**Nirma Vending Assistance And Sublet**

**(NIRVAAS)**

**Course Code - 2CS504 Software Engineering**

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5. **Purpose**
   1. **Problem Statement**

Building a platform to ease the trading process of books and stationeries between junior and senior year students within the campus, along with an interface to facilitate an online stationery system.

* 1. **Scope**
* The purpose of this software is to automate trade management in a stationery shop. It also aims to create a user-friendly platform for the students to buy/sell books as well as stationery goods.
* To facilitate safe and secure usage of Application via verification of Nirma-ID.
  1. **Objectives**

To automate the functionalities of a stationery shop and provide a platform for intra campus sales of books and stationery items, by offering modules, like, bidding, renting, putting out an item on sale, along with an online payment gateway for safer and sure payments.

This platform will also provide a chat box for ease of communication, a notification centre to not miss out on any updates related to their account, and a search bar to easily search for any item.

Uploading a post for an item to be put on sale, is also a provision provided by this platform, where the user can upload details and photos related to the item they wish to put on sale.

1. **Overall Description**
   1. **Product Perspective**

The software will provide functionalities to buy stationaries from store, to deal easily with seniors for handed down books, and to place orders well in advance, within the university itself. It provides customised requirements for buyer and seller.

* 1. **Product Functionality/Features**

The system will have user such as:

* Students
* Stationery Staff
* System Administrator

Major Functionality Includes:

* Online payment
* Automatic stock alert when stock goes below threshold value.
* Invoice generation
* Bidding for handed down books
* Displays order history for user
* Sellers can make posts for stationery items.
* Gives Notification
  + To buyer; for returning stationery before the due date, and if the seller is ready to sell at a bid given by buyer
  + To seller; if a buyer enters into a bid
  1. **Constraints**
* Users must register with Nirma University mail-id.
* The software will be supported by following web browsers and Operating systems.

Web Browsers:

* Mozilla Firefox
* Internet Explorer
* Google Chrome

Operating System:

* Windows
* macOS
* Linux
  1. **Assumptions and Dependencies**

The proposed system needs an internet connection on the client side. It needs the following third-party products on the server side:

* + - Python Django
    - Python 3.5 or higher version

1. **Requirements**

The system administrator will have permission to modify and view all of the functionalities including registration and login operations**.**

* 1. **Functional Requirements**
     1. **Students’ Requirements**
        1. Create a New Account

|  |  |
| --- | --- |
| **Functional**  **Requirement**  **ID** | **FRS1** |
| **Requirement**  **Title** | Registration operation for students |
| **Requirement**  **Description** | * Users must register using their Nirma email id, WhatsApp number and they will be required to create a password. * The password length must have a minimum6 characters with at least 1 symbolic character and 1 digit. * The user must then click on the “register” button to successfully complete registration. * A user cannot use an existing account’s mail id or WhatsApp number to register. |
| **Business**  **Rationale** | Allows users to buy and rent products and provide personalisation features. |
| **Exception**  **Scenarios** | If entered email ID or WhatsApp number are found in the existing database, the user will not be allowed to register, and he/she must enter a different email ID or WhatsApp number, whichever is relevant. |

* + - 1. Login

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| --- | --- |
| **Functional**  **Requirement**  **ID** | **FRS2** |
| **Requirement** | Login operation for students |
| **Requirement**  **Description** | * Registered user enters registered mail ID and password. * User clicks on the “Login” button. * System will authenticate and create a valid user session upon successful authentication and redirect to the main page of the web application. |
| **Business**  **Rationale** | Allows users to buy and rent products and provide personalisation features. |
| **Exception**  **Scenarios** | * If authentication fails, the user will get an error message and must re-enter password, for maximum 3 tries, after which an email will be sent for a wrongful login session. * If a student forgets the password, he must click on “forgot password?” to receive a link in the registered mail to reset the password. |

* + - 1. Payment Services

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| --- | --- |
| **Functional**  **Requirement**  **ID** | **FRS3** |
| **Requirement**  **Title** | Transaction Handling |
| **Requirement**  **Description** | * The user must make payments using Paytm, Google Pay or with cash. * After successful Payment, an invoice will be generated which will be available in pdf format, for download. * In case of cash payment, the invoice will have a stamp indicating payment pending. |
| **Business**  **Rationale** | Allows users to buy and rent products |
| **Exception**  **Scenarios** | If authentication fails, the user will be required to try and pay again. |

* + - 1. Bidding with Students

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| **Functional**  **Requirement**  **ID** | **FRS4** |
| **Requirement**  **Title** | Bidder System for Students |
| **Requirement**  **Description** | * The user can view previous bids on a specific item. * In order to participate, users need to bid higher than the current highest. * The user automatically gets added to the group chat. * If the seller wants to remove any bidder then, the seller can remove any bidder from participating. * If a user’s bid is exceeded then he/she will get the choice to either bid higher or exit the bid within 24 hours. * The seller must lock within 7 days of the last bid else it will get locked automatically. |
| **Business**  **Rationale** | Allows users to place a bid and view others’ bid. |

* + - 1. Renting

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| --- | --- |
| **Functional**  **Requirement**  **ID** | **FRS5** |
| **Requirement**  **Title** | Rental Handling |
| **Requirement**  **Description** | * The user can view the items that are given on rent. * All information like price, duration, description and fine (if lost) will be mentioned. * The user must click on “Apply for Rent” to rent it. * Students are allowed to rent an item for as long as 3 months, with charges varying by the type of the book. * After the completion of the 3 months limit, he/she must pay extra charges in order to continue renting the item. * A renter must collect the item within 2 days of placing a request for rent, otherwise the book gets passed on to the next interested renter. |
| **Business**  **Rationale** | Allows users to rent and view products available for rental activities. |
| **Exception**  **Scenarios** | If the item is not currently available for renting, the user can apply for hold. |

* + - 1. Chat Box

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| **Functional**  **Requirement**  **ID** | **FRS6** |
| **Requirement**  **Title** | Chat Box System |
| **Requirement**  **Description** | * The user, placing a bid on an item, gets included in the group chat automatically. * The user can place a query in the chat to know more about the item. * The seller can remove any bidder in case of any nuisance created on their part. |
| **Business**  **Rationale** | Allows users to communicate with the seller and ask about the particular item available for selling. |
| **Exception**  **Scenarios** | If the bidder is outbid by another user and he/she does not increase his/her bid, the user will be removed from the group chat automatically. |

* + - 1. Notification

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| **Functional**  **Requirement** | **FRS7** |
| **Requirement**  **Title** | Notification Service |
| **Requirement**  **Description** | * Notifications will be sent when a student buyer has the highest bid and eventually gets the item. * Notifications will be sent to the previous highest bidder when a new bid is placed to either increase his/her bid or exit. * Notifications will be sent to the student seller when a new bid is placed on his/her item. * Notifications will be sent 7 days prior to the last date of returning a rented item. |
| **Business**  **Rationale** | Notifies users about activities being done from their respective accounts. |

* + - 1. History of Orders

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| **Functional**  **Requirement**  **ID** | **FRS8** |
| **Requirement**  **Title** | Order History |
| **Requirement**  **Description** | * The user can view the entire order history. * He/she can also view details of a particular order. |
| **Business**  **Rationale** | Allows users to view order history based on various filters. |
| **Exception**  **Scenarios** | * If the user has no order history then related message will be displayed. |

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* + - 1. Search Box

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| **Functional**  **Requirement**  **ID** | **FRS9** |
| **Requirement**  **Title** | Search bar |
| **Requirement**  **Description** | System will display relevant search results for given data entered in the search box. |
| **Business**  **Rationale** | Allows users to find items easily. |
| **Exception**  **Scenarios** | If the item searched for doesn’t exist in the database, an error message will be displayed. |

* + - 1. Posts Management

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| **Functional** | **FRS10** |
| **Requirement**  **Title** | Posts Management |
| **Requirement**  **Description** | * The user can create a post to put an item on sale. * The user is required to post an authentic photo along with a certain description and expected price. * A group chat is created with the seller as the admin with rights to remove any potential buyer. |
| **Business**  **Rationale** | Allows users to place items on sale and choose among potential buyers. |
| **Exception**  **Scenarios** | If the item is sold, the post and group chat will be deleted. |

* + 1. **Stationery Staff’s Requirements** 
       1. Create a New Account

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| --- | --- |
| **Functional**  **Requirement**  **ID** | **FRE1** |
| **Requirement**  **Title** | Registration operation |
| **Requirement**  **Description** | * Users must register using a valid email id and they will be required to create a password. * The password length must have a minimum6 characters with at least 1 symbolic character and 1 digit. * The user must then click on the “register” button to successfully complete registration. * A user must not use an existing account’s mail id to register. |
| **Business**  **Rationale** | Allows users to edit and view product data. |
| **Exception**  **Scenarios** | If entered email ID is found in the existing database, the user will not be allowed to register, and he/she must enter a different email ID. |

* + - 1. Login

|  |  |
| --- | --- |
| **Functional**  **Requirement**  **ID** | **FRE2** |
| **Requirement**  **Title** | Login operation for Stationery Staff |
| **Requirement**  **Description** | * Registered employee enters registered email ID and password. * User clicks on the “Login” button. * System will authenticate and create a valid user session upon successful authentication and redirect to the main page of the web application. |
| **Business**  **Rationale** | Allows users to edit and view product data. |
| **Exception**  **Scenarios** | * If authentication fails, the user will get an error message and must re-enter password, for maximum 3 tries, after which an email will be sent for a wrongful login session. * If the user forgets the password, he/she must click on “forgot password?” to receive a link in the registered mail to reset the password. |

* + - 1. Stock Checker

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| **Functional**  **Requirement**  **ID** | **FRE3** |
| **Requirement**  **Title** | Stock Checker |
| **Requirement**  **Description** | * The minimum threshold for a product quantity must be set by a user. * If the product’s quantity goes below the threshold, a notification is sent to all the users. |
| **Business**  **Rationale** | Allows users to keep a check on the stock of all products. |

* + - 1. History of Orders

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| --- | --- |
| **Functional**  **Requirement**  **ID** | **FRE4** |
| **Requirement**  **Title** | Order History |
| **Requirement**  **Description** | * The user can view the order history related to a particular product. * He/she can also view details of a particular order. |
| **Business**  **Rationale** | Allows users to view order history based on various filters. |

**3.2 Non-Functional Requirements**

3.2.1 Security and Privacy Requirements

3.2.1.1 Authentication

* The security will be based on a password for each user.
* The user will get blocked from logging in after 3 consecutive failed attempts.
* Only authenticated users will be allowed to place orders, monitor their orders, make payment online etc.
* A ‘forgot password’ option will be available if the user forgets the password and the recovery link of the password will be sent to the user’s registered email.

### 3.2.1.2 Authorization

* Security needs to be checked on the applicable pages to prevent URL manipulations.

### 3.2.1.3 Privacy

* After 15 minutes of no activity on the platform, the session will be ended automatically.
* The orders placed by a particular user can only be seen by the user and the seller.
* The details of another user will not be shared without permission and modules like order history are visible to the user itself.

3.2.1.4 Payment Gateway

* For online payment, OTP for a particular transaction will expire after 3 minutes.

3.2.1.5 Reliability

• The consistency of data base will be maintained during online transaction.

• The system will be available for all the time.

1. **Modules**

* **Registration**

The staff of the stationery, as well as students, must register in order to access all functionalities. The students must register with Nirma Roll number, Nirma mail Id, WhatsApp number (for ease of communication), and a strong password (minimum 6 characters with at least 1 symbolic character and 1 digit). The staff can register with their mail Id, and chosen user Id, and a strong password (minimum 6 characters with at least 1 symbolic character and 1 digit).

* **Login**

The intended member must login with valid credentials. Student must login with their Nirma Roll number and the set password. A staff member must login with their user Id and the set password.

* **Payment**

Payment must be done through Paytm, by cash or google pay to the seller of handed down item, or to the stationery. The receipt of which can be downloaded in pdf format.

* **Notifications**

Notifications will be provided when a new item is available to sell, when a new bid is placed on an item the user has put to sell, when the seller is ready to sell his item to the user (for the highest bid) and when the due date is nearing for the item to be returned that has been rented.

* **Chat Box**

An interested buyer will be added to the group chat for discussion of the item, with the option given to the seller to remove any bidder at any time. The chat history will be visible to new members of the chat, and the chat will be locked after the item has been sold.

* **Search Box**

The user can search for a particular item in the search bar, and the results for it would be displayed. In case of the item not being available, an appropriate message will be displayed.

* **History of Orders**

The personal order history will be available for the users, and complete order history will be available for the stationery staff.

* **Renting**

Students can rent an item for as long as 3 months, with charges varying by the genre of the book. After the completion of the 3 months limit, he/she must pay extra charges in order to continue renting the item. A renter has to collect the item within 2 days of placing a request for rent, else the book gets passed on to the next interested renter.

* **Bidding**

The minimum bid will be set by the seller, and an interested buyer can place a bid, which must be more than the current bidding value.

* **Posts Management**

The seller must create a post with pictures and description and a personal message (if any), which will be put on the main page of the website.

* **Invoice Generation**

After an order is placed, an invoice is generated which must be downloaded in pdf format, containing details about the order and the mode of payment. If the buyer has opted for cash payment, the invoice would say payment pending, and if the payment is made online, the invoice will say paid online

* **Order**

An order can be placed for an item, which can be further collected from the stationery after decking on the payment method (cash in hand or online payment).

When a handed down item is bought from a senior student, the buyer and seller must contact and exchange the item at their own convenience

* **Stock Checker**

The admin/staff can view, add and remove items. The staff also has an option of turning the alert system on or off, which alerts when the stock of the item goes below a set limit, which can be altered by the staff as well.