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Online Art Gallery

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ONLINE ART GALLERY

By

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ABSTRACT

Online art gallery is an e-commerce application which connects artists with their customers, this website will help the artists to showcase their art in this website by helping them to sell it to prospective customers also it will help the customers to discover and search the art which they like and they will have an option to buy the art if they want.

There will be three types of user's roles in the website, the first one is buyer who can search and discover the art without any need to register or login but if they want to buy any art they have to register and login to buy the art and second one is a seller who has to register and login to post their art works for exhibiting and selling on the website and third user is admin who specifies authority and restrictions on the users. There will be a separate console for artist, buyer and administrator.

Software Requirements/Tools:
  Operating System: Windows XP/2010.
  User Interface: HTML5, CSS3, Bootstrap.
  Client-side Scripting: JavaScript.
  IDE/Workbench: NetBeans.
  Database: MySQL.

Modules:
  1. Admin Login module.
  2. Admin Order Management module.
  3. Add Artist information module.
  4. Add System user module.
  5. Artist Login module.
  6. Customer Login Module.
  7. Customer Payment Module.
  8. Advanced Search module.

Table of Content

1   Project Description

Online Art Gallery is a platform for e-commerce that brings artists and artists from around the world into the network. This web-site shows a wide array of paintings, drawings, prints, digital art, sculpture and photography and offers artists a curated atmosphere in which their work can be displayed and sold.

There will be three types of users using this website Artist, Customer and Admin, Artist can exhibit and sell their art Customer can buy the art, Admin can manage the orders, create artist User and view reports.

1.1   Competitive Information

Online Art Gallery is an online e-commerce website which will help connect Artist from around the world with customers. compared to other websites like zatista, Art Finder, Art.com, Online art Gallery offers better services in terms of pricing. It has user friendly navigation bar.

1.2   Relationship to Other Applications/Projects

Comparison with other websites login and payment process, with the user being able to make the transaction, ease of navigation, and account setup in comparison with other websites, within a smaller span of time in our project. There are many applications, but the important relationship is ease of use and easy account setup in online art gallery.

1.3   Assumptions and Dependencies

Assumptions and dependencies of the project are.
- Our project has been designed primarily to be easy to use with good user navigation.
- Proper authentication is used in the project to ensure that the data of one user is not visible to another user.

1.4   Future Enhancements

The potential plans include secure payment gates so that customers pay via websites of third parties using this system to maximize customer privacy. Certain changes include smart ratings, the introduction of customer loyalty software.

2   Project Technical Description

Front End work was coded using Bootstrap, JavaScript and HTML, Language used is Java, Technology is JSP, Database is in MySQL, IDE used to develop the project is NetBeans and the Server used to deploy the website is Apache Tomcat

2.1   Application Architecture

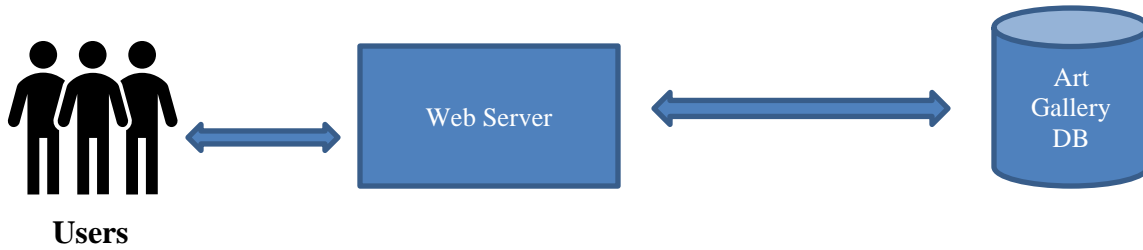Users will connect to Web Server and database (See Figure 1.).

Figure 1(Application Architecture)

2.2   Application Information flows
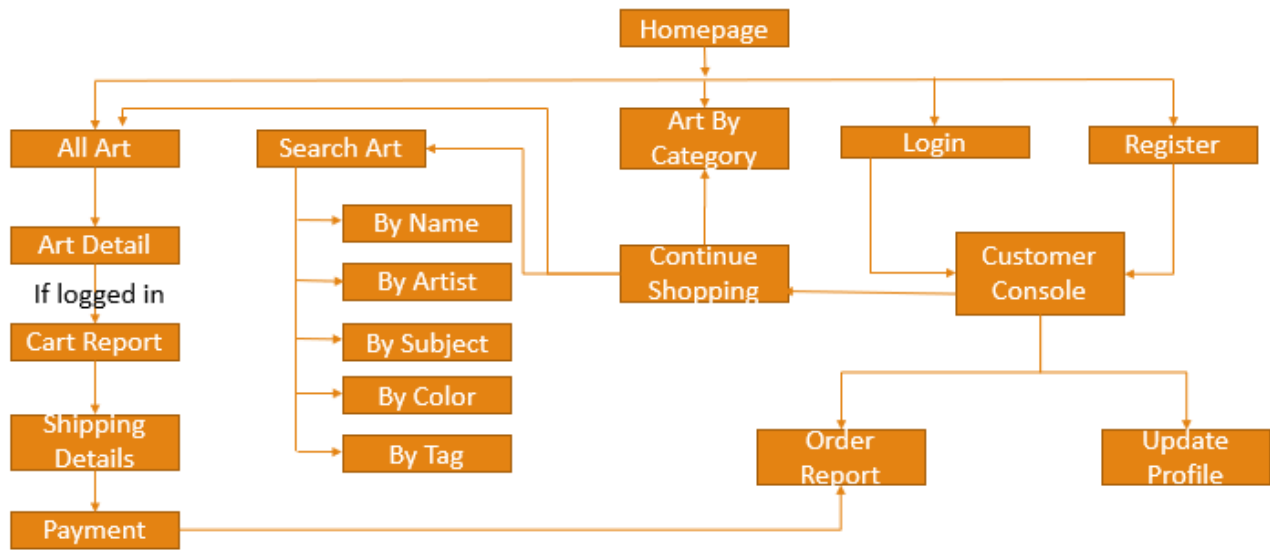
2.2.1   Information Flow for Customer

Figure 2(Customer Information flow Diagram)

Customer can Browse the art on the website without registering.
Customer can Buy the art on the website after they register and provide shipping and card details.
Customer will have its own console.
Customer can Browse the art by categories, by subjects, by artists, by tags, and by prices
Customer can search based on name in the search box
Advanced search where buyer can search based on more specifics such as theme, author, date, size, price, or color.
Features of all art work on the front page (See Figure 2.).

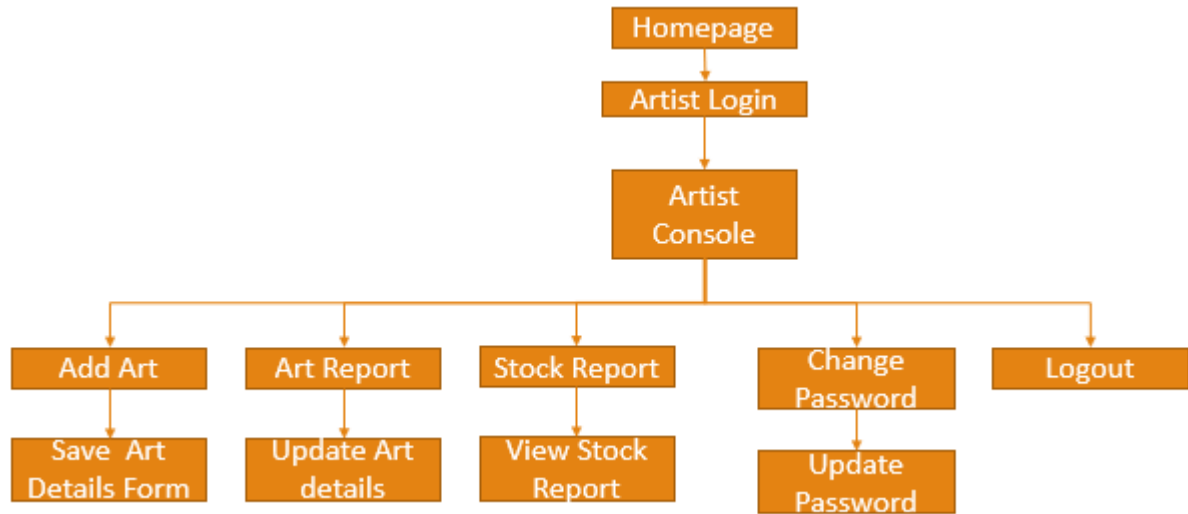## 2.2.2 Information Flow for Artist

Figure 3 (Artist Information flow Diagram)

Artist can sell and exhibit the art on the website.
Artist can Upload Pictures of the art and provide description and fix a price for the art.
Artist will have its own console.
Artist can only be added by the administrator (See Figure 3.).
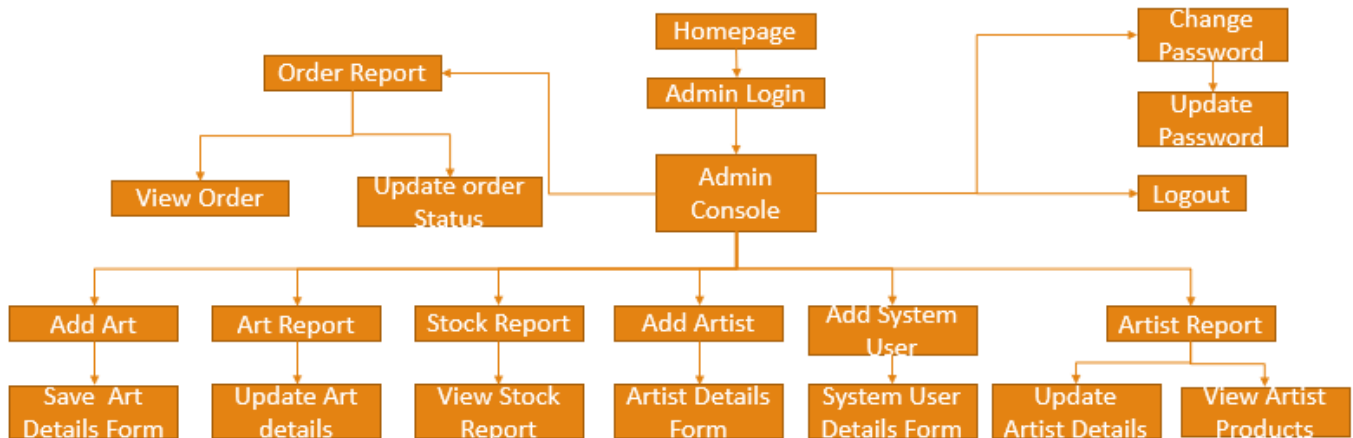
2.2.3 Information Flow for Admin

Figure 4(Admin Information flow Diagram)

Admin can add/update Artist
Admin can view artist Report
Admin can add/update System User

Admin can add art
Admin can view art report
Admin can view art stock report
Admin can view order report
Admin update order status
Admin browse products (See Figure 4.).
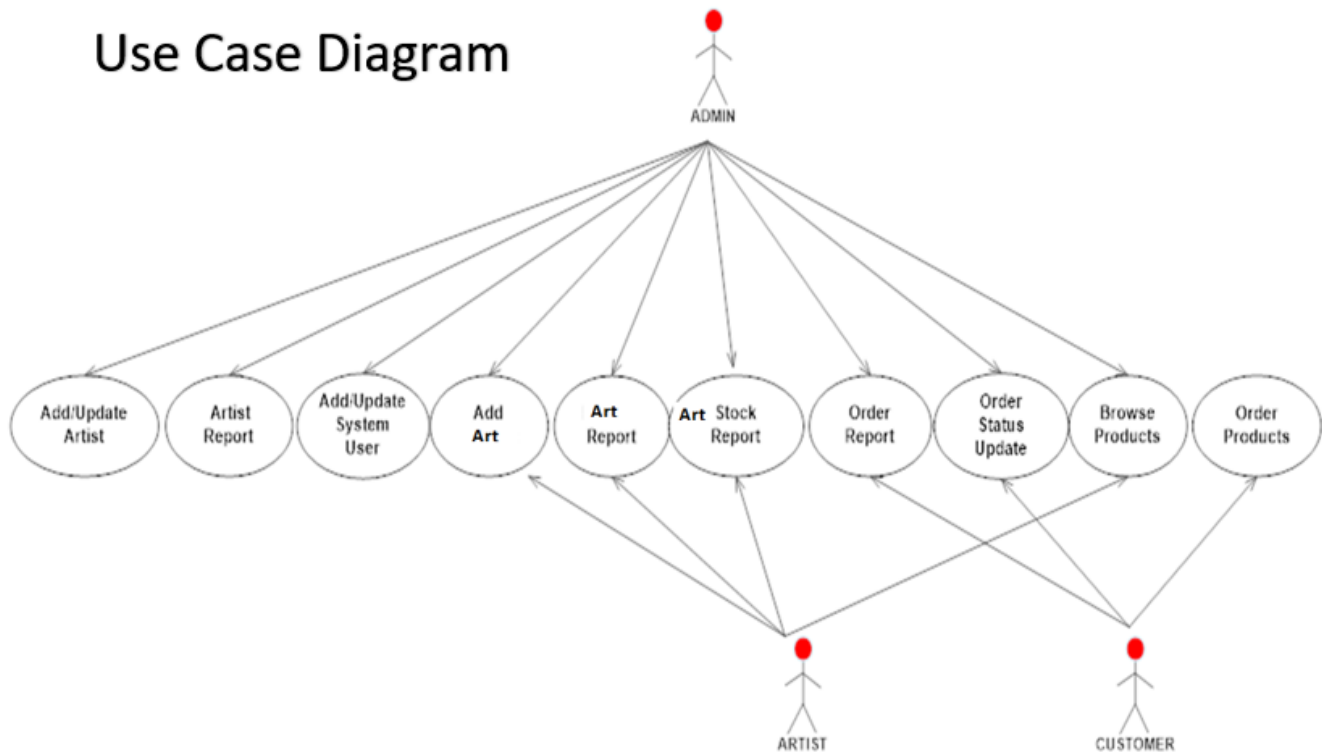
2.2.4   Use case Diagram

Figure 5(Use Case Diagram)

Admin Can do the below activities
Add/Update Artist
View Artist Report
Add/Update System User
Add Art
View Art Report
View Art Stock Report
View Order Report
Update Order Status
Browse Products
Artist Can do the below activities
Add Art
View Art Report
View Stock Report
Browse Products
Artist Can do the below activities
Browse Products
Order Products
View Order Report status (See Figure 5.).
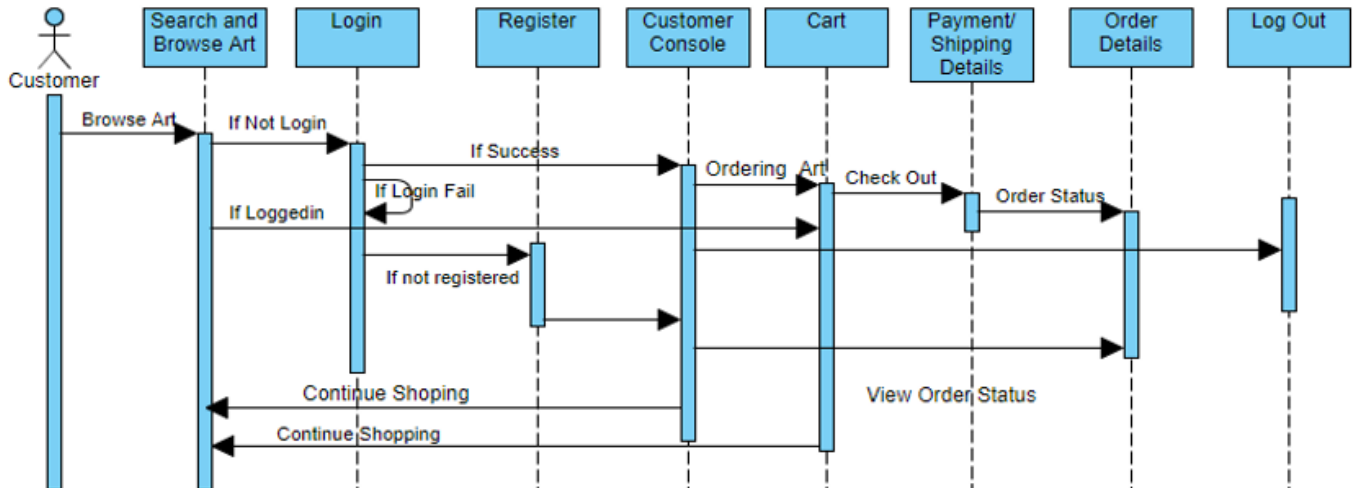
2.2.5 Sequence diagram for customer

Figure 6(Sequence Diagram for Customer)

- Customer Login Page authenticates customer id and password.
- Customer must register to order the products.
- Database stores all the login information of all the users in the backend.
- Customers can sign up and continue shopping.
- All the order report of the artist and customer can be seen by the admin
- Customer can see the status of order (See Figure 6.).

2.2.6 Sequence diagram for Artist
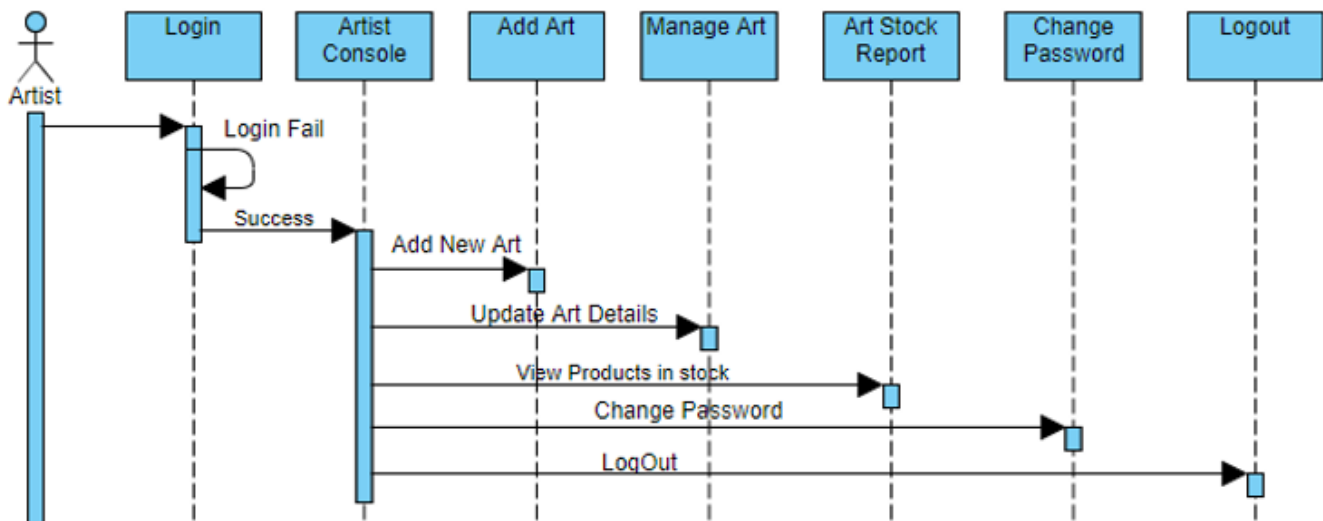
Sequence Diagram for Artist

Figure 7(Sequence Diagram for Artist)

- Login Page is a centralized authentication for Artist and Admin.
- Database stores all the login information of all the users in the backend.
- Admin can add and remove the artist.
- Artist registration can be done by admin only they cannot sign up as a seller.
- Artist can see the art report and update the report.
- Artist can see the stock report (See Figure 7.).

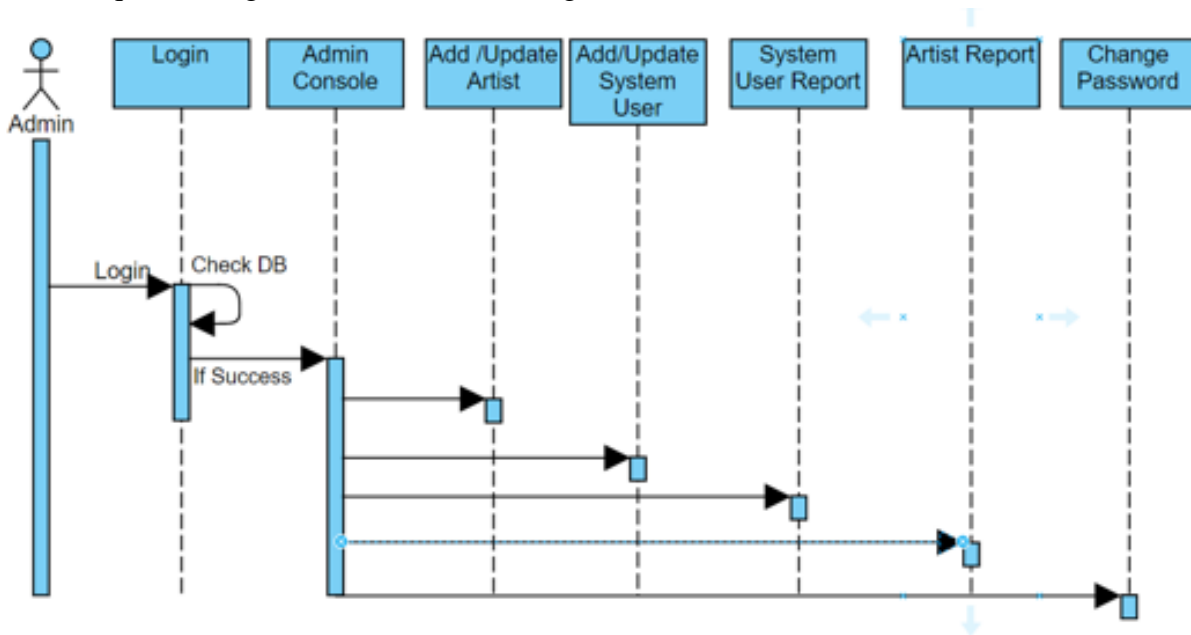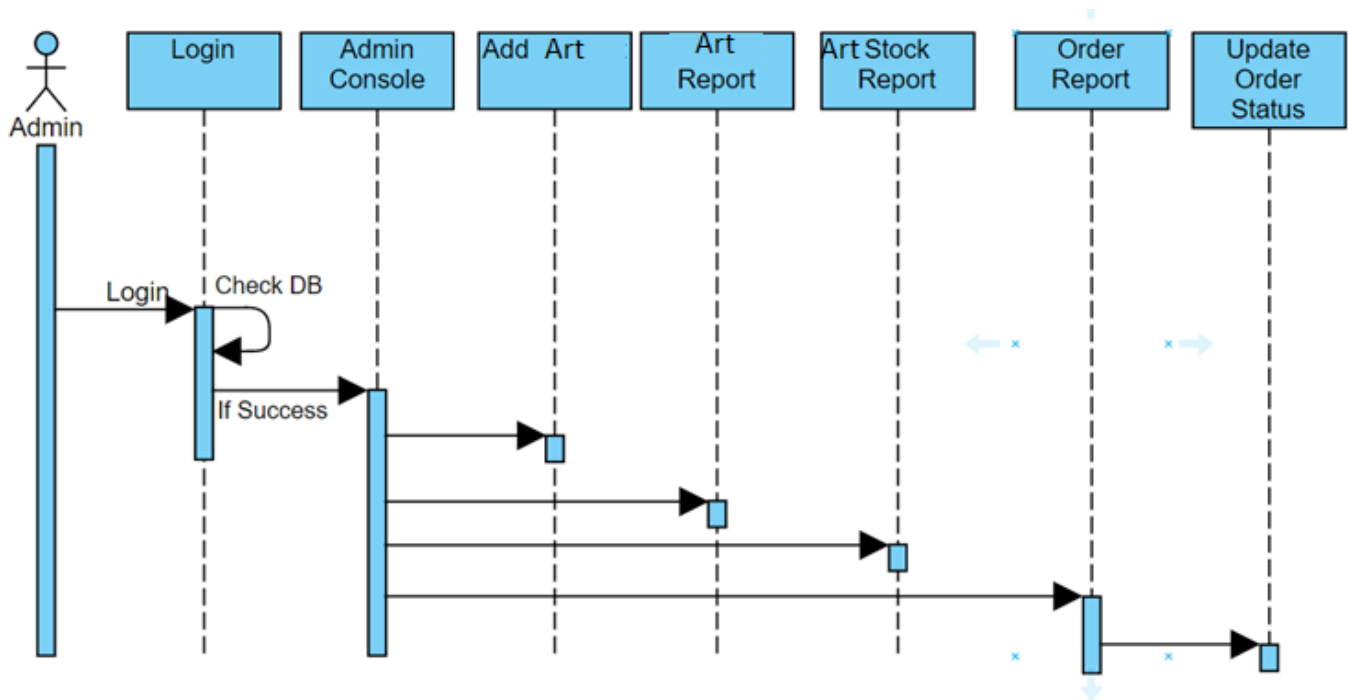## 2.2.7 Sequence diagram for Admin to manage user

Figure 8(Sequence Diagram for Admin to manage user)

- Login Page is a centralized authentication for Artist and Admin.
- Database stores all the login information of all the users in the backend.
- Admin can add and remove the artist.
- Artist registration can be done by admin only they cannot sign up as a seller.
- Admin can add and remove system user.
- Admin can view Artist and system user report (See Figure 8.).

2.2.8 Sequence diagram for Admin to manage orders

Figure 9(Sequence Diagram for Admin to manage order)

- Login Page is a centralized authentication for Artist and Admin.
- Database stores all the login information of all the users in the backend.
- Admin can add art.
- Admin can view art report.
- Admin can view art stock report.
- Admin can view art order report.
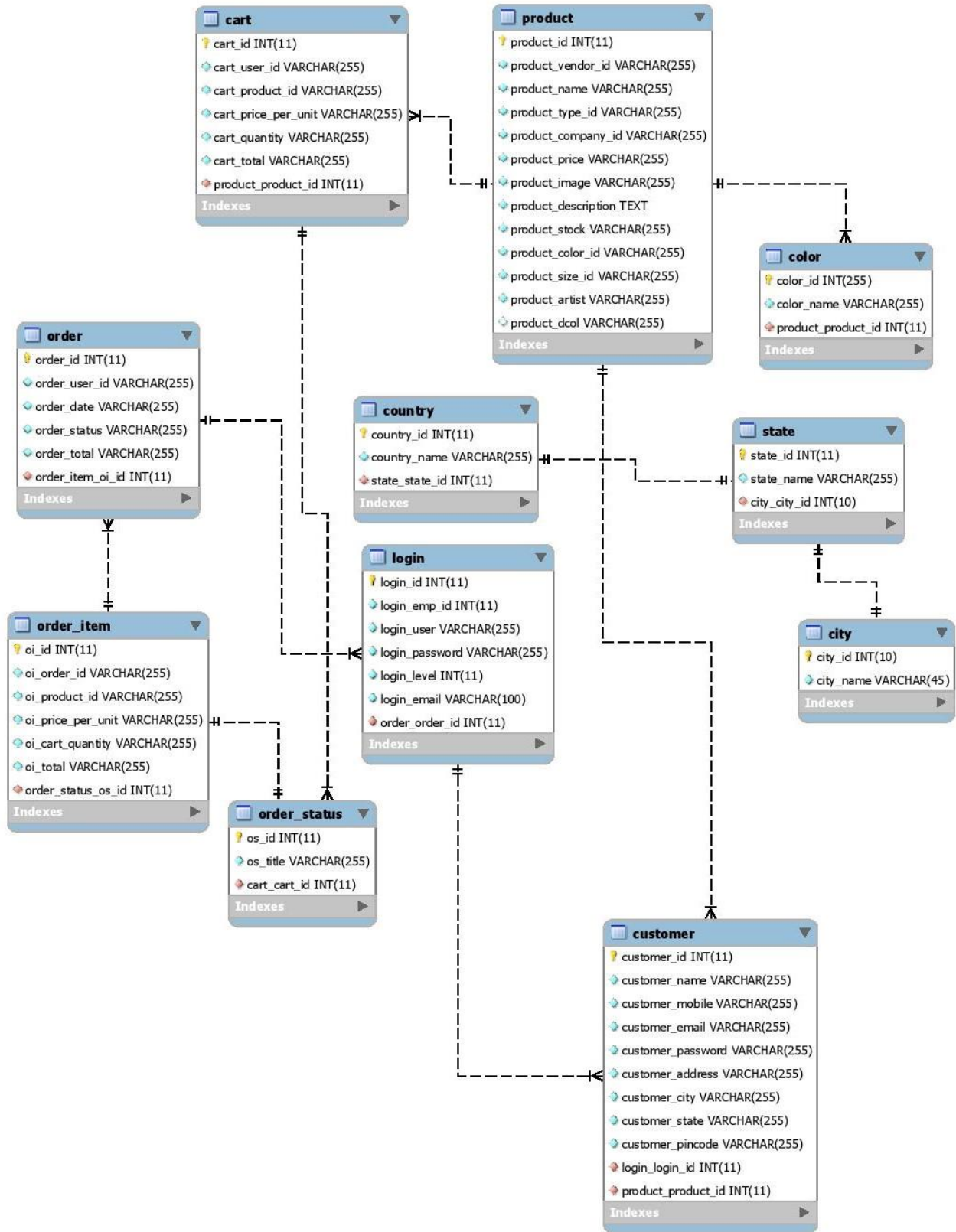- Admin can change art order status (See Figure 9.).

2.2.9   ER Diagram

Figure 10(ER Diagram)

2.3 Searching

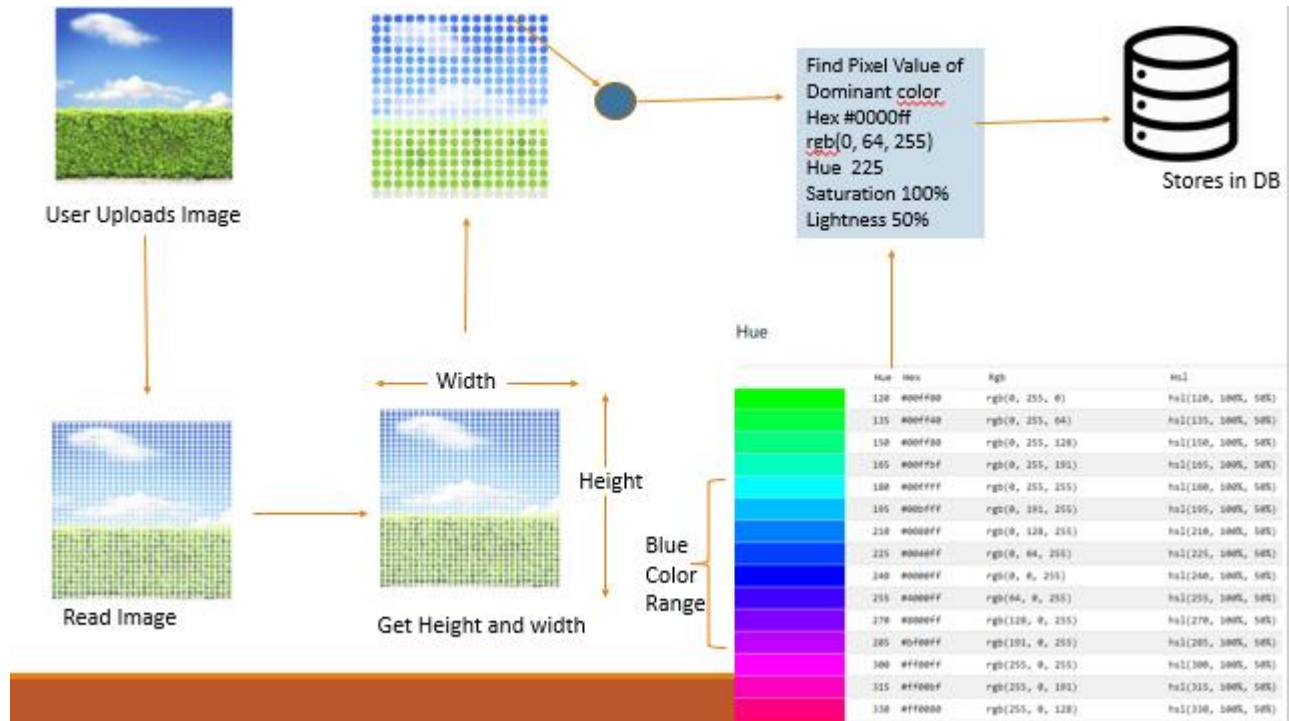Color Search through Image Processing

Figure 11(Image Search Process)

In this project search of art id done through color identification image .This search is based on image processing while the artist is uploading the image ,an algorithm finds the most dominant color of the image and saves that image color in the database, while searching by color it searches for that color field in database and fetches all images data related to the search color (See Figure 11.).

Identification of image color is done as follows:

➢ Save Image location
➢ Resize image to Smaller size so that less pixels needs to be read for color identification.
➢ Read RGB Value of Each Pixel and save it an array.
➢ Find Most Occurrences of RGB Value from that array
➢ Convert the Most Dominant RGB value to HSB Value
➢ Identify Color Name from Color Picker with the given HSB Value
➢ Save Color Name in Database.

Search by Artist name

Once a user types the artist name in the search box, that artist name as key is searched in the database and all images uploaded by that artist is fetched and displayed.

Search by Tag

Once a user types the tag in the search box, that tag as key is searched in the database and all images related to that tag is fetched and displayed.

Search by Subject

Once a user types the subject in the search box, that subject as key is searched in the database and all images related to that subject is fetched and displayed.

Search by Art Name

Once a user types the art name in the search box, that art name as key is searched in the database and all images related to that art name is fetched and displayed.

Search by Price

This Project has two price categories to search
- If Less than $500, Products whose price is less than 500 will be fetched from database and displayed on the page.
- If Greater than $500, Products whose price is Greater than 500 will be fetched from database and displayed on the page.

2.4 Role Based Access Control

In this project role based access functionality is implemented by defining roles of different entities such as Admin, Artist, Customer in a Role Table where Admin Role is defined by an Integer Constant "1",similarly Artist as "2" and Customer as "3",when a user enters an Id or Password ,authentication is done through "Login" Table and authorization is done by using "Role" table. We defined access to business logic for each specific page to the user based on their role_id.
Authentication and authorization are explained in detailed below:
Once the user enter the login credentials ,The Entered userid and password is search through login table if both are correct than its "role_id" field value(1 or 2 or 3) from the login table is matched with the role_id field in Role Table and whatever the value is assigned to that role_id (admin, artist, customer) that specific user respective pages is opened (based on role_id)and its role_id is set in session object and the session object is destroyed either by logout or until the set time interval of inactivity.

2.5 Capabilities

Provide a list of the capabilities need to support this Project. Example: a database application must

Online art gallery is a user-friendly website. Below are the capabilities identified.
- Three users Admin, Artist, and Customer.

- Customer Sign in and Sign Up.
- Admin can create Artist user.
- Artist can sign in using the username and password.
- Artist can add an Art provide details for the art such as image, tags, subject, size, category.
- Admin can make changes to the status of the artist to approved or not approved.
- Customer can search for art using different advanced search options such as name, color, tags, subject, size, category.

2.6 Risk Assessment and Management

The principal Risk is the amount of data stored daily. The cause of the threat is that the project is available worldwide and that the orders are placed 24 hours a day. It contributes to excess information that determines storage space each month to solve this problem. The next task is to provide proper customer service, secure transactions and store user data. With the aid of a third-party platform, all transactions are initiated and correct guidelines for the smooth process are created. A strategy to control the flow of information and take proper action.

3 Project Requirements

3.1 Identification of Requirements

- 3 user roles: artist, buyer and admin.
- Admin serves as an administrator of the website and can manage artists, buyers, and transactions.
- Artist can sell the art on the website.
- Customer can buy the art.
- Seperate Consoles for artists, buyers and gallery
- Browsing by categories, by subjects, by artists, by tags, and by prices
- Keyword based search box and search result listings
- Advanced search where buyer can search based on more specifics such as theme, author, date, size, price, or color.
- Features of art work on the front page
- Profile page showing a list of thumbnail photos and details
- Booking form and payment process
- User survey and comment

3.2 Operations, Administration, Maintenance and Provisioning (OAM&P)

Features in Online Art Gallery has three entities for registering Admin, Artist, and Customer all the entities have a login, logout and forgot password function. An artist can add an Art and upload the image of the art name, description, tag, subject, size. Customer can see the details of the art and buy the art.

3.3 Security and Fraud Prevention

For the data that saves the data every day, Security Identifier is required. For successful transactions, users can reset the password and there is an excess of data that identifies data storage every month to overcome problems. Consumer security from fraud prevention is also protected for secure transactions and it is an enormous task to save data from fraud. A plan to control the flow of data shall be initiated to take proper measures to safeguard the data.

4 *Project Design Description*

Online art gallery is an ecommerce website which connects people with art and artists all over the world. This website showcases a large selection of painting, drawing, prints, digital arts, sculpture and photography, and provides artists with a curated environment in which they exhibit and sell their work. Users and roles

- The online art gallery website consists of three main users they are
  - Admin user
  - Artist user
  - Customer user
- Admin able to login and logout.
- Artist able login and logout.
- Customer able login and logout.
- Customers and Artist username and password and email address can only visible to administrator.
- Signup for new customer.
- Customer, Admin and Artist can change the password.
- Admin can add or remove an artist.
- Customer can search and buy an art.

4.1 *Functional Overview*

4.1.1 Functional Overview of customer

- To login the Buyer should have a User id and Password.
- If the Buyer doesn't have a User id and password, he can create a new account by clicking on sign up button.
- Buyer can buy any Product available in stock by just selecting the product, filling shipping form, and card details.
- The Product will be added to the buyer's order report. Orders can only be placed when buyer is logged in with his credentials.
- Buyers order report page has Order ID, Date of order, Total amount of order, Status of the order, and action.
- Once Buyer clicks action, he can see all the Art he ordered in that order.

4.1.2 Functional Overview of Artist

- To login the Artist should have a User id and Password.
- Only Admin can add an Artist and provide the artist with username and password.
- Once Artist gets the username and password, he can change the password.
- Once Artist logs in with his credentials, he can add products, view product report and stock report.
- Add Products has fields such as

Art name	Artist name	Art tag	Art Subject	Art Size
Product Price	No of products in stock	Description	Art Category	Upload Image

- And Save product and reset form

4.1.3 Functional Overview of Admin

- To login the Admin should have a User id and Password.
- Only Admin can add an Artist and provide the artist with username and password.
- Only Admin can create another admin user and create username and password.

- Once admin logs in with his credentials, he can add new artist, add new system user.
- See Employee report and Artist report.
- See product report, Stock Report.
- See all order report and process the orders by clicking edit in actions column which will take in to the order Details page, where he can change the order status to Confirmed, Processing, Packed or Dispatched which will be reflected on Buyers order report page.

4.2   Requirements

4.2.1   Functional Requirements

- 3 user roles: artist, buyer and admin.
- Admin serves as an administrator of the website and can manage artists, buyers, and transactions.
- Artist can sell the art on the website.
- Customer can buy the art.
- Separate Consoles for artists, buyers and gallery
- Browsing by categories, by subjects, by artists, by tags, and by prices
- Keyword based search box and search result listings
- Advanced search where buyer can search based on more specifics such as theme, author, date, size, price, or color.
- Features of art work on the front page
- Profile page showing a list of thumbnail photos and details
- Booking form and payment process
- User survey and comment

4.2.2   Non-functional Requirements
- Reliability- Accuracy and availability
- Usability- Accessibility and consistency
- Portability- Can be used on mobile device.
- Confidentiality- User information is secured

5   Acknowledgements

This Project is created and developed with our own knowledge and documented by ourselves. I really appreciate our professor Dr Xin Chen who helped us in completing this whole project.

6   References

For JavaScript
https://www.w3schools.com/js/

For Bootstrap
https://www.w3schools.com/bootstrap/

Screenshots
Figure 12 (Home Page)
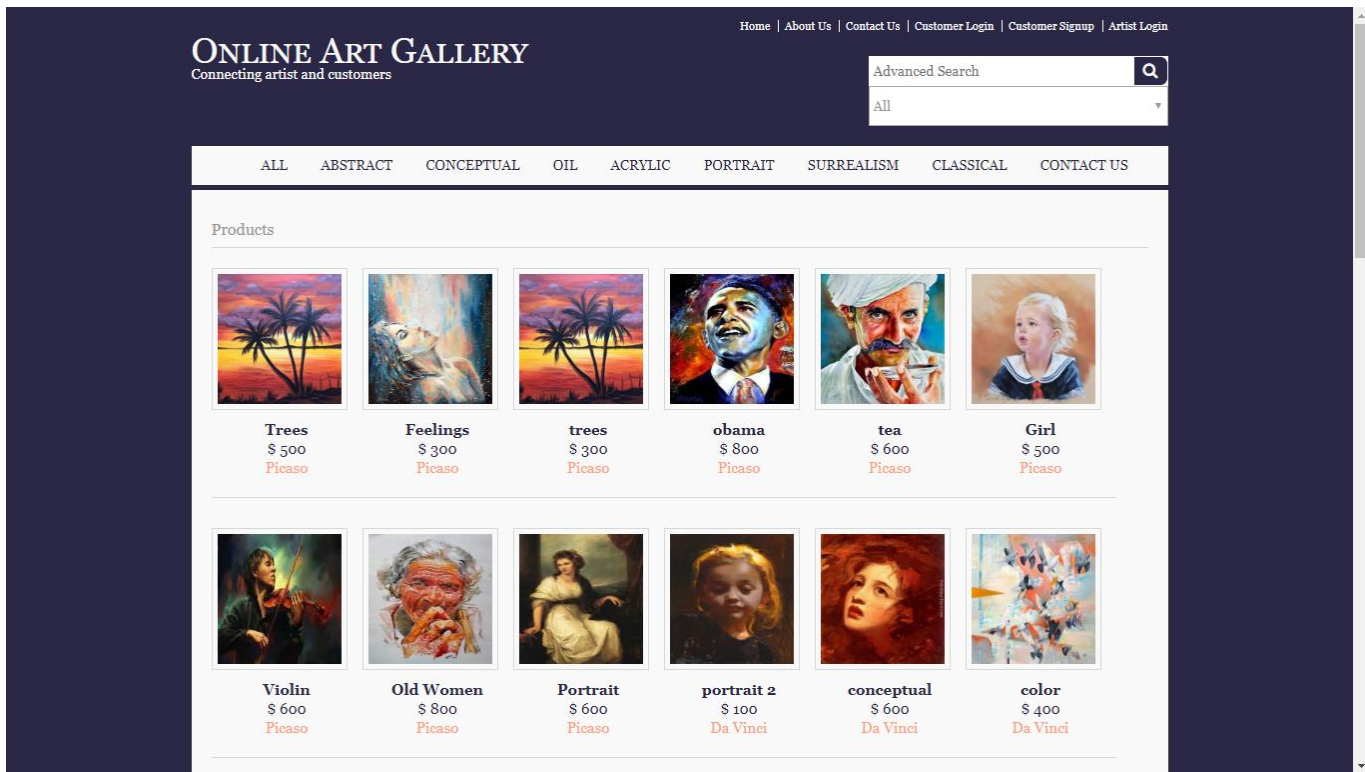
Figure 13 (All Art Page)

Figure 14 (Product By Categories Page)
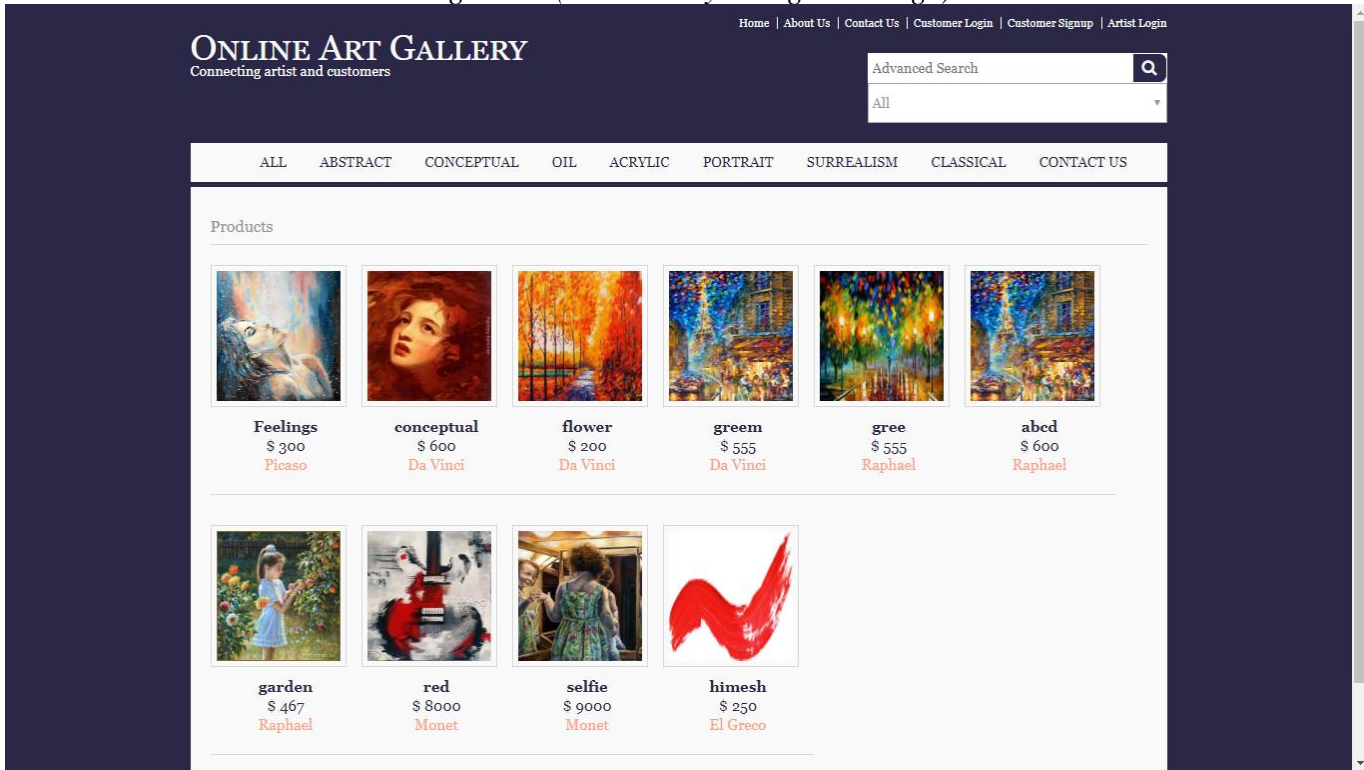
Figure 15 (About Us Page)
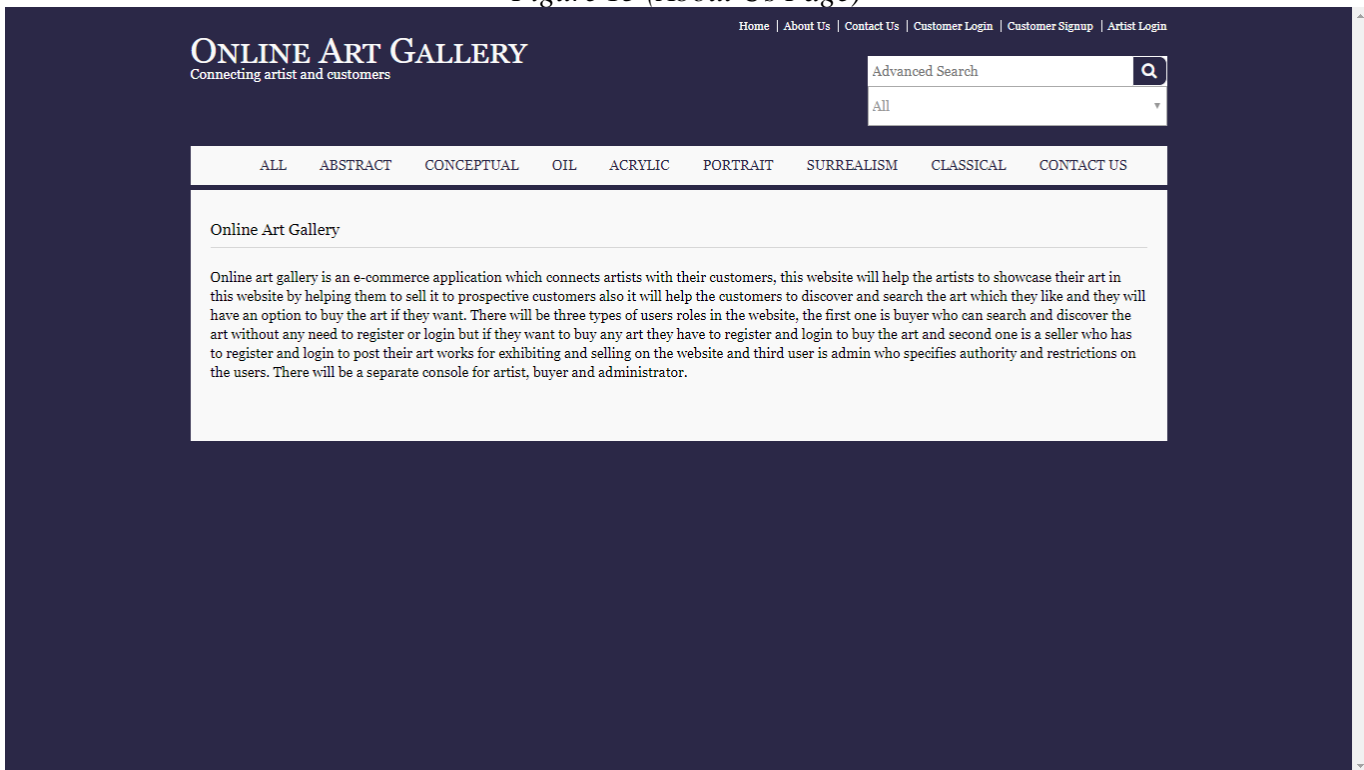
Figure 16 (Contact Us Page)

Figure 17 (Customer login Page)

Figure 18 (Customer Registration Page)

Figure 19 (Customer console Page)

Figure 20 (Customer order report Page)

Order Report

Order ID	Date	Amount	Status	Action
18	Fri Oct 11 20:16:04 CDT 2019	$ 500.00	Processing	View Items
19	Fri Oct 11 20:48:52 CDT 2019	$ 300.00	Processing	View Items
20	Fri Oct 11 20:49:37 CDT 2019	$ 300.00	Confirmed	View Items
22	Wed Oct 23 12:22:56 CDT 2019	$ 1100.00	Processing	View Items
23	Wed Oct 23 13:43:30 CDT 2019	$ 500.00	Processing	View Items
25	Fri Oct 25 20:12:21 CDT 2019	$ 1300.00	Processing	View Items
27	Sun Oct 27 19:54:45 CDT 2019	$ 545.00	Processing	View Items

Figure 21 (Customer order details Page)

Order Confirmation

Order ID : 22
Order details are as below :

Sr. No	Product	Price Per Unit	No. of Items	Total
1	obama	$ 800.00	1	$ 800.00
2	Feelings	$ 300.00	1	$ 300.00
			Total Amount	$ 1100.00

Figure 22 (Artist/Admin login Page)
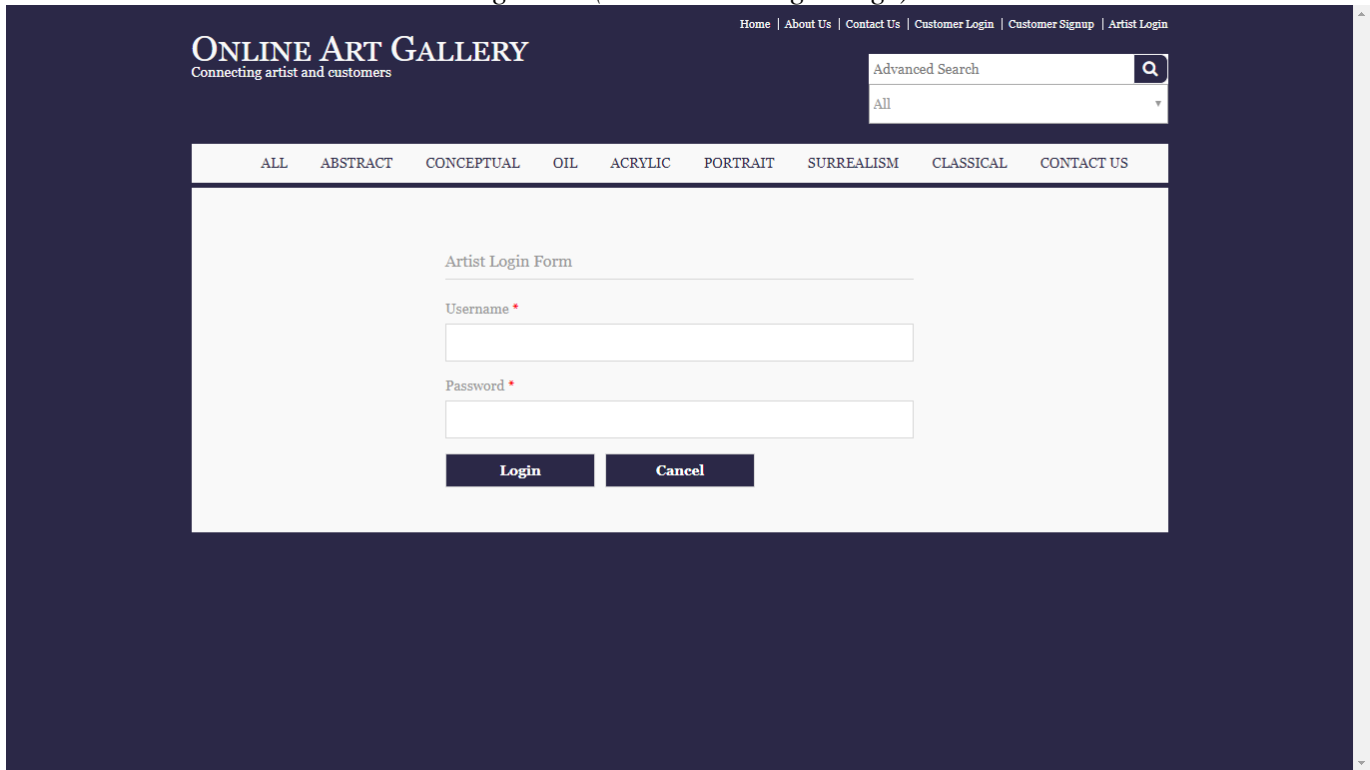
Figure 23 (Artist Console Page)
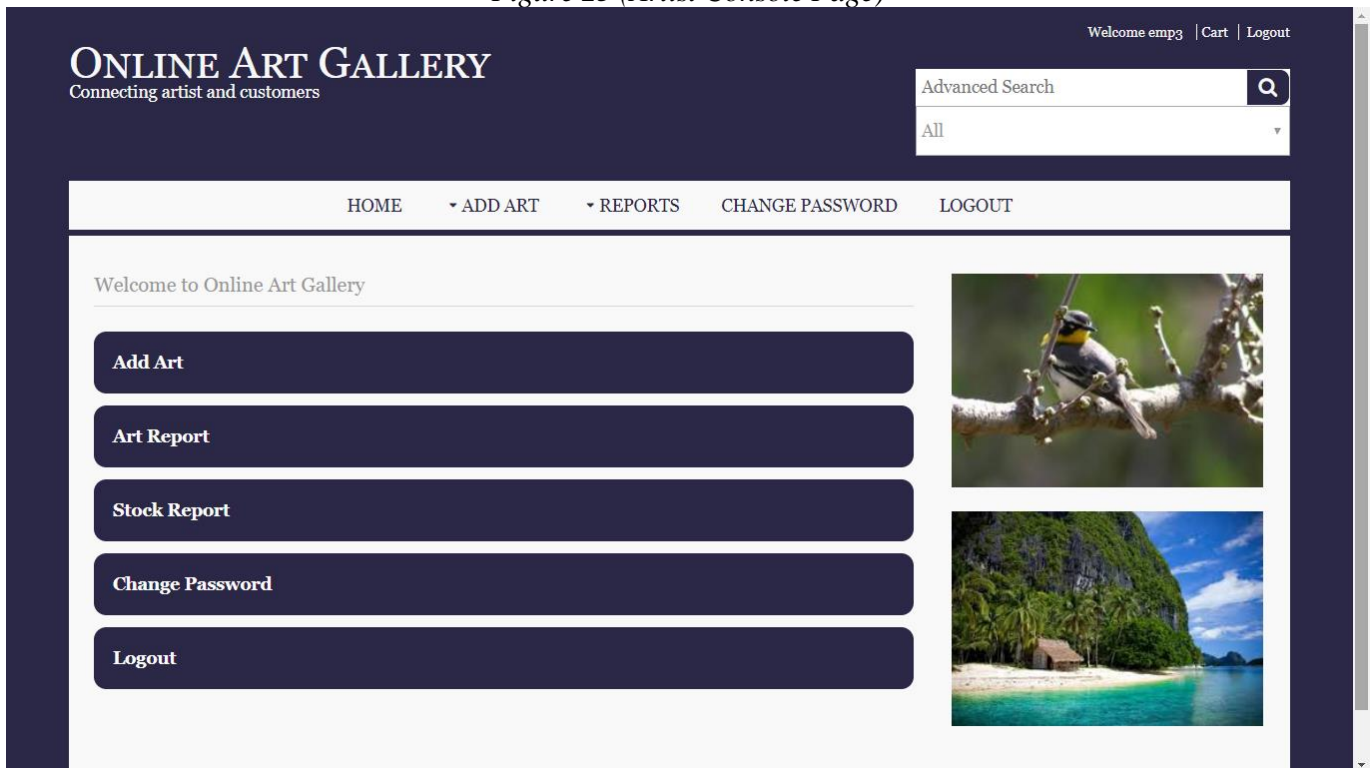
Figure 24 (Artist Add Art Page)

Figure 25 (Artist product report Page)

Figure 26 (Artist stock report Page)

Art Stock Report

Art Code	Image	Art Name	Tag	In Stock
34		blue	Nature	3 Items Available
43		PIANO	Nature	0 Items Available
46		BBBB	Nature	2 Items Available
47		BBBB	Nature	2 Items Available
48		selfie	Nature	2 Items Available
112		artwork	Nature	19 Items Available

Figure 27(Artist change password Page)

ONLINE ART GALLERY
Connecting artist and customers

Welcome emp3 | Logout

Advanced Search

All

HOME   ▾ ADD RECORDS   ▾ REPORTS   CHANGE PASSWORD   LOGOUT

Change Password Form

Old Password *

New Password *

Confirm Password *

Reset Password   Cancel

Figure 28 (Admin console Page)

Figure 29 (Admin Add Artist Page)

Artist Report

Artist Code	Name	Mobile	Department	Status	Email	Action
1001	Imran	09876543212	09876543212	09876543212	artist1@gmail.com	Select Action ▼
1002	asghar	123456789	123456789	123456789	asghar@gmail.com	Select Action ▼
1003	artist3	464645644	464645644	464645644	artist3@gmail.com	Select Action ▼
1004	abcd	455454	455454	455454	artist5@gmail.com	Select Action ▼
1005	Artist9	4646464	4646464	4646464	artist9@gmail.com	Select Action ▼
1006	seller	46464	46464	46464	abc@gmail.com	Select Action ▼
1007	Test	456123	456123	456123	artisttest@gmail.com	Select Action ▼
1008	artist	jnj	jnj	jnj	mail	Select Action ▼
1009	abc	44	44	44	ABC	Select Action ▼
1010	abc	44	44	44	new@gmail.com	Select Action ▼
1011	abc	44	44	44	new1@gmail.com	Select Action ▼
1012	abc	64446	64446	64446	email.com	Select Action ▼
1013	hiuh	94	94	94	vendoremail.com	Select Action ▼
1014	syed	8728063028	8728063028	8728063028	asgharhussain004	Select Action ▼
1015	abc	46464	46464	46464	abcdef@gmail.com	Select Action ▼

Figure 31 (Admin Art report Page)

Art Report

Art Code	Image	Name	Category	Tag	Price	Action
10		Trees	Abstract	Nature	500	Edit
15		Girl	Oil	Nature	500	Edit
19		portrait 2	Classical	Nature	100	Edit
23		blue	Oil	Nature	500	Edit
34		blue	Hyperrealism	Nature	600	Edit
43		PIANO	Abstract	Nature	444	Edit

Figure 32 (Admin Art stock report Page)

Art Stock Report

Art Code	Image	Art Name	Tag	In Stock
10		Trees	Nature	0 Items Available
15		Girl	Nature	1 Items Available
19		portrait 2	Nature	1 Items Available
23		blue	Nature	1 Items Available
34		blue	Nature	3 Items Available
43		PIANO	Nature	0 Items Available

Figure 33 (Admin order report Page)

Welcome Admin new | Logout

ONLINE ART GALLERY
Connecting artist and customers

Advanced Search

All

HOME · ADD RECORDS · REPORTS · CHANGE PASSWORD · LOGOUT

Order Report

Order ID	User ID	Date	Amount	Status	Action
18	7	Fri Oct 11 20:16:04 CDT 2019	$ 500.00	Processing	Edit	View Items
19	7	Fri Oct 11 20:48:52 CDT 2019	$ 300.00	Processing	Edit	View Items
20	7	Fri Oct 11 20:49:37 CDT 2019	$ 300.00	Confirmed	Edit	View Items
21	9	Tue Oct 22 13:28:09 CDT 2019	$ 500.00	Dispatched	Edit	View Items
22	7	Wed Oct 23 12:22:56 CDT 2019	$ 1100.00	Processing	Edit	View Items
23	7	Wed Oct 23 13:43:30 CDT 2019	$ 500.00	Processing	Edit	View Items
24	8	Wed Oct 23 14:59:56 CDT 2019	$ 500.00	Processing	Edit	View Items
25	7	Fri Oct 25 20:12:21 CDT 2019	$ 1300.00	Processing	Edit	View Items
27	7	Sun Oct 27 19:54:45 CDT 2019	$ 545.00	Processing	Edit	View Items
28	10	Tue Oct 29 12:57:24 CDT 2019	$ 800.00	Processing	Edit	View Items
30	10	Tue Oct 29 12:59:12 CDT 2019	$ 600.00	Processing	Edit	View Items
32	10	Tue Oct 29 13:14:04 CDT 2019	$ 500.00	Processing	Edit	View Items

Figure 34 (Admin Art stock report Page)