in the text boxes |
|------------|------|---|
|            | 4    | The End user selects agent or farmer from a radio button  |
|            | 5    | The user if he's an agent enters agent id and agent information in text boxes   |
|            | 6    | The End User Clicks on the Submit Button  |
| EXTENSIONS | Step | Branching Action  |
|            | 1a   | The system updates the data into the database   |
|            | 1b   | The system validates the email Id entered by the user.  |

| Use Case ID                  | 2   |   |  |
|------------------------------|---|---|--|
| Use Case name                | User I  | _ogin   |  |
| Summary                      | •   | A customer needs to log-in before performing any transaction                      |  |
|                              | • ,   | A registered user can login using the username and password                       |  |
| Preconditions                | A regi  | stered customer   |  |
| Success End<br>Condition     |   | essfully logins to the system. The Customer has been authorised to m transactions |  |
| Failed End<br>Condition      | The information entered is not correct or Enter valid username or password message is displayed to the end user |   |  |
| Primary,<br>Secondary Actors | Custo   | mer   |  |
| Trigger                      | This u  | ise case is initiated based on the request from the customer                      |  |
| DESCRIPTION                  | Step  | Action  |  |
|                              | 1   | The Customer clicks the Log-in button on the Home Page.                           |  |
|                              | 2   | The system displays the Log-in Page.  |  |

|            | 3    | The Customer enters a valid username and password and clicks on the login button           |
|------------|------|--|
|            | 4    | The Customer clicks the OK button.   |
| EXTENSIONS | Step | Branching Action   |
|            | 1a   | The system validates the log-in information against the Customer table in the database.    |
|            | 1b   | Customer is an authorised user; the system displays the Personal Home Page to the Customer |

| Use Case ID                  | 3   |  |  |
|------------------------------|---|--|--|
| Use Case name                | Search machines   |  |  |
| Summary                      | ·   | The user can search for machines by entering a keyword on search field                               |  |
| Preconditions                | User I  | nave logged-in.  |  |
| Success End<br>Condition     | Displa  | ays all the search results that matches with the keyword   |  |
| Failed End<br>Condition      | Please fill in the search field with some keyword to search |  |  |
| Primary,<br>Secondary Actors | Custo   | mer  |  |
| Trigger                      | This u  | ise case is initiated based on the request from the customer   |  |
| DESCRIPTION                  | Step  | Action   |  |
|                              | 1   | The CUSTOMER enters the keyword for a machine and clicks the SEARCH button on the Personal Home Page |  |
|                              | 2   | The system displays the matching machines list on the web Page.                                      |  |
| EXTENSIONS                   | Step  | Branching Action   |  |
|                              | 1a  | The system searches the database for the matching results and displays it                            |  |

| Use Case ID                  | 4      |  |
|------------------------------|--------|--|
| <u>Use Case name</u>         | Choo   | se Machine Type  |
| Summary                      | • /    | A user can search the machines based on the machine type.  |
|                              | ∙E     | Eg: Tractor and power, Fertilizing & Pest Control etc.   |
| Preconditions                | The n  | nachine should be selected from the dropdown list.   |
| 1 1000 Hallions              | '''    | identific cricala se delected from the dropdown flot.  |
| Success End<br>Condition     | Displa | ays all the results that matches with the selected machine type                                  |
| Failed End<br>Condition      | l .    | e fill in the required fields Message to the User when any of the fields is blanks or all zeroes |
| Primary,<br>Secondary Actors | Custo  | mer  |
| Trigger                      | This u | use case is initiated based on the request from the customer                                     |
| DESCRIPTION                  | Step   | Action   |
|                              | 1      | The End user selects a machine type from the dropdown list of machines                           |
|                              | 2      | The system displays the matching machines list on the web Page.                                  |
|                              | 3      | The end user choose a machine from the list provided if the machine is in the list               |
| EXTENSIONS                   | Step   | Branching Action   |
|                              | 1a     | The system checks the machine database for the required data and displays the matching results   |

| Use Case ID                  | 5  |
|------------------------------|--|
| Use Case name                | Check Availability   |
| Summary                      | The user can check if the machines are available or not for a particular days for rental   |
| Preconditions                | Select a machine from the provided list for rental   |
| Success End<br>Condition     | The machine is available for the selected days for rental                                  |
| Failed End<br>Condition      | Message showing that the machine is not available for the selected dates or to change date |
| Primary,<br>Secondary Actors | Customer   |

| Trigger     | This use case is initiated based on the request from the customer |   |
|-------------|---|---|
| DESCRIPTION | Step  | Action  |
|             | 1   | The End user clicks on the Check availability button on the displayed list of machines by entering the days for which the machine is needed for rental. |
|             | 2   | Checks if the machine is available on the selected days   |
|             | 3   | If the machine is available the user can continue to place order  |
| EXTENSIONS  | Step  | Branching Action  |
|             | 1a  | The system checks the machinery database for the availability of machines   |

| Use Case ID                  | 6   |   |
|------------------------------|---|---|
| Use Case name                | Place   | Order   |
| Summary                      | •   | The customer chooses the desired machine from the list and enter the details such as number of machines needed and date for rental (only if for rental purpose) |
| Preconditions                | Machi   | ine should be available   |
| Success End<br>Condition     | The order is place and continue to make payment   |   |
| Failed End<br>Condition      | Please fill in the required fields Message to the User when any of the given fields is blanks or all zeroes |   |
| Primary,<br>Secondary Actors | Customer  |   |
| Trigger                      | This use case is initiated based on the request from the customer   |   |
| DESCRIPTION                  | Step  | Action  |
|                              | 1   | The End user clicks on the Place order button   |
|                              | 2   | The user enters the number of machines needed and the date for which the machine is needed  |
|                              | 3   | The user then continue for making online payment for the purchase or rental   |

|            | 4    | The End user then clicks on Make online payment button                              |
|------------|------|---|
| EXTENSIONS | Step | Branching Action  |
|            | 1a   | The system adds the booking details into the customers order table in the database. |

| Use Case ID                  | 7   |  |
|------------------------------|---|--|
| Use Case name                | Make  | online payment   |
| Summary                      | •   | The user can proceed to make payment and select any of the following payment methods:                  |
|                              |   | Debit/credit card  |
|                              |   | Net Banking  |
|                              |   | > Cash on delivery   |
| Preconditions                | The u   | ser should have placed an order.   |
| Success End<br>Condition     | Payment successful message to be displayed to the user            |  |
| Failed End<br>Condition      | Payment failed message to be displayed to the user                |  |
| Primary,<br>Secondary Actors | Customer  |  |
| Trigger                      | This use case is initiated based on the request from the customer |  |
| DESCRIPTION                  | Step  | Action   |
|                              | 1   | The End user clicks on the Make online payment button  |
|                              | 2   | The user selects any one of the payment option like netbanking,credit/debit card, cash on delivery     |
|                              | 3   | The webpage redirects to a payment gateway where he can do the payment and returns back to the webpage |
|                              | 4   | The payment has been successfully done   |
|                              | 5   | The End User Clicks on the Continue Button   |
| EXTENSIONS                   | Step  | Branching Action   |

| 1a | The system updates the data into the database |
|----|---|
|    |   |

| Use Case ID                  | 8   |  |
|------------------------------|---|--|
| Use Case name                | Recei   | ve email confirmation  |
| Summary                      | •   | The user will get a email confirmation of the purchase made by him with a detailed invoice |
| Preconditions                | A pur   | chase has to be done   |
| Success End<br>Condition     | An Er<br>user   | mail has sent to the registered email id message is displayed to the                       |
| Failed End<br>Condition      | Please check the registered email id message shown to user        |  |
| Primary,<br>Secondary Actors | Customer  |  |
| Trigger                      | This use case is initiated based on the request from the customer |  |
| DESCRIPTION                  | Step  | Action   |
|                              | 1   | The User gets an email confirmation when the payment is done                               |
|                              | 2   | The system automatically sends an email to the registered email id of the customer.        |
| EXTENSIONS                   | Step  | Branching Action   |
|                              | 1a  | The system gets the registered email id of the customer from the database                  |

| Use Case ID              | 9   |
|--------------------------|---|
| Use Case name            | Print Invoice   |
| Summary                  | The user can print the detailed invoice of the purchase made by him/her |
| Preconditions            | A purchase has to be done   |
| Success End<br>Condition | The detailed invoice is available to be printed to the user             |

| Failed End<br>Condition      | Error in printing the invoice please check the hardware requirements for printing |   |
|------------------------------|---|---|
| Primary,<br>Secondary Actors | Custo   | <u> </u>  |
| Trigger                      | This u  | ise case is initiated based on the request from the customer  |
| DESCRIPTION                  | Step  | Action  |
|                              | 1   | The End user clicks on the Print Invoice button   |
|                              | 2   | The detailed invoice of the purchase done is available to print   |
|                              | 3   | The user prints a detailed invoice of the purchase done   |
|                              | 4   | The End User Clicks on the Ok Button  |
| EXTENSIONS                   | Step  | Branching Action  |
|                              | 1a  | The system retrieves all the data on the purchase made by the user from the order table of the database |

| Use Case ID                  | 10  |  |  |
|------------------------------|---|--|--|
| <u>Use Case name</u>         | Gets  | Gets commission  |  |
| Summary                      | •   | The agent can get the commission for every booking made  |  |
| Preconditions                | A regi  | stered agent with minimum number of bookings             |  |
| Success End<br>Condition     | Commission got for each booking is displayed to the agent                             |  |  |
| Failed End<br>Condition      | Conditions for getting commission is not achieved message to be displayed to the user |  |  |
| Primary,<br>Secondary Actors | Agent   |  |  |
| Trigger                      | This use case is initiated based on the request from the agent                        |  |  |
| DESCRIPTION                  | Step  | Action   |  |
|                              | 1   | The End user clicks on the get commission button         |  |
|                              | 2   | The system checks on the number of purchase made         |  |
|                              | 3   | The agent gets a commission of 1000 rs for each purchase |  |

|            | 4        | The system calculates the commission amount to be given for the total purchase made   |
|------------|----------|---|
|            | 5        | The commission amount is displayed to the agent   |
|            | 6        | The End User Clicks on the ok Button  |
| EXTENSIONS | Step     | Branching Action  |
|            | 1a<br>1b | The system updates the data into the database  The system updates payment amount after deducting the commission to the database |

| Use Case ID                  | 11   |  |
|------------------------------|--|--|
| Use Case name                | Gets   | Bonus  |
| Summary                      | •  | The agent can get the Bonus for every booking made                             |
| Preconditions                | A regi   | istered agent with minimum number of bookings                                  |
| Success End<br>Condition     | Bonus  | s got for each booking is displayed to the agent                               |
| Failed End<br>Condition      | Condi<br>the us  | itions for getting bonus is not achieved message to be displayed to ser        |
| Primary,<br>Secondary Actors | Agent  |  |
| Trigger                      | This use case is initiated based on the request from the agent |  |
| DESCRIPTION                  | Step   | Action   |
|                              | 1  | The End user clicks on the get Bonus button                                    |
|                              | 2  | The system checks on the number of purchase made                               |
|                              | 3  | The agent gets a bonus of 10000rs for 100 bookings                             |
|                              | 4  | The system calculates the bonus amount to be given for the total purchase made |
|                              | 5  | The bonus amount is displayed to the agent                                     |
|                              | 6  | The End User Clicks on the ok Button   |
| EXTENSIONS                   | Step   | Branching Action   |
|                              | 1a   | The system updates the data into the database                                  |
|                              | 1b   | The system updates payment amount after deducting the bonus to the database    |

| Use Case ID                  | 12  |  |
|------------------------------|---|--|
| <u>Use Case name</u>         | Add Machinery   |  |
| Summary                      | <ul> <li>An Admin can add new machines to the database by entering the following details:</li> <li>Machine name</li> <li>Machine Image</li> <li>Machine Info</li> <li>Cost</li> </ul> |  |
| Preconditions                | A User logged in as admin   |  |
| Success End<br>Condition     | Machine added successfully Message is displayed to the admin  |  |
| Failed End<br>Condition      | Please fill in the required fields Message to the User when any of the given fields is blanks or all zeroes   |  |
| Primary,<br>Secondary Actors | Admin   |  |
| Trigger                      | This use case is initiated based on the request from the admin  |  |
| DESCRIPTION                  | Step Action   |  |
|                              | The End user clicks on the Add Machinery button   |  |

**EXTENSIONS** 

| Use Case ID                  | 13   |  |  |
|------------------------------|--|--|--|
| Use Case name                |  | te Machinery   |  |
| Summary                      | An Admin can edit or update the details of the added machines the database by editing the following details: |  |  |
|                              |  | Machine name   |  |
|                              |  | Machine Image  |  |
|                              |  | Machine Info   |  |
|                              |  | > Cost   |  |
| Preconditions                | A Use  | er logged in as admin  |  |
| Success End<br>Condition     | Machi  | ine updated successfully Message is displayed to the admin                                     |  |
| Failed End<br>Condition      | Please fill in the required fields Message to the User when any of the given fields is blanks or all zeroes  |  |  |
| Primary,<br>Secondary Actors | Admin  |  |  |
| Trigger                      | This use case is initiated based on the request from the admin   |  |  |
| DESCRIPTION                  | Step   | Action   |  |
|                              | 1  | The End user clicks on the Update Machinery button   |  |
|                              | 2  | The machine details is automatically displayed to the textboxes which has to be edited         |  |
|                              | 3  | The end user edits the Machine name or Machine Image or Machine Info or Cost in the text boxes |  |
|                              | 4  | The End User Clicks on the Update Button   |  |
| EXTENSIONS                   | Step   | Branching Action   |  |
|                              | 1a   | The system updates the data into the database using the machine id                             |  |

| Use Case ID              | 14   |
|--------------------------|--|
| Use Case name            | Remove machinery   |
| Summary                  | The admin can delete the machines from the list of machines available which are not in use |
| Preconditions            | A User logged in as admin  |
| Success End<br>Condition | Machine deleted successfully Message is displayed to the admin                             |

| Failed End<br>Condition      | Please fill in the required fields Message to the User when any of the given fields is blanks or all zeroes |   |  |  |
|------------------------------|---|---|--|--|
| Primary,<br>Secondary Actors | Admin   |   |  |  |
| Trigger                      | This use case is initiated based on the request from the admin  |   |  |  |
| DESCRIPTION                  | Step  | Step Action   |  |  |
|                              | 1   | The End user clicks on the Remove Machinery button        |  |  |
|                              | 2   | The webpage displayes the list of available machines      |  |  |
|                              | 3   | The admin selects the machine to be deleted from the list |  |  |
|                              | 4   | The End User Clicks on the Delete Button                  |  |  |
| EXTENSIONS                   | Step  | Branching Action  |  |  |
|                              | 1a  | The system removes the machine from the database          |  |  |

| Use Case ID                  | 15   |  |  |  |
|------------------------------|--|--|--|--|
| <u>Use Case name</u>         | View Booking Status  |  |  |  |
| Summary                      | An Admin can view the booking status of the machineries        |  |  |  |
|                              | The total number of bookings on each machines                  |  |  |  |
|                              | •⊺   | The number of bookings done in last day/week/month                                   |  |  |
| Preconditions                | A Use  | er logged in as admin  |  |  |
| Success End<br>Condition     | The booking Status of machines displayed to the admin          |  |  |  |
| Failed End<br>Condition      | Error message no data displayed to admin                       |  |  |  |
| Primary,<br>Secondary Actors | Admin  |  |  |  |
| Trigger                      | This use case is initiated based on the request from the admin |  |  |  |
| DESCRIPTION                  | Step   | Action   |  |  |
|                              | 1  | The End user clicks on the View Booking Status button                                |  |  |
|                              | 2  | The webpage displays the total number of the bookings made on each machines          |  |  |
|                              | 3  | The webpage displays the number of bookings in last week/day/month for each machines |  |  |

|            | 4    | The End User Clicks on the Go Back Button                            |
|------------|------|--|
| EXTENSIONS | Step | Branching Action   |
|            | 1a   | The system retrieves the data from the order table from the database |

| Use Case ID      | 16   |  |  |
|------------------|--|--|--|
| Use Case name    | View Machine Status  |  |  |
| Summary          | An Admin can view the machine status of each machineries           |  |  |
| ,                | •The list of machines booked                                       |  |  |
|                  | The number of machines available  The number of machines available |  |  |
|                  |  | The Hamber of Machines available                                     |  |
| Preconditions    | A User logged in as admin  |  |  |
|                  | , , coo, rogget in do damin.                                       |  |  |
| Success End      | The Machine Status of machines displayed to the admin              |  |  |
| Condition        | , ,  |  |  |
| Failed End       | Error message no data displayed to admin                           |  |  |
| Condition        |  |  |  |
| Primary,         | Admin  |  |  |
| Secondary Actors | This was soon in initiated based on the various frame the advair   |  |  |
| Trigger          | This use case is initiated based on the request from the admin     |  |  |
| DESCRIPTION      | Step   | Action   |  |
|                  | 1  | The End user clicks on the View Machine Status button                |  |
|                  | 2  | The webpage displays the status of each machines                     |  |
|                  | 3  | The webpage displays number of machines available on each type       |  |
|                  | 4  | The End User Clicks on the Go Back Button                            |  |
| EXTENSIONS       | Step   | Branching Action   |  |
|                  | 1a   | The system retrieves the data from the order table from the database |  |

# **9. Non Functional Requirements**

This section describes in detail all the non-functional requirements

#### 9.1 Usability

- 9.1.1 The system shall allow the users to access the system from the Internet.
- 9.1.2 online help will be available for the system
- 9.1.3 The end users will be able to adapt to the system with a minimum training of 40 hours
- 9.1.4 Key board short cuts will be available for all functions of the system
- 9.1.5 The administrator only has rights to add users to the AHMS system

#### 9.2 Security

#### 9.2.1 Login requirements -

- 9.2.1.1 The users are given access to the system once they have registered with the AHMS.
- 9.2.1.2 The users can login with the registered username and password

#### **9.2.2** Password requirements

- 9.2.2.1 Passwords must have a minimum length of 8 characters
- 9.2.2.2 Passwords must meet at least 3 out of the 4 requirements for quality:
  - o at least 1 lower case letter
  - o at least 1 upper case letter
  - o at least 1 number
  - At least 1 special character (?, \*, %)
- 9.2.2.3 Password should not contain the user's first name, middle name, last name, or username.
- 9.2.2.4 Passwords on sensitive IT systems must be changed, at a minimum, every 90 days.

#### 9.2.3 **Inactivity timeouts**

9.2.3.1 System should timeout when there is no activity for five minutes.

#### 9.3 Performance

#### 9.3.1 Response time

9.3.1.1 The response time will be less than 8 seconds for 95% requests made to the system

#### 9.4 Capacity

#### 9.4.1 Storage

9.4.1.1 Hard disk space –

450 GB – Content

#### 50 GB - Transaction Logs

#### 9.5 Recovery

#### 9.5.1 Recovery time scales

9.5.1.1 The system will be recovered within four hours from the down time

#### 9.5.2 Backup Frequencies

- 9.5.2.1 A full back up of AHMS data will be done on tapes on the last day of every month
- 9.5.2.2 The backup is scheduled to run automatically at 10 pm on the scheduled date
- 9.5.2.3 The backup tapes when removed from the server are stored securely in a locked fire-proof media safe at administrator's office

#### 9.6 Availability

#### 9.6.1 Hours of operation

9.6.1.1 The system will be available on all days 24\*7

#### 9.7 Reliability

#### 9.7.1 Mean Time between Failures

9.7.1.1 The mean time between failures for the system will be 1000 hours

#### 9.8 Maintainability

#### 9.8.1 Mean Time to Recovery

9.8.1.1 The Mean Time To Recovery (MTTR) shall not exceed one person day.

#### 9.9 Portability

9.9.1 The system will run on windows 95/98/2000/NT/XP/Vista/Windows7/Windows8/Windows10

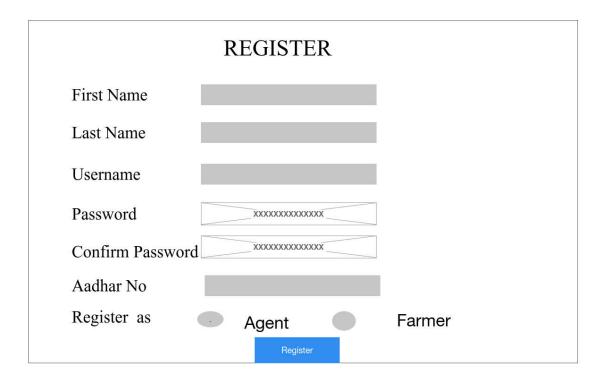
#### 9.10 Privacy

- 9.11 The system shall not leave any cookies on the customer's computer containing the user's password or confidential information
- 9.12 The customer's web browser shall never display a customer's password. It shall always be echoed with special characters representing typed characters.

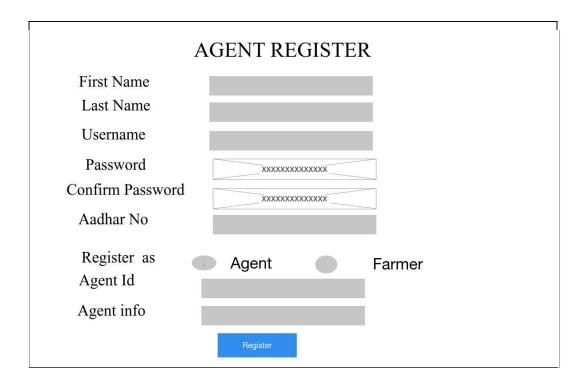
- 9.13 The system's back-end servers shall never display a customer's password
- 9.14 The system's back-end servers shall only be accessible to authenticated administrators.

# 10. Prototyping

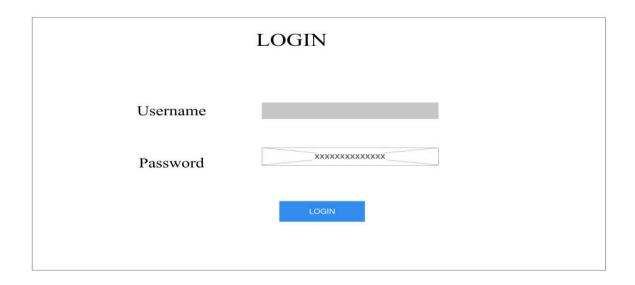
10.1 User Registration Form



#### 10.2 Agent Registration Form

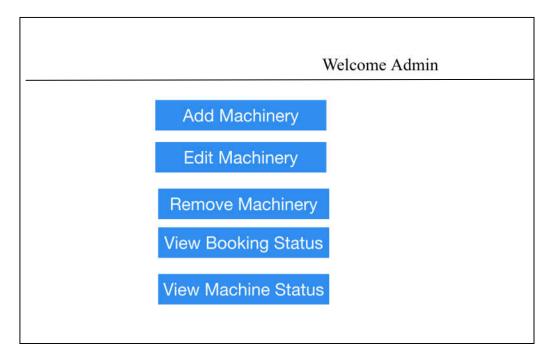


#### 10.3 User Login Form

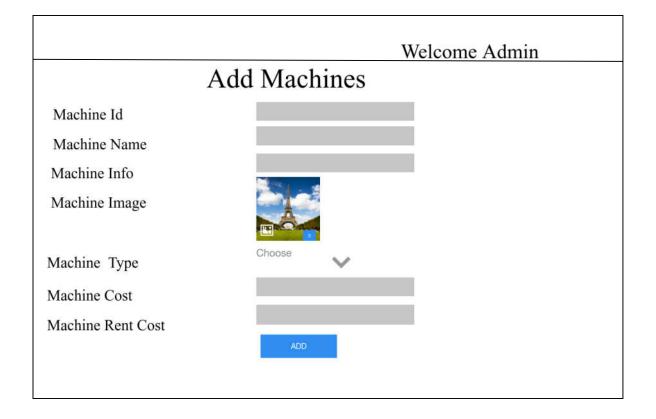


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#### 10.4 Admin Page

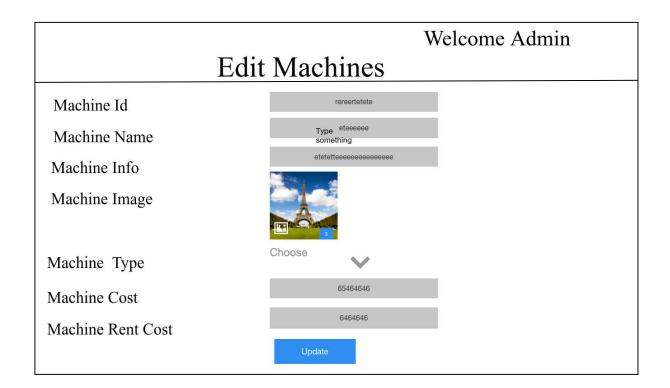


10.5 Add Machinery Page



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#### 10.6 Edit Machinery Page



#### 10.7 Remove Machinery Page

# Welcome Admin Remove Machines Machine Id Machine Name Machine Cost Action USD1234 Tractor #34567 INR X Remove

#### 10.8 View Booking Status

# Welcome Admin View Booking Status

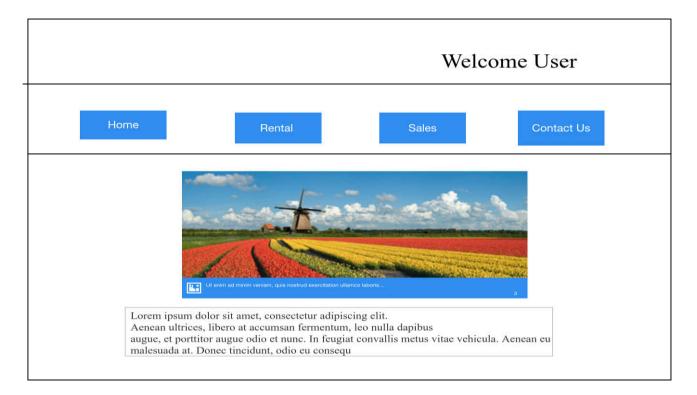
| Machine Id | Machine Name | Machine Cost | Total Bookings |
|------------|--------------|--------------|----------------|
| USD1234    | Tractor      | #34567 INR   | !12345         |
|            |              |              |                |
|            |              |              |                |
|            | GO BAC       | EK .         | ,              |

#### 10.9 View Machine Status

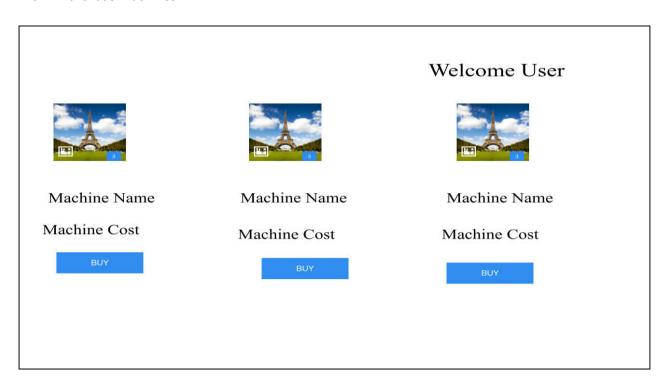
# Welcome Admin View Machine Status

| Machine Name | Machine Cost | Machines available |
|--------------|--------------|--------------------|
| Tractor      | #34567 INR   | 1234               |
|              | Tractor      | Tractor #34567 INR |

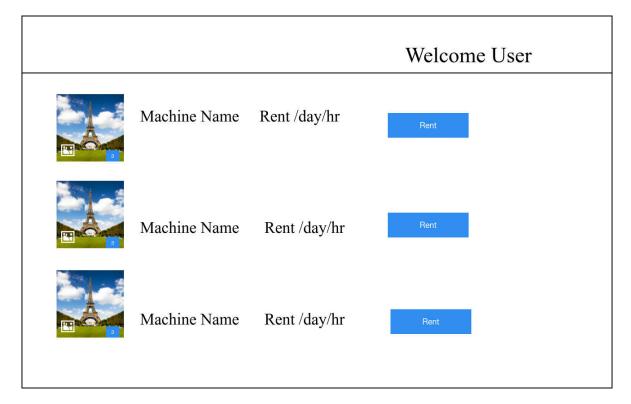
#### 10.10 Home page



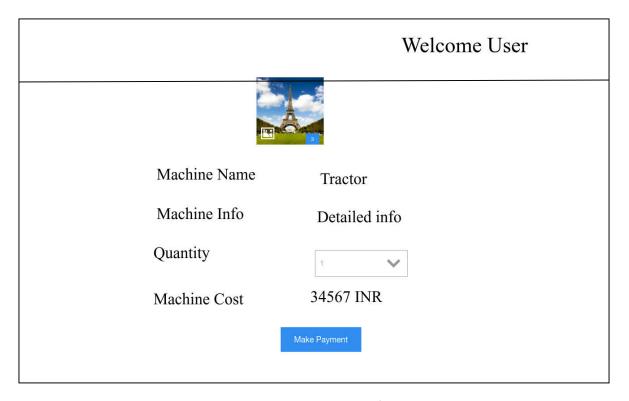
#### 10.11 Purchase Machines



#### 10.12 Rental Machines

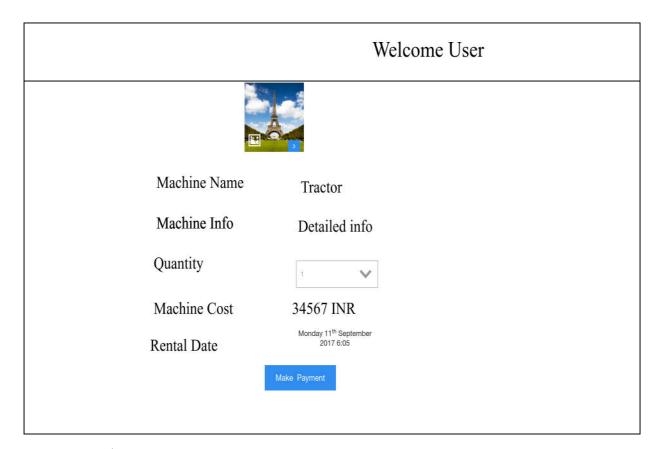


#### 10.13 Make payment -Purchase

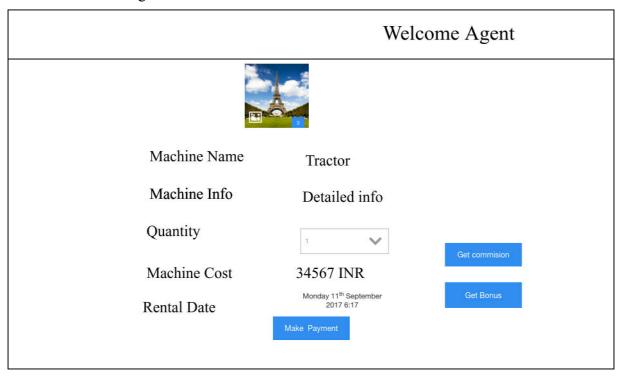


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# 10.14 Make payment Rental

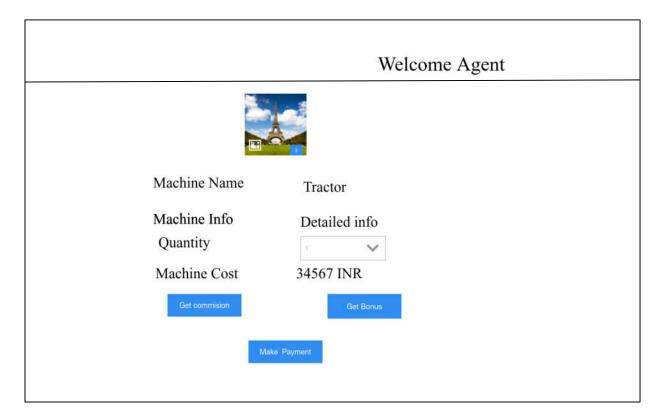


# 10.15 Purchase Agent

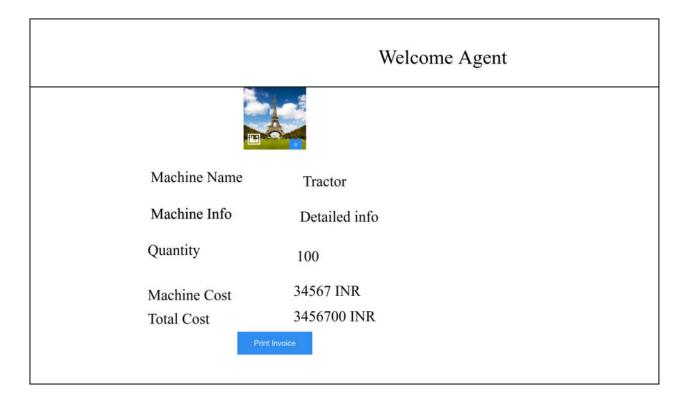


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# 10.16 Rental Agent



#### 10.17 Print Invoice



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