

# Sri Lanka Institute of Information Technology



Project Proposal Report  
Information Technology Project  
(IT2080)

## Awarna Art Gallery Management System

	<b>Name with Initials (Surname first)</b>	<b>Registration Number</b>	<b>Email</b>
1.	Jayalath J R D S	IT22222640	IT22222640@my.sliit.lk
2.	Jayasekara K A H N	IT22084354	IT22084354@my.sliit.lk
3.	Kulasekara D K M	IT22108722	IT22108722@my.sliit.lk
4.	Dulsara N A N S	IT22055880	IT22055880@my.sliit.lk
5.	Jayasuriya A L P	IT22076434	IT22076434@my.sliit.lk
6.	Soyza W W K	IT22060594	IT22060594@my.sliit.lk
7.	Kashmira S S	IT22059772	IT22059772@my.sliit.lk
8.	Subasinghe S G M B	IT22276032	IT22276032@mu.sliit.lk

## 1. Background

Influencing a creative mosaic of imagination, Awarna is launching its gallery in 2024, with its established reputation in the art world for championing creativity and culture.

Whilst attempting to reach a larger audience and engage in more online outreach, Awarna Art Gallery is going the extra mile through its Audacious Project of creating an all-encompassing platform Online. Their goal being to change the way art is enjoyed, owned and collected digitally which would give everyone in any part of the world a new form of it!

Registered users will get access to a bunch of features depending on their needs inside the Platform. Showcase and sell artworks or put them on auction for buyers from anywhere. There are plenty of people out there that try to sell art and other types of equipment on the one hand, some unique others not so much. Buyers can explore online marketplace has made it easy for such type of work as you get many things to buy at a single place with a big basket having enough variants available. You can place your bid with a live auction, get a thrill of unique and exclusive artworks right from the convenience of home. In addition to this, there will be memberships that can offer users special discounts and deals - further developing a base of active return community members. The goal is to merge the physical and digital art worlds seamlessly.

Utilizing state of the art technology, the Awarna Art Gallery Online Platform will integrate buying/selling and auctioning operations thereby creating an engaging space for individuals to easily navigate through works of art. In the future, it is through this innovative model that Awarna will be able to innovate and survive in the changing digital world while continuing to inspire audiences offline.

In summary, the Awarna Art Gallery Online Platform beautifully infuses tradition with modernity to create an all-inclusive online space that presents a holistic art experience for artists and collectors alike; globally.



## 2. Problem and Motivation

### 2.1. Problems

- **Ticket handling and queueing issues** – When events are held, the only method available to purchase tickets is manually through at the venue itself before entering. This causes commotion and large queues which slows down the purchase and the experience that we try to provide the user gets disrupted as well. This consumes too much time while also causing a waste of paper and human resources. Because of this, we are unable to manage the time slots and the crowd of the gallery as well. This will result in overcrowding and even large queues and high wait-time. Ultimately, negatively impacting the image of the gallery and the customer dissatisfaction being high.
- **Inability to manage event and promotion of event** – Customer are unable to be notified of the upcoming events. This causes certain events and the gallery itself to gain less traction and foot traffic which it has the potential to get due to the lack of awareness to the users. This could also cause certain customers to have expectation of gallery being available on a certain time slot/date but the venue itself might be booked for a private event causing dissatisfaction within the customer which will reduce the chance of having a returning customer to the gallery.
- **Physical and manual management of stock and artwork** – the inventory of the art gallery is being managed by pen and paper methods and using excel sheets which makes the management process complicated as the items are updating constantly. Adding and removal of inventory has become a problematic situation and migration to excel sheets were able to hold down the problem for now. But with the current stock renewal and other supply chain problems the art gallery is unable to handle it manually with using a more manual labor and human resources. The inability to broaden the distribution market is also another hindrance as they don't have the facilities to cater to online/international customers due to stock management issues and supply chain problems.
- **Lack of proper resource management** – due the inability of a centralized figure to collect data and be able to manage the resources as needs for operations, inefficient resource allocation is visible and this leads to performance issues between the employees and wastage of monetary items and assets.

## 2.2. Solutions

- **Ticket Management System and time allocation** - Switching to an online ticket system, where you will receive confirmation through email to remove the time and resources spent during the process of handling tickets physically. You will just have to show the confirmation and enter the venue without customers having to deal with commotion and inconvenience. You will also be able to manage the crowds which attend the gallery at a certain time slot to avoid overcrowding and improve the experience of the gallery/event which is being held.
- **Event Management System and live update procedures** – Ability to manage events being booked and having a promotion schedule where all events that are being held which are available for the public being promoted. Promotion will make customers aware of the events that are being held and making aware of when the venue is available for the public.
- **Inventory Tracking and Online Shop** – this integration will help with the inflow and outflow management of the stock in the business. Proper inventory management will help keep data records and other important information of the business within easy access. Trending insights, sales turnover, income management and online sales platform helps increase overall business financial performance.

## 2.3. Motivation

- **Time saving** – the integration of the system would have major reductions of queues which helps the gallery maintain the flow throughout the gallery without having halts. This helps the gallery utilize the resources and time of the gallery and the customers which will build the brand image and other customer satisfaction factors.
- **Improve customer relationship and communication** – through this system, customers will be aware of the events that are being held on a daily basis and other specialized events that will be held, increasing the foot traffic and sales of the art gallery. This would also help customers know when they are able to visit the gallery itself and when they are not able to due to private events.
- **Efficiency enhancement** – Increasing the overall efficiency of the art gallery through reduction and simplification of repetitive tasks, resources usage and time necessary. This will help staff manage their time effectively and be productive in other sectors which they will be required.
- **Streamlining operational flow and improving resource allocation** – workflow will be more straightforward with an organized administration system with a centralized data point. A centralized authority would be able to look over and manage the necessary components of the business. As well as this will help with improving proper management of resources because the centralized authority would be able to gauge necessary resources through the data collected through past events and experiences.

## 3. Aim and Objectives

### 3.1 Aim of the Project

#### **Facilitate Artist Submissions and Management:**

- Allows the artist to easily submit and update details of their artworks.
- Display appropriate artwork with the help of admin review and approval.

#### **Improve Visitor Experience:**

- Provide a user-friendly interface to view and purchase artworks.
- Book tickets easily for a visit to the gallery or events.

#### **Streamline Event Management:**

- Book private events by artists.
- The event manager can schedule and promote public events.

#### **Optimize Financial Transactions:**

- Secure payment portals and calculators for reservations and purchases.
- Lets the finance manager to track and manage transactions and donations.
- handle successfully User and Admin Interactions with our system.
- Offer full user and admin management with roles, password reset, and activity logs.
- Enable admins to send push notifications and effectively handle inquiries and feedback.

#### **Keep up Bidding and Auction Processes:**

- let users place bids on artworks and be informed of changes to the bidding process.
- Allow administrators to manage and report on bidding activity.

#### **Ensure Accurate Inventory Management:**

- Manage inventory items in the gallery through add, update, and other inventory management operations. Offer an easy and more satisfying shopping experience to customers through its user-friendly interface.

## 3.2 Objectives

### 1) Customer Satisfaction

- **Feedback System:**

Develop a feedback system by which visitors can rate and review the exhibitions and services. This will help enhance understanding of customer likings', leading to improvement of the gallery experience.

- **Transparency:**

The Gallery's website correctly shows the exhibitions, information about artists, ticket prices, and scheduling of events. This update on new exhibits, promotion, and changes is conveyed to the visitors through various modes of communication.

- **Reservation Management:**

Online ticket booking facilities for events should be provided so that long queues and overcrowding can be avoided. Customers would view open days and book tickets in advance for various events or exhibitions.

### 2) Operational Productivity

- **Inventory Management:**

Our System will also have to deal with managing the gallery's inventory. Those are details of the artworks, loan status, condition reports, and schedules for artwork maintenance and conservation.

- **Manage finance:**

Provide a powerful finance management system for processing ticket sales, membership fees, donations, and vendor payments. And add tools to this framework for budgeting and financial reporting.

- **Staff and Vendor Management:**

Staff the gallery easily through an intuitive administrative interface to handle employees, vendors, and artists. Follow through with scheduling tools, tasks, and performance tracking.

### 3) Enhanced Visitor Experience

- **Real-Time Updates:**

A mobile application and website feature for real-time updates related to current and upcoming exhibitions, events, and workshops.

- **Interactive Features:**

Online interactive features like virtual tours, interviews of artists, behind-the-scenes content, etc. with respect to the optimization of the experience of customers and provision of an entertaining exposure to the same.

#### 4) Marketing and Promotion

- **Advertisement Manager:**

Design a targeted marketing platform that promotes exhibitions and events. Utilize data analytics to optimize ad campaigns and improve their overall efficiency.

- **Promotional Packages:**

In order to serve as an attraction and retention formula for visitors, promotional packages and discounts would be offered for members, group visits, and special events.

#### 5) Scalability and Adaptability

- **Scalable System:**

It shall be designed so that the system is scalable, and the capacity of the system can be easily expanded with increasing numbers of visitors, exhibitions, and events.

- **Adaptability:**

The system shall have the capability to adapt to new technologies and market trends to enable continuous improvement and innovation.

#### 6) Order and Event Management

- **Order Management:**

Design an end-to-end order management process for ticket purchases, event bookings, and merchandising. Offer interactive user interface hosting for announcements of dates, times, or other miscellaneous data regarding the event.

#### 7) Customer Support

- **Inquiry Management:**

Design an interactive inquiry management messaging system and instantaneously solve visitor queries. Offer customer support by hosting options for visitor inquiries on exhibitions, events, ticketing, and other offers.

#### 8) Efficiency and Productivity

- **Automation:**

Excel in operational efficiency by automating tasks or processes that involve repetition, such as data entry, ticket processing, or report generation. Save most of the time spent on manual paperwork; reduce errors and hence save time.

- **Workflow Optimization:**

Processes that reduce operative delays, improving overall productivity.



## 4. System Overview

### 4.1. System Overview

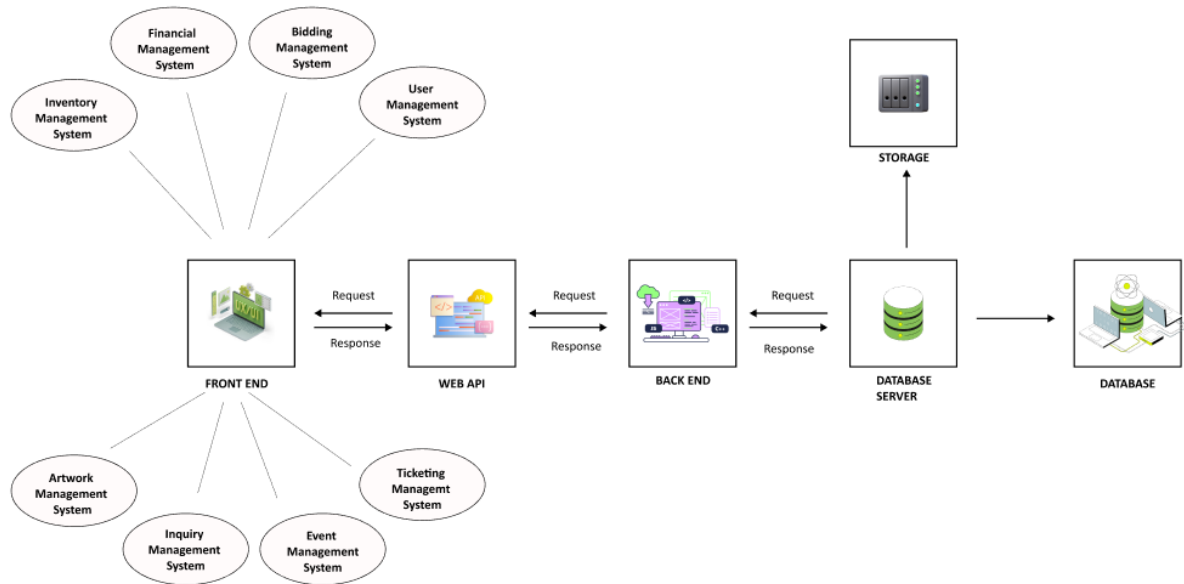


Figure 1- System Overview



Figure 2 -Primary and Secondary Stakeholders in System Overview

## 4.2. User Management

User management system in Art Gallery Management System offers secure & hassle-free user interactions by enabling new registration to users, paid memberships for special privileges like discounts on purchases, entry of special events and preview access to see latest collections sooner. It authenticates thanks to credential matching and roles with particular privileges. Save and easily update your contact details, visit /purchase history & bidding preferences securely. Users can get involved in auctions, which are created by an admin and have a setting for bids. This in turn focusses on a dirty scope login, improving the user experience for all roles within Gallery

### Functional Requirements

- **Registration:** The system makes it possible for users to sign up by providing essential credentials like a username, email and password.
- **User Profile Management:** Users must be able to log in and see their profile with information such as name, contact details as well preferences so that they can update it and keep it up to date.
- **User Roles and Permissions:** The system must allow to assign various roles and permissions assigned to each user corresponding with his responsibilities and requirements for access.
- **User Activity Tracking:** The system should allow for tracking of user information, including login-time and logout-time as well modification time, this is helpful to track the activity action within the application as required. Admins can then use this information to understand user behavior.
- **Deactivate users:** Admin should be able to temporarily suspend or permanently remove a user account so they can control and restrict access based on compliance, securing purpose as well policy breaches.
- **User Notification:** Admins must be able to push notifications only for major user account updates. Such cases are those in which users must be notified of changes to passwords, roles updated etc.
- **Password Recovery:** In the event they forget their password, users need to be able request a password reset.

### Non-Functional Requirements

- **Security:** Security requirement invokes the implementation of a system that uses strong authentication mechanisms to secure user credentials, ensuring data is transmitted and stored with encryption for sensitive information.

- **Performance:** No performance issues under load, the system must be able to handle a high volume of registrations and profile updates without issue especially while logging user behaviors.
- **Usability:** The UI should be user-friendly for both customer and staff and satisfy the requirements of registration and profile implementation for users.
- **Scalability:** The system should have good logistical scalability, requirements for additional hardware and infrastructure as well to handle the growth of users.
- **Dependability:** Decisions should take into account and to prevent data loss, regular backups must be made.
- **Reliability:** The system should be reliable. There should very little or no downtime and the system must recover efficiently from failures. Data loss can occur so backups are mandatory.
- **Compliance:** All data protection and privacy related regulations should be respected by the system.
- **Accessible:** Ensure that system is accessible to people who have disabilities by adhering to web accessibility standards.
- **Accountability and Transparency:** Detailed audit, need to be available, so that the chapters are accountable for all clearing house transactions carried out by them.

### 4.3. Artwork Management

The Artwork Management system provides efficient bidding process for artists, providing access to a vast customer base for their creations. Artists can manage their details through a form, enabling additions, updates, and deletions, except for increasing their bidding prices. Additionally, they can download detailed reports of their information. The system empowers administrators to review, accept, or reject artworks based on comprehensive details, filter accepted works by category or bidding price, and calculate total products and artists related to each owner.

#### Functional Requirements

- **Artwork Submission Form:** One of the functionalities offered by the system is artist form which allows them to submit their works, thus requesting artists offer experiences, skills and personal information including its purpose on whether it is meant for bidding purposes or exhibition only. Artists can complete and send along with other application payments through the system

- **Artwork Form Updates:** At whatever time an artist needs, he/she shall be able to modify all submitted artworks forms except for the bidding price through different means like instant message or email or whatever. The system should give artists an option for generating updated work submission forms in pdf formats if needed.
- **Artwork Submission Confirmation:** There will be an email message sent to artists from the system after they have successfully filled out and submitted artworks form.
- **Review and Approval:** Original art pieces must be looked at; approved or rejected by administrators based on their personal taste about them as fine art pieces; always taking into account how much more time it takes sometimes when one tries to analyze or critique a piece before making their mind up whether they like it or not. Also whenever there are issues concerning payments pending confirmation for submissions made by any of those who want to buy may receive notifications through messages sent by respective administrative offices responsible for this matter
- **Artwork Display and Bidding:** Consignees will put approved arts before the public attaching details about the respective authors underneath the respective masterpieces. This program will send approved art works awaiting auctioning into the bidding program.
- **Statistics and Reporting:** The administrator shall be able to monitor and calculate the overall amount of art submissions made per day, month, and year using this system. There should be filter options in the system to enable the admin sort artwork by category, date or any other parameter. The admin will be able to download reports in PDF format detailing authorized and rejected artwork through the system.
- **Viewing Approved Artwork:** The system is going to allow users to browse through the approved artworks as well as relevant details plus contacts of the artists. Users can filter artworks according to categories, artists or any other specifications.

## Non - Functional Requirements

- **Performance:** The system shall ensure that the artwork submission form loads within 2 seconds. The system shall process artwork form submissions within 5 seconds.
- **Usability:** The system shall provide a user-friendly interface for artists to submit and update artwork details. The system shall ensure that the confirmation and error

messages are clear and informative.

- **Reliability:** The system shall be available 99.9% of the time to ensure continuous access for artists and admins. The system shall ensure that data is accurately saved and retrieved without loss or corruption.
- **Security:** The system shall use secure protocols (e.g., HTTPS) for all transactions, including artwork submissions and payments. The system shall ensure that only authorized users (artists and admins) can access and modify artwork details.
- **Scalability:** The system shall be able to handle a growing number of artwork submissions and user interactions without performance degradation.
- **Maintainability:** The system shall be designed to allow easy updates and maintenance by the technical support team. The system shall provide error logs and notifications to the technical support team for any issues encountered.
- **Compliance:** The system shall comply with relevant data protection regulations (e.g., GDPR) to ensure the privacy and security of personal information.

#### 4.4. Bidding Systems

A comprehensive platform created which makes the auctions at art gallery easy to conduct is the bidding management platform. This platform provides effective administration and smooth user engagement by automating the bidding process for both administrators and users. Managing artworks up for bid, tracking bidding activity, and generating and analyzing reports and data have become simple for administrators. When it is time of browsing artworks, searching by category, and placing bids on the artworks they like, users will get real-time alerts and updates. Through this platform we can gain an overall improvement in the bidding process.

##### Functional Requirements

- **Add artwork for bidding:** Administrators can add new artwork approved for bidding to the bidding platform by giving relevant details such the artwork's title, artist's name, minimum bid amount, category (such as painting or sculpture), bidding start date and end date, and a detailed description. With the aim of providing the bidders with visual depiction the images of artwork are uploaded along with the details.

- **Update artwork details:** Here the admin can update the details of artworks by adding or changing details related to artwork such as updating the category of the artwork, description of the artwork, minimum bid price as requested by the artist, images, title, and artist's name.
- **Delete the removed artwork after bidding ends:** Once the bidding ends the admin will remove the items from the bidding list. Then the artwork will be removed from the database ensuring further bids will be avoided and no longer on the bidding display panel.
- **Generate reference notice:** Once the bidding of a specific artwork ends the admin should send a generated notice in pdf form to the finance department with the relevant details of the winner and winning piece of artwork indicating the bid amount in order to receive a payment confirmation.
- **Automatic bid value update:** Once a user has bid for an artwork, the system will update the value of the artwork to its next highest bided value. If a user has bid a value which is lesser than the one available for artwork at that moment, then the system will indicate a message saying that a higher value shall be entered to make the bidding process fair.
- **Search and browse artwork available for bidding:** The following are the steps to be taken when users log onto the bidding platform. A user can filter by category and in price range to seek artwork available for bidding. To this end, a list of all artworks available for bidding, in other words, all those that match the entered search criteria will appear for the user. After finding an artwork of interest, the users may start bidding.
- **place bid:** After browsing and selecting the interested artwork available for bidding the bidder can start bidding by entering a value greater than the value currently the artwork is set to. The valid bids will hence be accepted by the system.
- **Automatic email generation:** Once a payment confirmation is received from the finance department saying the winning bidder has made the necessary payment to the artwork he or she bided, an email is sent to the winning bidder to complete the further procedures which include details of artwork pickup and delivery along with the certification of purchase.
- **Cancellation of bid:** Once the user bid for an item and again decides to cancel the bid the user is given the option to cancel until the time countdown ends. User can view

their current active bids placed and remove any bid until the time countdown ends. If the time countdown has already ended, then a message indicating time countdown has ended is shown to the bidder.

## Non – Functional Requirements

- **Scalability:** The system should support multiple users to access the system and participate in bidding without any significant degradation in performance.
- **Security:** The data transmitted within the system and the user should be encrypted and authentication and authorization methods should be followed and adhered.
- **Performance:** The system should provide better performance in terms of response time when performing actions such as browsing, placing bids and when artwork details are being updated.
- **Accessibility:** Should provide a user-friendly environment which helps effective navigation for both admins and users.
- **Data integrity:** All the value updates done on artwork value after bidding should be accurate. System should reject any bids done with a lesser value than the existing current value on the artwork and only make necessary automatic updates considering the next higher value.

## 4.5. Inquiry Management

Our art gallery provides an extraordinary experience for both our users and artists. In order to address the issues and improve our services we have implemented a feedback and inquiry management platform which facilitates effective communication between the users and our administration helping to bring up valuable insights while providing user with an interactive environment to bring up any issues ensuring good customer care.

### Functional Requirements

- **Add/update/delete inquiry:** The customers can select their inquiry type and add their inquiry on this inquiry platform. The customer must be a registered customer. The customers can edit and remove their submitted inquiries until the appropriate system admin responds.
- **Add/update/delete feedback:** As an online art gallery we have encountered the issue of no way to collect customers feedback regarding the products and services provided by the art gallery. Due to this the art gallery owner and staff cannot get an overview of how the clients and artists think of their service of the art gallery. Therefore, we have

provided our feedback platform as a solution. Once they give feedback, they are free to edit, update and delete their feedback according to their preference. From this feedback art gallery owners and staff can get a proper idea about their services.

- **Response/Update/delete Response:** The admin browses all the inquiries and can respond to the inquiries they receive after examining. The admin can delete and update their response as needed. If any inquiry needed to be sorted out with the respective departments, then that respective inquiry will be added to the in-progress inquiries
- **Create reports for analysis:** Here the admins will generate monthly reports to analyze the inquiry and issues that arose within that specific month and send it in PDF format to respective departments. Through this it is able to identify alike issues relevant to a respective department and necessary improvements and adjustments can be made.
- **View feedback:** Any registered or unregistered user can view feedback when visiting our website through the inquiry and feedback platform so that users can get an overview about our art gallery system and join with us to ignite the artistic passion.
- **Automatic email generation:** Here once a response is made to an inquiry by the admin the user should be notified through an email that his respective inquiry has been answered. This process can be automated to improve communication and keep people updated on the status of their questions.

## Non – Functional Requirement

- **Usability:** Ensure the user interface is more detailed, easy to navigate and friendly interface for responding, placing and viewing inquiry and feedback.
- **Security:** The user data, inquiries and feedback of the users should be protected from unauthorized access by encrypting.
- **Scalability and Performance:** The platform should support multiple or concurrent user access without degrading the performance and high response time for user requests and responses are preferred.
- **Data Integrity and availability:** The system should ensure that the user inquires, and feedback are stored without any loss and inquiry and feedback platform is available to users constantly to communicate their issues without any delays.



## 4.6. Financial Management

The Financial Management System of the art gallery is the main structure which handles all monetary transactions. Individuals who are interested in visiting the art gallery will be prompted to buy a ticket or transactions related to purchasing artwork/items from the shop or reservation payments will be facilitated. Individuals who are generous enough to donate for the maintenance of the art gallery will also be facilitated. The financial management system will have reporting to show all the transactions made during a specific period.

### Functional Requirements

- **Login Authentication:** User must authenticate themselves before proceeding with the payment process. Internal employees must authenticate themselves to access administrative functions. Users and employees must be validated when login to ensure authorized access.
- **Accurate Payment Calculation:** The system should provide the user with the opportunity to input necessary information and get an accurate estimate of the payment that is necessary.
- **Cost Total and Confirmation:** Proper cost totaling confirmation alongside other systems to make sure user items are available to ready to be purchased. The system should ensure that items are ready to be purchased before proceeding to payment.
- **Transaction Monitoring and Management:** Finance manager to be able to monitor incoming transactions and authorize/reject necessary transactions. System functionality to authorize or reject transactions as necessary.
- **Financial Reporting:** System should have the ability to generate necessary financial reports to be able to assess the financial position of the art gallery.

### Non- Functional Requirements

- **Security:** Due to exchange of confidential information with regards to credit/debit cards.
- **Accuracy:** Due to calculation being made on deciding the total amount and final estimation with regards to the venue and other purchasable items.
- **Availability:** System needs to be available 24/7 to facilitate the user and have a smooth experience
- **Performance and efficiency:** Necessary to have good speeds with this system with regards to calculations and payments to make sure the user has a smooth experience.

## 4.7. Event Planning System

Event management system provides artist to plan and host their event. Artist can book locations according to their preferences. Upon their booking for preferred location artists can select their preferred date from the availability calendar. If the date available artists can plan their events. Artist can customize their event according to their budget and target audience. Artist has the option to get event package or their event planner. Upon booking an event, if artist want to update or delete event they can send request to the event manager. Event manager have access to plan public events like exhibitions. And they can cancel or update event if artist request. After a successful reservation for an event, event manager updates news feed. Upon artist make a reservation system generate a PDF that include whole information about the event. After payment artist receive an invoice PDF include payment information.

### Functional Requirements

- **Availability Calendar:** System should display an availability calendar for each specific location for artists for reservation. If date is already reserved the calendar should restrict others to access the date. The calendar should be updated accordingly.
- **Manage and organize public events:** Event manager can reserve date time and location for public events. Event planner have access to customize venue, member count and event type.
- **Generate PDF and Invoice:** Upon accept reservation artist receive system generated pdf. And artist make a payment, received invoice that include whole event details.
- **Update news feed:** Event manager manage news feed. Artist reserve an event, event manager update news feed and artist request to update event, event manager concern the artist request and edit news feed.
- **Manage news feed:** Event manager has access to delete events in the news feed. If artist request, event manager can delete event. And also, the event manager has access to delete previous events.
- **Submit request form:** Initially artist should submit a request form to validate date and time. If the manager accept form artist can plan their events. Upon planning the event artist sent a request form including event details to the event manager.
- **Event Detail selection:** Artist can select event plans according to the budget and their requirements. If not prefer to select event package artist have facility to select event planner.

### Non - Functional Requirements

- **Fast response:** Event Manager should be able to provide a fast response time for artist request forms and system should be provide fast response for generate pdf and invoice.
- **Scalability:** The system shall be able to handle a growing number of artwork submissions and user interactions without performance degradation.
- **Usability:** System provides a user-friendly interface to easy to navigate for both Event manager and artist.

## 4.8. Ticketing Management

The art gallery's ticket reservation system offers a streamlined booking experience for visitors. Users can select dates and times for visiting permanent collection or events, the number of adults and children, and identification details. The system calculates costs, visitor limits per time slot, and allows booking multiple tickets in one transaction. After a successful reservation visitor receives a confirmation with a reference that allows free cancellation within five days without fees. Cancellations after five days deduct 50% fee, and refunds update the ticket count for availability, ensuring efficient management and high visitor satisfaction

### Functional Requirements

- **Choose Date and Time Slot:** Visitors should be able to choose their preferred date and preferred time from the available time slots for each day for the visit. The system should display a calendar interface with available dates. When a date is selected, the available time slots for that day should be displayed. Time slots should dynamically update based on availability. When a ticket successfully reserved by a visitor the count should be updated
- **Select Ticket Type:** Visitor can choose required ticket, from adult, child, and free entry ticket type and system displays the price for each ticket type. Admin should be able to update ticket information like prices in real-time based on any changes or promotions.
- **Multiple Tickets:** The system allows visitors to purchase multiple tickets in a single transaction to manage group visits effectively. It should handle different ticket types and quantities, ensuring accurate pricing and availability checking.
- **Downloadable PDFs:** After a successful transaction, visitors receive a confirmation, including visit details, ticket types, and reference numbers. The design should be clean and professional.
- **Restriction for Member Free Entry:** Gallery members can use the 'Member free entry' option, but they are restricted from purchasing multiple free tickets, allowing only one

free entry per member per visit. Members should be able to purchase paid tickets if needed.

- **Calculate Refund Amount:** The system calculates the refund amount according to the gallery's policy. Calculation should consider the timing of the cancellation and any applicable fees. Exceeding more than 5 days after the reservation refund amount should be calculated deducting 50% from the total paid amount.
- **Update Available Ticket Count:** After processing a cancellation and refund, the system updates the available ticket count for the relevant time slot.

## Non-Functional Requirements

- **Minimal Response Time:** The system should be able to maintain a fast response time for all user interactions like loading dates, processing transactions, and sending confirmation
- **Policy Adherence:** Calculations should follow the policies and procedures assigned by the gallery including ticket pricing, refund policies, and member restrictions.
- **System Security:** System should prioritize the security and privacy of sensitive data, against unauthorized access using access controls and authentication mechanisms should be implemented to ensure that only authorized users can view or modify confidential information
- **User-Friendly interface:** The interface should be an easy-to-navigate interface for both visitors and admins to manage ticket reservations with minimal effort

## 4.9. Inventory Management

This Function will show variety of art, including paintings, drawings, and digital art works. And also Admins and artists can easily manage the art inventory by adding artworks, editing details and removing sold art works. Further users can filter art by price and name of artists. Users can rate and review without purchasing items. And artist can respond own Artworks. More system has cart feature lets Users can add item before buying. And if users have membership, Members can get exclusive discounts. Overview system generate the PDF including user number, date, quantity, discount and subtotal etc

## Functional Requirements

- **Display a type of item:** The system should display a variety of items, including stationaries, handmade bags, ceramic items.
- **Filter Art items by price:** Buyer can filter art item by price to can easier browsing and searching.
- **Rate items:** Buyers can rate items after they purchased and help other customers decide about items.
- **Carts facilitate:** The system facilitates the checkout process; buyers can add items before purchasing.
- **Manage inventory and item details:** Inventory manager can add items, edit exiting item details including title, price, and description of item and can remove sold items to maintain information and inventory.
- **View current inventory:** Inventory managers can view the current inventory to manage stock and make informed decisions about inventory.
- **Send customer receipt:** The system notifies to customer with receipt including details like customer number, date, quantity, and subtotal.

### Non-Functional Requirement

- **User friendly interface:** The system provide a user friendly interface for purchasing items, making the shopping process easy and enjoyable for customers.
- **Quick item loading:** The system loads item withing 2 seconds to fast and effective browsing for customers.
- **Accessibility:** Buyers can always access to web application, providing them to purchase whenever they want.
- **Inventory updates:** The system updates the inventory on time, including adding or removing items within 10 seconds to ensure timely and correct inventory management.
- **Security:** The system keeps data safe from loss or damage during inventory management.

## 5. Literature Review

## 6. Methodology

## 6. Evaluation Method

The evaluation method for the Art gallery web application about find how well it works and how easily for users to interact with this,

### **User interface and navigation**

If users can check and navigate to the website easily on different types of devices, they can find and check about items, artwork and bidding artworks.

### **Artwork presentation**

Find at how Artworks are displayed with clear images and details of item, to help users understand each item.

### **Bidding and sales process**

Users can buy and place bids on artworks they are interested in. The process should be protecting user information and transaction details.

### **Inventory and Artwork management**

The system update artwork availability and their details. user can read easier about items.

### **Event planning and ticketing**

Users can easily find events; buy tickets and they can participate in events with ticket.

### **Inquiry management**

User can get support from system. it is helpful and responsive for customers with chat, email they can ask any problems about items and services.

### **Security measures**

The system has strong security when users purchase or place bidding, it can protect user information and payment details, building trust in the web application.

### **Performance and reliability**

The website is speed and reliability to it loads quickly and is always available for users.

## 8. References



## 9. Appendix