

Software Design

Auction Based E-Commerce Web Application



Project Report 3

Group 1

Bhaviya Gandani	805624954
Praful Surve	805599313
Roya Askari	894101542
Justin Shelley	890443492

CPSC 462-03 (13184)

Fall, 2016

Professor: Sara Hariri

Department of Computer Science

California State University, Fullerton

December 04, 2016

ABSTRACT

In today's generation, buying and selling any product is made through online. In most cases, a buyer can buy a product posted by a seller in an E-Commerce application with a negotiated price. This means that a seller receives the product price in terms of bargained price. This doesn't give the seller a fair chance to receive a valuable price for the item that is actually worth and it is the seller who needs to compromise. There is a need for web application portal where buyer can bid high to the product. The main goal is to provide a system for seller to easily and quickly sell items. There will be multiple buyers who can bid on the product for a particular amount of time. The application can also act as an e-commerce website when the bidding time is over and there aren't any buyers to bid the product.

TABLE OF CONTENTS

1 Introduction.....	1
1.1 Description of the Problem.....	1
1.2 Goals and Objectives.....	1
1.3 Purpose.....	1
1.4 Scope.....	1
1.5 Definitions, Acronyms and Abbreviations.....	2
1.6 Development Environment.....	2
1.6.1 Software.....	2
1.6.2 Hardware.....	2
1.7 Operational Environment.....	3
1.7.1 Software.....	3
1.7.2 Hardware.....	3
2 Requirement Description.....	4
2.1 Functional Requirement.....	4
2.2 Non-Functional Requirement.....	4
2.2.1 Security Requirement.....	4
2.2.2 Performance Requirement.....	5
2.2.3 Reliability Requirement.....	5
2.2.4 Availability Requirement.....	5
2.2.5 Efficiency Requirement.....	5
2.2.6 Usability Requirement.....	5
2.2.7 Portability Requirement.....	6
2.3 Traceability Matrix.....	6
3 Management Process.....	9
3.1 Project Schedule.....	9
3.1.1 Working Days Overview.....	9
3.1.2 Sketches & GUI.....	15

3.1.3 Tasks.....	31
3.2 Risk Management Plan.....	32
3.3 Project Plan.....	33
3.3.1 Phase Plan.....	33
3.3.2 Iteration Plan.....	33
3.3.3 Iteration Objectives.....	37
3.3.4 Releases.....	38
3.3.5 Project Resourcing.....	38
3.4 Project Monitoring and Control.....	38
3.4.1 Budget Control Plan.....	38
3.4.2 Quality Control Plan.....	39
3.4.3 Reporting Plan.....	39
3.4.4 Measurement Plan.....	40
4 Design Description.....	41
4.1 Product Perspective.....	41
4.2 Product Features.....	41
4.3 Other Use Cases.....	42
4.3.1 Registration For New Account Creation.....	42
4.3.2 Login Into The Account.....	44
4.3.3 Edit A Profile.....	45
4.3.4 Posting a Product For Sale.....	46
4.3.5 Bid On Product For Sale.....	48
4.3.6 Buy a Product From Auction.....	49
4.3.7 Buy A Product From Shopping Catalog.....	50
4.4 Context Diagram.....	51
4.5 System Sequence Diagram.....	52
4.5.1 SSD1 – Registration For New Account Information.....	52
4.5.2 SSD2 – Login To Account.....	53
4.5.3 SSD3 – Edit A Profile.....	54

4.5.4 SSD4 – Post Product For Sale.....	55
4.5.5 SSD5 – Bid on Product For Sale.....	56
4.5.6 SSD6 – Buy A Product From Auction.....	56
4.5.7 SSD7 – Buy A Product From Shopping Catalog.....	57
4.6 Operation Contracts.....	58
4.6.1 Operation Contract 1.....	58
4.6.2 Operation Contract 2.....	58
4.6.3 Operation Contract 3.....	59
4.6.4 Operation Contract 4.....	59
4.6.5 Operation Contract 5.....	60
4.6.6 Operation Contract 6.....	60
4.6.7 Operation Contract 7.....	60
4.7 Domain Model Diagram.....	61
4.8 Database Information.....	62
4.8.1 Database Tables.....	62

LIST OF THE FIGURES

Figure 3.1.2.1: Registration Page.....	15
Figure 3.1.2.2: Bid on a Product.....	16
Figure 3.1.2.3: Edit Profile.....	17
Figure 3.1.2.4: Login.....	18
Figure 3.1.2.5: Available Products.....	19
Figure 3.1.2.6: Buyer Details.....	20
Figure 3.1.2.7: Post a Product.....	21
Figure 3.1.2.8: Products in Auction.....	22
Figure 3.1.2.9: Start Page-1.....	23
Figure 3.1.2.10: Start Page-2.....	23
Figure 3.1.2.11: Login.....	24
Figure 3.1.2.12: Registration-1.....	24
Figure 3.1.2.13: Registration-2.....	25
Figure 3.1.2.14: Register Success.....	25
Figure 3.1.2.15: Email Already Exists.....	26
Figure 3.1.2.16: Available Products Page.....	26
Figure 3.1.2.17: Product Details Page.....	27
Figure 3.1.2.18: Product Purchased Page.....	27
Figure 3.1.2.19: Post Product Page.....	28
Figure 3.1.2.20: Products In Auction Page.....	28
Figure 3.1.2.21: Product Details Auction Page.....	29
Figure 3.1.2.22: Buyer Details Page.....	29
Figure 3.1.2.23: Products Purchased Page.....	30
Figure 3.1.2.24: Profile Edit Page.....	30
Figure 4.5.1.1: SSD1.....	52
Figure 4.5.2.1: SSD2.....	53

Figure 4.5.3.1: SSD3.....	54
Figure 4.5.4.1: SSD4.....	55
Figure 4.5.5.1: SSD5.....	56
Figure 4.5.6.1: SSD6.....	56
Figure 4.5.7.1: SSD7.....	57
Figure 4.7.1: Domain Model Diagram.....	61
Figure 4.8.1: System Class Diagram.....	62

LIST OF THE TABLES

Table 2.3.1: Traceability Matrix For Security.....	6
Table 2.3.2: Traceability Matrix For Performance.....	7
Table 2.3.3: Traceability Matrix Reliability.....	7
Table 2.3.4: Traceability Matrix For Availability.....	7
Table 2.3.5: Traceability Matrix For Efficiency.....	8
Table 2.3.6: Traceability Matrix For Usability.....	8
Table 2.3.7: Traceability Matrix For Portability.....	8
Table 3.1.1.1: Meeting 1.....	9
Table 3.1.1.2: Meeting 2.....	10
Table 3.1.1.3: Meeting 3.....	10
Table 3.1.1.4: Meeting 4.....	11
Table 3.1.1.5: Meeting 5:.....	11
Table 3.1.1.6: Meeting 6:.....	12
Table 3.1.1.7: Meeting 7:.....	12
Table 3.1.1.8: Meeting 8:.....	13
Table 3.1.1.9: Meeting 9:.....	13
Table 3.1.1.10: Meeting 10:.....	14
Table 3.1.3.1: Task Management.....	31
Table 3.2.1: Risk Management Plan.....	32
Table 3.3.1.1: Phase Plan.....	33
Table 3.3.2.1: Iteration Plan for Inception.....	33
Table 3.3.2.2: Iteration Plan for Elaboration - 1.....	34
Table 3.3.2.3: Iteration Plan for Elaboration - 2.....	34
Table 3.3.2.4: Iteration Plan for Construction -1.....	35
Table 3.3.2.5: Iteration Plan for Construction -2.....	35
Table 3.3.2.6: Iteration Plan for Construction -3.....	36
Table 3.3.2.7: Iteration Plan for Transition - 1.....	36

Table 3.3.2.8: Iteration Plan for Transition - 2.....	37
Table 3.3.5.1: Project Resource Allocation.....	38
Table 3.4.1.1: Budget Control Plan.....	38
Table 3.4.2.1: Quality Control Plan.....	39
Table 3.4.3.1: Reporting Plan.....	39
Table 3.4.4.1: Measurement Plan.....	40
Table 4.8.1.1: Database Tables.....	62
Table 5.1.1: Test Cases.....	63
Table 5.1.2: Test Cases - 1.....	64
Table 5.1.3: Test Cases - 2.....	65

1. INTRODUCTION

1.1. Description of the Problem

As technology advances rapidly, on-line shopping is a new trend on Internet. Buying and selling products on Internet is growing rapidly. As there are many e-commerce websites available, there is a need for auction based website which can allow the buyer to bid high if the product is worth its quality. An auction based web application becomes an effective tool where a seller can post the item for bidding and multiple buyers across the globe can view the product and bid high for the product. This allows the flexibility for the seller as well the buyer.

1.2. Goals and Objectives

The main goal is to provide a system for users to easily and quickly sell or purchase needed items. To achieve that goal these objectives must be met:

- Provide a website with a clean, intuitive user interface to facilitate posting and buying items.
- Provide accounts for users to register and login with.

1.3. Purpose

The system makes it easier for local buying and selling of personal items. Having an auction based system with a short timer of sixty minutes makes for a fun and engaging sale that maximizes the profits for the seller and the convenience for the buyer.

1.4. Scope

The software is a web application which shall be available on Google Chrome and Microsoft Edge. Web application shall be tested on both the browsers.

The web app shall only be available in the United States. The language supported shall be English and the currency supported is US dollars.

Once the buyer is confirmed for the product, the product shall be marked as sold and the buyer details shall be sent to seller. Seller shall be able to contact buyer using email id or phone no. The payment transaction shall be outside the scope of the system.

Auction Based E-Commerce Web Application

Users shall be able to create accounts and the system shall secure that information. This information includes name, addresses, phone numbers, email addresses, usernames and passwords. This information shall be encrypted and only accessible to the user.

For user convenience session cookies shall be used to save information about a users' activity on the system while the session is still valid. Once the user exits the browser the cookies shall be deleted, and no other information shall be saved.

The development team shall comply with implementing into the system any national and local laws in regards to products sold at auction and any tax laws that must be taken into account. The team shall not allow for sale any of the following: weapons, drugs, illicit services or any other category the team sees fit.

1.5. Definitions, Acronyms and Abbreviations

- **Bid:** Offer of a certain price at an auction.
- **Base Price:** Price considered to be the final price.

1.6. Development Environment

1.6.1. Software

Operating system: Windows 10 Home 64 bit

Programming Language: ASP .NET 4.6

IDE: Microsoft Visual Studio Community 2015

Database: SQL Server 2016

1.6.2. Hardware

- 2.4 GHz Processor
- 6 GB of RAM
- 50 GB of available hard disk space for a typical installation
- 5400 RPM hard drive

1.7. Operational Environment

1.7.1. Software

Web Browser: Google Chrome, Microsoft Edge

1.7.2. Hardware

- 1.6 GHz Processor or higher
- 1 GB of RAM

2. REQUIREMENT DESCRIPTION

2.1. Functional Requirements

Functional Requirements for Users-

The End users shall be classified into two users-

- Buyer
 - User shall be able to sign up for an account.
 - User shall be able to login/logout.
 - User shall be able to update profiles.
 - User shall be able to view the products to be purchased.
 - User shall be able to bid on the product for purchase.
 - User shall be able to purchase the product.
 - User shall be able to receive the confirmation message after purchase.
 - User shall make the payment.
- Seller
 - User shall be able to sign up for an account.
 - User shall be able to login/logout.
 - User shall be able to update profiles.
 - User shall be able to post the product to be sold.
 - User shall be able to remove the product.
 - User shall be able to receive the buyer details after the product is sold.
 - User shall receive the payment.

2.2. Non-Functional Requirements

2.2.1. Security Requirements

- The system shall prevent accidental actions outside of the designed usage like Cross-Site Scripting.
- The system shall keep confidential data.
- The system shall prevent loss of information.
- The system shall use bcrypt hashing function to encrypt the password.

Auction Based E-Commerce Web Application

- The system shall protect assets and prevent data modification to the user who does not have edit access rights.

2.1.2. Performance Requirements

- The system shall be responsive.
- The system shall execute the predefined functions.
- The system shall execute the predefined tasks.
- The system's performance shall be measured in terms of latency.
- The system's performance shall be measured in terms of throughput.
- The system shall handle multiple tasks at the same time.
- The system shall handle multiple Buyers bid on a particular product at the same time.

2.2.3. Reliability Requirements

- The system shall operate at highest degree without any error that cause the system to behave in an unsafe manner.
- The system shall achieve 99% up time.
- The system shall remain operational throughout the session with very low probability of a system crash.

2.2.4. Availability Requirements

- The system shall be available for the user throughout the cookie session.
- The system shall be available throughout the functions.

2.2.5. Efficiency Requirements

- The system shall be effective and operate at the consistent level throughout the sessions.
- The system shall be logically integrated.

2.2.6. Usability Requirements

- The system shall have rich user interface which shall be easy to use.
- Website navigation shall be intuitive.
- The system shall have a timer of 60-minute once the product is posted for sale.
- The system shall handle multiple bids within the 60-minute timer.

Auction Based E-Commerce Web Application

- The maximum length of the first name shall be 30 characters.
- The maximum length of the last name shall be 30 characters.
- The maximum length of the password shall be 16 characters.
- The minimum length of the password shall be 8 characters.
- The maximum length of the address shall be 250 characters.
- The maximum length of the city shall be 25 characters.
- The maximum length of the state shall be 20 characters.
- The maximum length of the zip code shall be 5 characters.
- The maximum length for email address shall be 40 characters.

2.2.7. Portability Requirements

- The system shall be a web application which shall be accessible across Internet, without worrying about the OS platform.

2.3. Traceability Matrix

Security	S1. The system shall prevent accidental actions outside of the designed usage like Cross-Site Scripting.
	S2. The system shall keep confidential data.
	S3. The system shall prevent loss of information.
	S4. The system login shall be password based.
	S5. The system shall use bcrypt hashing function to encrypt the password.
	S6. The system shall protect assets and prevent unauthorized modifications of information.

Table 2.3.1: Traceability Matrix for Security

Performance	P1. The system shall be responsive.
	P2. The system shall execute the predefined functions.
	P3. The system shall execute the predefined tasks.
	P4. The system's performance shall be measured in terms of latency.
	P5. The system's performance shall be measured in terms of throughput.
	P6. The system shall handle multiple tasks at the same time.
	P7. The system shall handle multiple buyers bidding on a particular product at the same time.

Table 2.3.2: Traceability Matrix for Performance

Reliability	R1. The system shall operate at the highest degree without any error that causes the system to behave in an unsafe manner.
	R2. The system shall achieve 99% uptime.
	R3. The system shall remain operational throughout the session with very low probability of a system crash.

Table 2.3.3: Traceability Matrix for Reliability

Availability	A1. The system shall be available for the user throughout the cookie session.
	A2. The system shall have all functions and modules up for the users.

Table 2.3.4: Traceability Matrix for Availability

Efficiency	E1. The system shall be effective and operate at the consistent level throughout the sessions.
	E2. The system shall be logically integrated.

Table 2.3.5: Traceability Matrix for Efficiency

Usability	U1. The system shall have a rich user interface which shall be easy to use.
	U2. The User shall be able to navigate to web pages without any confusion. U2.1 The system navigation shall be intuitive and easy for user to understand.
	U3. The system shall have a timer of 60-minutes once the product is posted for sale.
	U4. The system shall handle multiple bids within the 60-minute timer.
	U5. The system shall save the user's First Name, Last Name, email address, phone number and password. U5.1 The maximum length of the first name shall be 30 characters. U5.2 The maximum length of the last name shall be 30 characters. U5.3 The maximum length of the password shall be 16 characters. U5.4 The minimum length of the password shall be 8 characters. U5.5 The maximum length of the address shall be 250 characters. U5.6 The maximum length of the city shall be 25 characters. U5.7 The maximum length of the state shall be 20 characters. U5.8 The maximum length of the zip code shall be 5 characters. U5.9 The maximum length for email address shall be 40 characters.

Table 2.3.6: Traceability Matrix for Usability

Portability	POR1. The system shall be a web application which shall be accessible across the Internet, without worrying about the OS platform.
--------------------	--

Table 2.3.7: Traceability Matrix for Portability

3. MANAGEMENT PROCESS

3.1 Project Schedule

3.1.1 Working Days Overview (Meetings, Notes, Ideas, Sketches, Points and etc.)

Meeting	Meeting 1		
Date of Meeting:	08/27/2016	Time:	3:30 pm to 4:30 pm
Minutes Prepared By:	Bhaviya Rajesh Gandani	Location:	CSUF College Library
1. Meeting Objectives			
To find the scope and vision of the project.			
2. Notes, Decisions, Issues, Ideas, Points			
Determined project goals, features, tasks, deadlines and ultimately costs which gave a sense of purpose for executing the project.			
Idealistic view of the desired outcomes produced for the project to be evaluated.			
Issues and Concerns related to the project were found which might take some time while creating the project.			

Table 3.1.1.1: Meeting 1

Meeting	Meeting 2		
Date of Meeting:	09/03/2016	Time:	4:30 pm to 6:00 pm
Minutes Prepared By:	Roya Askari	Location:	CSUF College Library
1. Meeting Objectives			
To find the functional and non-functional requirements.			
2. Notes, Decisions, Issues, Ideas, Points			
Determined the hardware and software to be used for this project.			
Created rough sketches for the project and identified the non-functional requirements for the project.			
Identified the new features to be implemented in this project and advantages or disadvantages for this project.			

Table 3.1.1.2: Meeting 2

Meeting	Meeting 3		
Date of Meeting:	09/10/2016	Time:	2:30 pm to 5:30 pm
Minutes Prepared By:	Justin Shelley	Location:	CSUF College Library
1. Meeting Objectives			
To identify risk factors and rectify it, To create use cases and activity diagrams for the project.			
2. Notes, Decisions, Issues, Ideas, Points			
Identified various risk factors concerned with this project by identifying project estimates, project members roles and responsibilities, project completion estimated date.			
Created 4-5 use cases for the project and modified on that use cases.			
Created activity diagrams for the project.			

Table 3.1.1.3: Meeting 3

Meeting	Meeting 4		
Date of Meeting:	09/24/2016	Time:	1:30 pm to 4:00 pm
Minutes Prepared By:	Praful Surve	Location:	CSUF College Library
1. Meeting Objectives			
To initiate analysis and design, to assign different tasks for each project member.			
2. Notes, Decisions, Issues, Ideas, Points			
Performed proper analysis on the project in terms of requirements, technicality and feasibility.			
Started with designing of the project.			
Based on the knowledge and ability, each project member was assigned with some tasks which should be completed by deadline.			

Table 3.1.1.4: Meeting 4

Meeting	Meeting 5		
Date of Meeting:	10/09/2016	Time:	2:30 pm to 3:00 pm
Minutes Prepared By:	Bhaviya Rajesh Gandani	Location:	CSUF College Library
1. Meeting Objectives			
To determine database platform and database tables.			
2. Notes, Decisions, Issues, Ideas, Points			
Identified the database platform in which the database is created.			
Identified the count of database tables.			
Identified the list of database tables which have the significance in storing the data.			

Table 3.1.1.5: Meeting 5

Meeting	Meeting 6		
Date of Meeting:	10/23/2016	Time:	4:30 pm to 5:30 pm
Minutes Prepared By:	Praful Surve	Location:	CSUF College Library
1. Meeting Objectives			
To gather the assigned work of each project member and perform any changes.			
2. Notes, Decisions, Issues, Ideas, Points			
Collected the data and design code from each project member and merged it.			
Made some minor changes as per the project motive.			
Assigned different tasks to each project member.			

Table 3.1.1.6: Meeting 6

Meeting	Meeting 7		
Date of Meeting:	10/26/2016	Time:	4:30 pm to 5:30 pm
Minutes Prepared By:	Praful Surve	Location:	CSUF College Library
1. Meeting Objectives			
To initiate the database schema and create the database tables.			
2. Notes, Decisions, Issues, Ideas, Points			
Installed the database in laptops.			
Performed the database set up.			
Created the database tables for the project.			

Table 3.1.1.7: Meeting 7

Meeting	Meeting 8		
Date of Meeting:	11/02/2016	Time:	3:30 pm to 5:30 pm
Minutes Prepared By:	Bhaviya Gandani	Location:	CSUF College Library
1. Meeting Objectives			
To integrate the database connectivity with the design of the project.			
2. Notes, Decisions, Issues, Ideas, Points			
Performed Coding to integrate the database connectivity.			
Tested the database connectivity.			
Fixed bugs related to database connectivity.			

Table 3.1.1.8: Meeting 8

Meeting	Meeting 9		
Date of Meeting:	11/15/2016	Time:	3:30 pm to 5:30 pm
Minutes Prepared By:	Justin Shelley	Location:	CSUF College Library
1. Meeting Objectives			
To perform alpha testing for the project.			
2. Notes, Decisions, Issues, Ideas, Points			
Performed Module Testing for the project.			
Fixed Bugs after Module Testing.			
Performed Alpha Testing for the project.			

Table 3.1.1.9: Meeting 9

Meeting	Meeting 10		
Date of Meeting:	11/28/2016	Time:	10:00 am to 11:30 am
Minutes Prepared By:	Bhaviya Gandani	Location:	CSUF College Library
1. Meeting Objectives			
To deploy the project and perform beta testing.			
2. Notes, Decisions, Issues, Ideas, Points			
Deployed the project.			
Perfomed Beta Testing.			

Table 3.1.1.10: Meeting 10

3.1.2 Sketches & GUI

Following are the sketches and GUI:

A hand-drawn sketch of a registration page for an auction-based e-commerce web application. The page is titled "AUCTION BASED E-COMMERCE WEB APPLICATION" and "REGISTRATION". It contains fields for user registration and a login section.

Registration Fields:

- FIRST NAME *
- LAST NAME *
- MOBILE NO
- EMAIL ADDRESS *
- COUNTRY *
- STATE *
- CITY *
- CHOOSE PASSWORD *
Atleast 8 characters & numbers

Login Section:

- ALREADY A USER?
- LOGIN
- EMAIL
- PASSWORD
- LOGIN

Buttons:

- REGISTER

Footnote:

- * indicates mandatory

Figure 3.1.2.1: Registration page

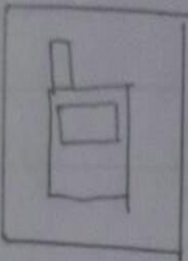
AUCTION BASED E-COMMERCE WEB APPLICATION			
<u>PROFILE</u>			<u>SIGN OUT</u>
AVAILABLE PRODUCTS	PRODUCTS IN AUCTION	POST A PRODUCT	MESSAGES
<div></div> <div>PRODUCT NAME : MOBILE</div> <div>PRODUCT CATEGORY : ELECTRONICS</div> <div>DESCRIPTION: NOKIA LUMIA A10 WITH LATEST SPECIFICATIONS IN GOOD PRICE. EARPHONES INCLUDED</div> <div>BASE PRICE: \$11.50</div> <div><input type="text"/> <input type="button" value="BID"/></div> <div>TIME REMAINING - 08:58</div>			
BID ON A PRODUCT			

Figure 3.1.2.2: Bid on a Product

AUCTION BASED E-COMMERCE WEB APPLICATION			
PROFILE			SIGN OUT
AVAILABLE PRODUCTS	PRODUCTS IN AUCTION	POST A PRODUCT	MESSAGE
<div>PROFILE EDIT</div> <div><div>FIRST NAME</div><input type="text"/></div> <div><div>LAST NAME</div><input type="text"/></div> <div><div>MOBILE</div><input type="text"/></div> <div><div>EMAIL ADDRESS</div><input type="text"/></div> <div><div>COUNTRY</div><input type="text"/></div> <div><div>STATE</div><input type="text"/></div> <div><div>CITY</div><input type="text"/></div> <div><div>PASSWORD</div><input type="text"/></div> <div><input type="button" value="SAVE"/></div>			

Figure 3.1.2.3: Edit Profile

A hand-drawn diagram of a login form for an auction-based e-commerce web application. The form is enclosed in a rectangular border. At the top, the title "AUCTION BASED E-COMMERCE WEB APPLICATION" is written. Below the title, the word "LOGIN" is centered. The form contains three input fields: "EMAIL ADDRESS" with a corresponding text box, "PASSWORD" with a corresponding text box, and a "LOGIN" button. The word "LOGIN" is also written below the form.

AUCTION BASED E-COMMERCE WEB APPLICATION

LOGIN

EMAIL ADDRESS

PASSWORD

LOGIN

Figure 3.1.2.4: Login

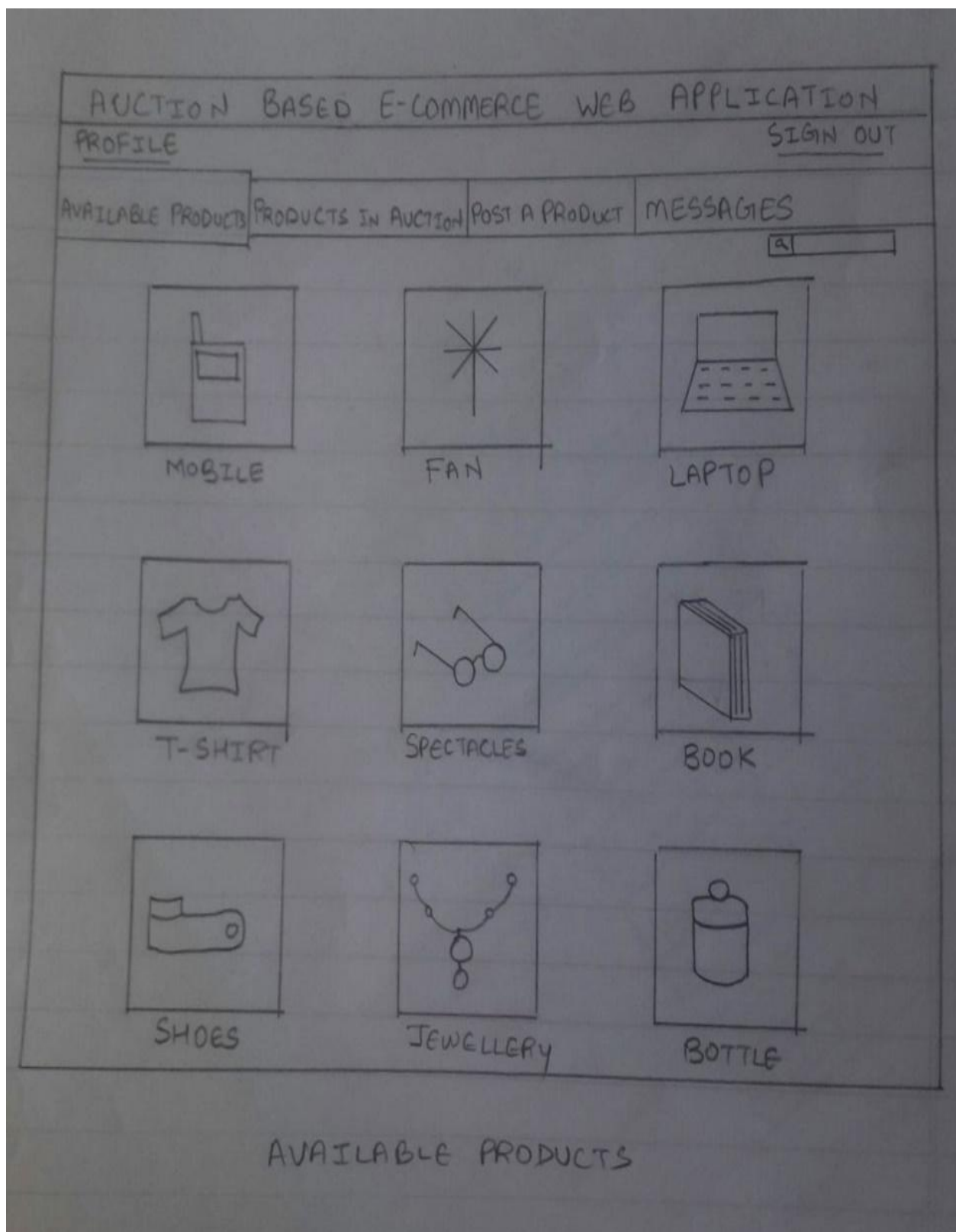


Figure 3.1.2.5: Available Products

AUCTION BASED E-COMMERCE WEB APPLICATION			
PROFILE			SIGN OUT
AVAILABLE PRODUCTS	PRODUCTS IN AUCTION	POST A PRODUCT	MESSAGES
BUYER DETAILS			
ANKUR GIANDHI	INTERESTED: BOOK	PRICE: \$1100	ankur@gmail.com
PAWAN KUMAR	INTERESTED: CAR	PRICE: \$200	pkumar@gmail.com
JOHN SMITH	INTERESTED: MOBILE	PRICE: \$120	john@gmail.com

BUYER DETAILS

Figure 3.1.2.6: Buyer Details

AUCTION BASED E-COMMERCE WEB APPLICATION			
<u>PROFILE</u>		<u>SIGN OUT</u>	
AVAILABLE PRODUCTS	PRODUCTS IN AUCTION	POST A PRODUCT	MESSAGES

IMAGE

BROWSE

PRODUCT NAME *

CATEGORY *

DESCRIPTION *

BASE PRICE *

CHOOSE ▾

ONLY NUMBERS

POST PRODUCT

POST A PRODUCT

Figure 3.1.2.7: Post a Product

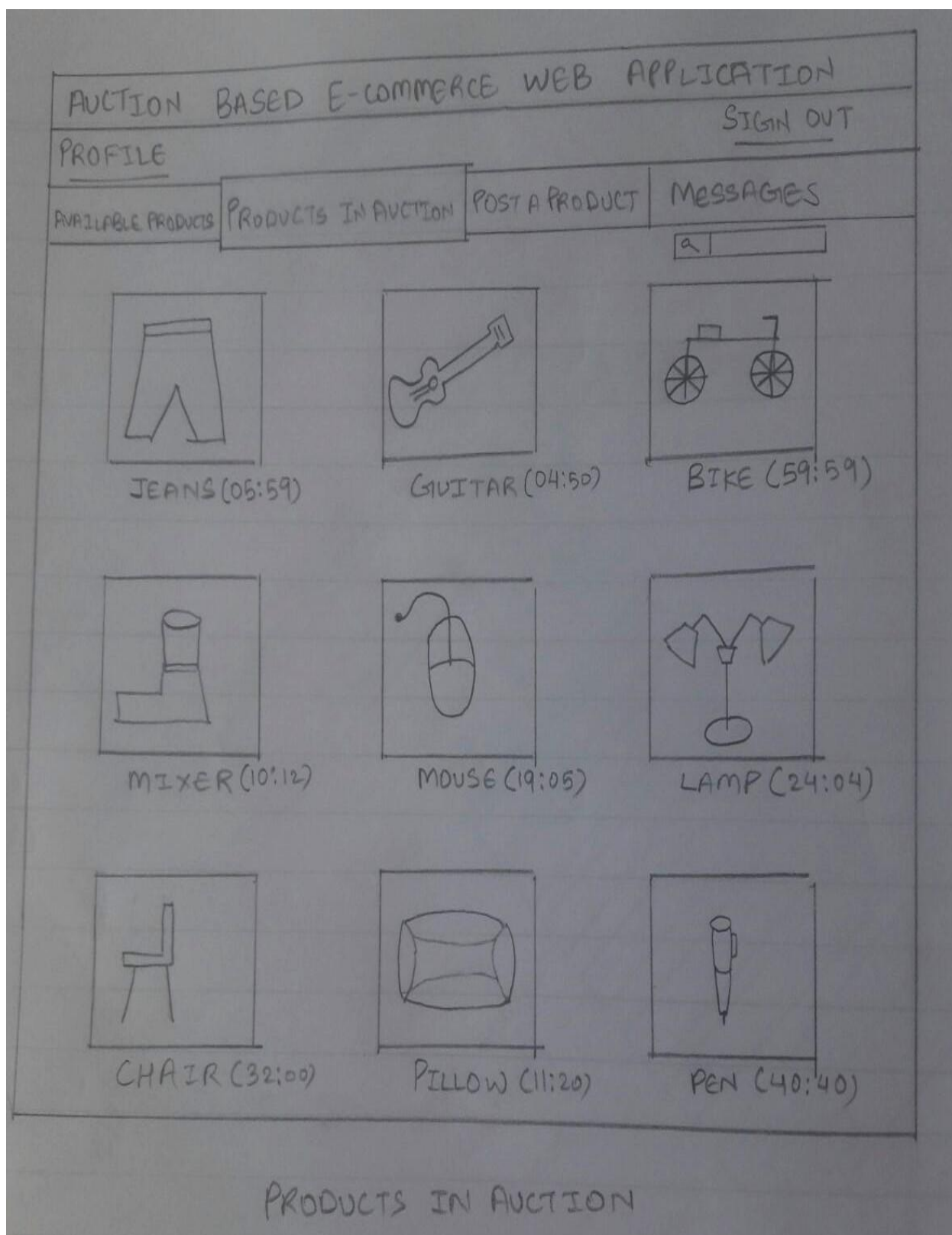


Figure 3.1.2.8: Products in Auction

AUCTION BASED E - COMMERCE WEB APPLICATION



[Register](#) [Login](#)

E-COMMERCE

Auction Based Web Application

In eCommerce, your prices have to be better because the consumer has to take a leap of faith in your product.

[Buy now](#)



Figure 3.1.2.9: Start page – 1

Auction Based E-Commerce Web Application is an application in which the seller posts the product for sale and as soon as it is posted, the auction timer generates under which multiple buyers can bid for that product in order to buy. The buyer who places the highest bid for that product under the auction timer will be able to successfully purchase the product. This web application gives the flexibility to both - Buyers and Sellers.

HOW IT WORKS



Copyright © 2016 Auction Based Ecommerce Web Application. All rights reserved.

Figure 3.1.2.10: Start page – 2

[Register](#) [Login](#)

AUCTION BASED E - COMMERCE WEB APPLICATION

Login to your account

Login

Note - '*' indicates madatory fields

Figure 3.1.2.11: Login

[Register](#) [Login](#)

AUCTION BASED E - COMMERCE WEB APPLICATION

New User Registration!

Figure 3.1.2.12: Registration – 1

Auction Based E-Commerce Web Application

State*

City*

Address*

Password* (Min 8 and Max 16 Characters Required)

Register

Note - "*" indicates madatory fields

Copyright © 2016 Auction Based Ecommerce Web Application. All rights reserved.

Figure 3.1.2.13: Registration – 2

Register Login

AUCTION BASED E - COMMERCE WEB APPLICATION

Registration Successful !!!

[Click Here](#) To Login

Copyright © 2016 Auction Based Ecommerce Web Application. All rights reserved.

Figure 3.1.2.14: Register Success



User With Same Email Address Already Exists

[Click Here](#) To Register With Different Email Address

Copyright © 2016 Auction Based Ecommerce Web Application. All rights reserved.

Figure 3.1.2.15: Email Already Exists

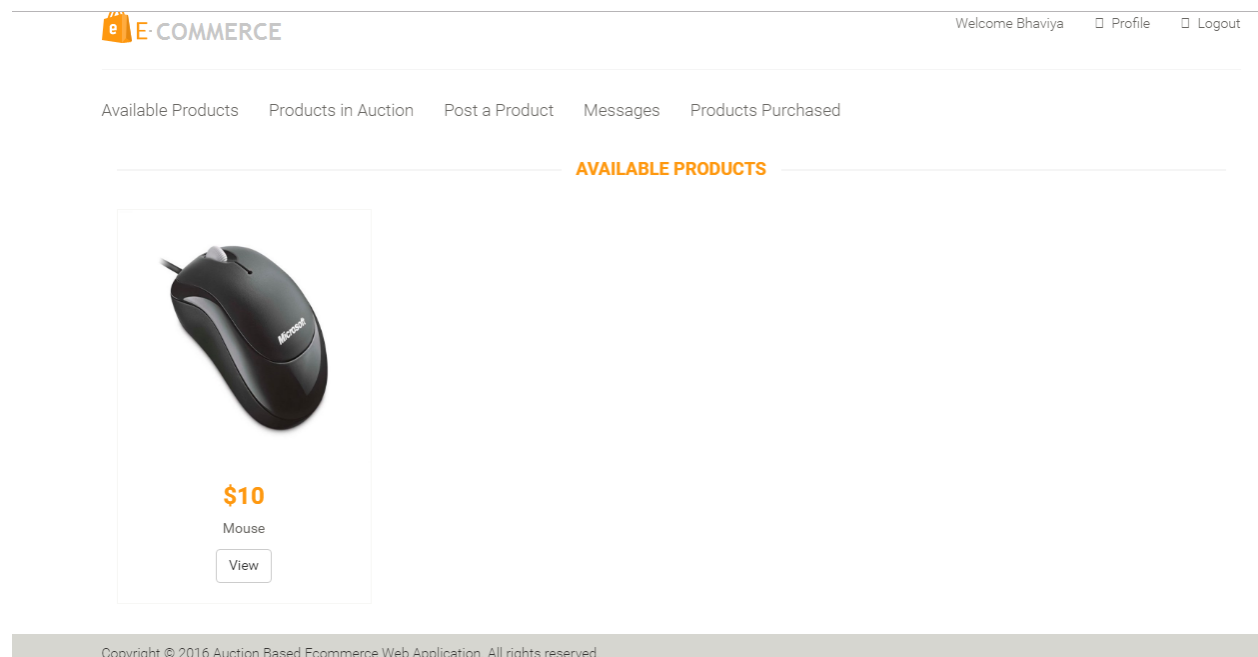



Figure 3.1.2.16: Available Products Page

The screenshot displays the user interface of an auction-based e-commerce web application. At the top, a dark blue header contains the title "AUCTION BASED E - COMMERCE WEB APPLICATION" in white. Below the header, the navigation bar includes the application logo (a shopping bag with a dollar sign) and the text "E-COMMERCE" on the left, and user options "Welcome Bhaviya", "Profile", and "Logout" on the right. A horizontal menu below the navigation bar lists "Available Products", "Products in Auction", "Post a Product", "Messages", and "Products Purchased". The main content area features a section titled "PRODUCT DETAILS" in red, followed by a large, bold, red message: "Congratulations....Product Purchased Successfully !!!". Below this message, a paragraph states: "Your details are shared to the seller who posted the product and will contact you for the further transaction." The footer of the page contains the copyright notice: "Copyright © 2016 Auction Based Ecommerce Web Application. All rights reserved."

27

AUCTION BASED E - COMMERCE WEB APPLICATION

Welcome (Paful)ProfileLogout

Available ProductsProducts in AuctionPost a ProductMessagesProducts Purchased

POST A PRODUCT

PRODUCT NAME

Mouse

PRODUCT BASE PRICE

10

DESCRIPTION

Good quality mouse

PRODUCT CATEGORY

Computers

IMAGE UPLOAD 1

Browse...mouse1.jpg

IMAGE UPLOAD 2

Browse...mouse2.jpg

IMAGE UPLOAD 3


Browse...mouse3.jpg

Post

Note - * indicates mandatory fields


Figure 3.1.2.19: Post a Product Page

AUCTION BASED E - COMMERCE WEB APPLICATION

Welcome (Paful)ProfileLogout

Available ProductsProducts in AuctionPost a ProductMessagesProducts Purchased

PRODUCTS IN AUCTION



\$10

Mouse

View

Copyright © 2019 Auction Based E-commerce Web Application. All rights reserved.

Figure 3.1.2.20: Products in Auction Page

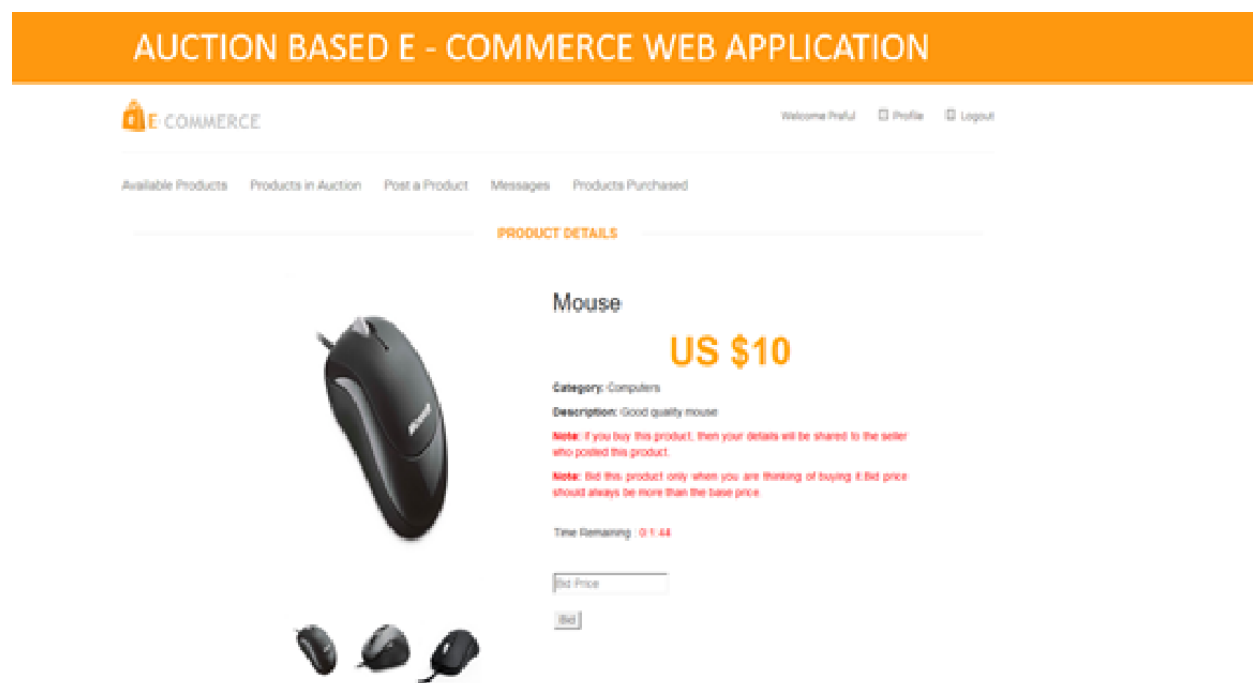


Figure 3.1.2.21: Product Details Auction Page

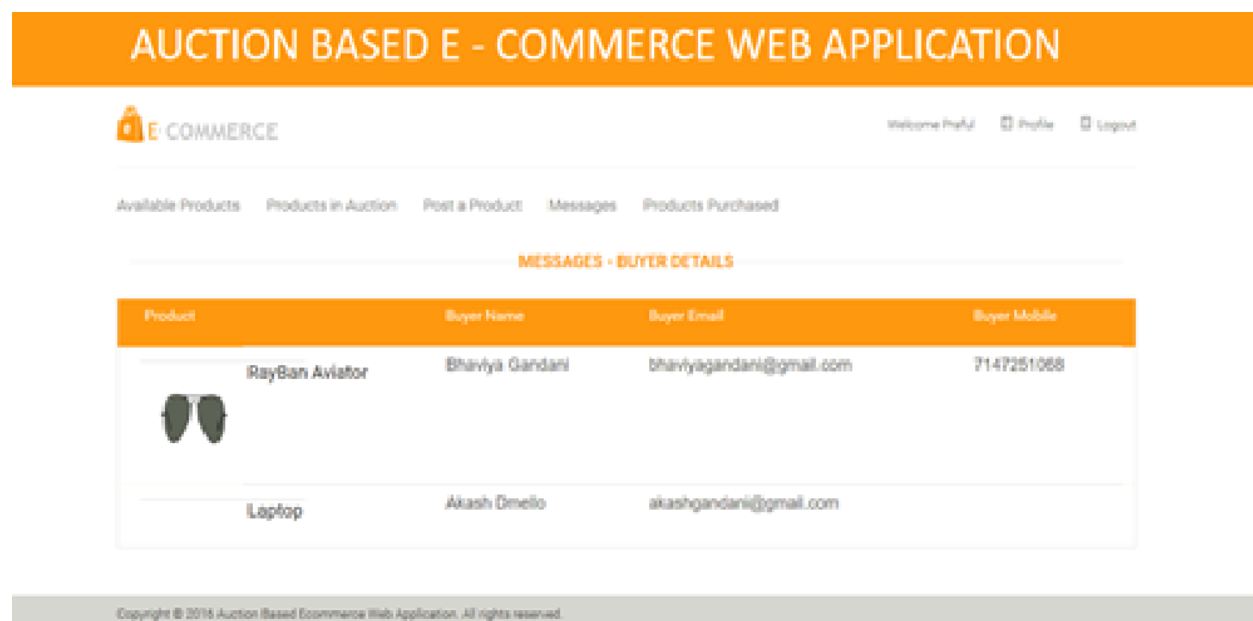


Figure 3.1.2.22: Buyer Details Page

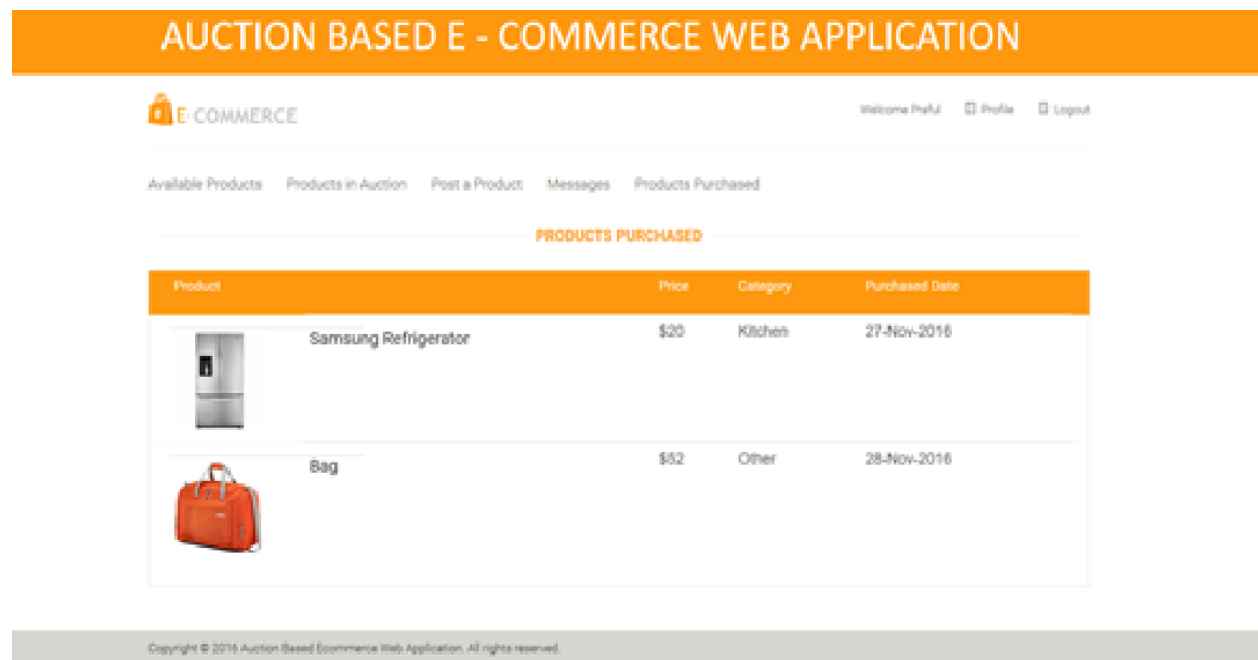


Figure 3.1.2.23: Products Purchased Page

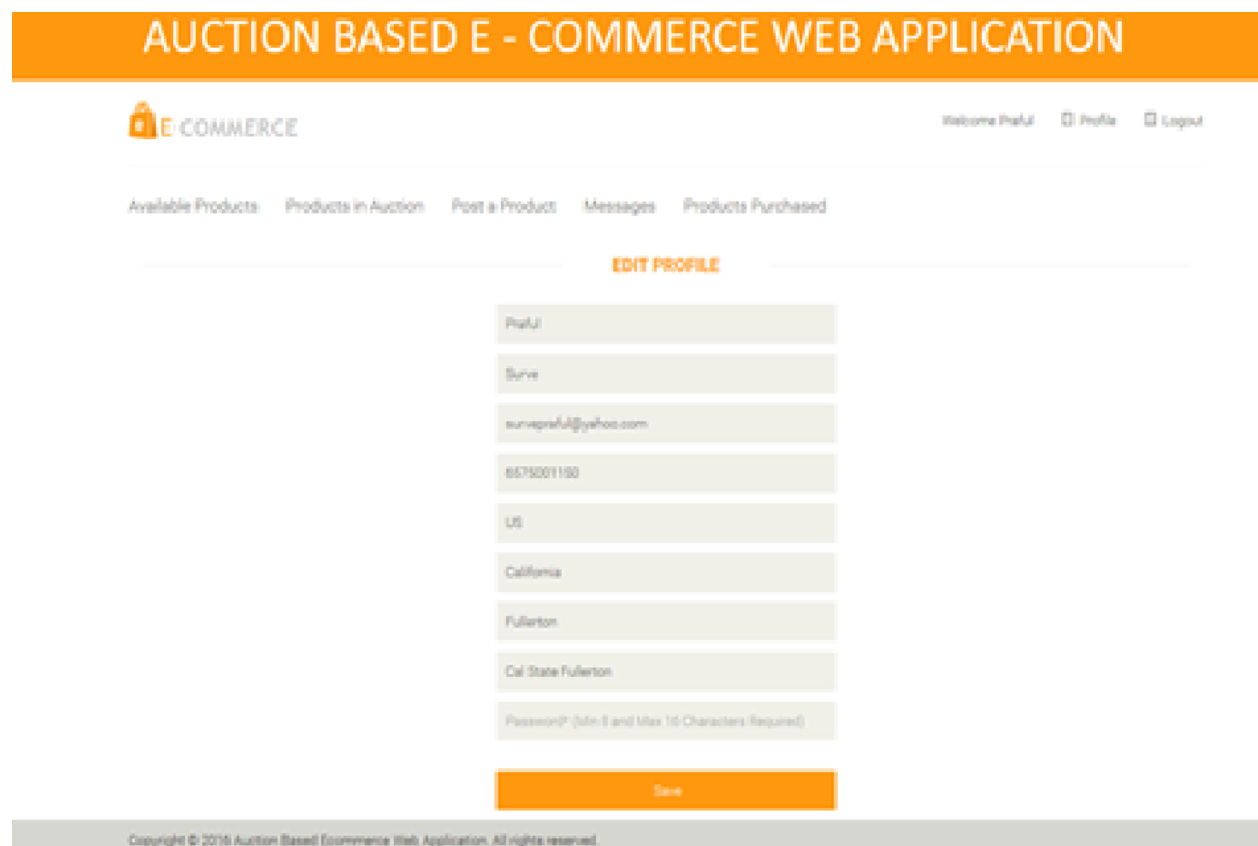


Figure 3.1.2.24: Edit Profile Page

3.1.3 Tasks

Task No.	Task Name	Assigned To	Priority	Status	Time Taken
1	Project Scope	Justin Shelley			30 min
2	Project Vision	Roya Askari			30 min
3	Cost Estimates	Bhaviya Gandani			1 hour
4	Risk Analysis	Praful Surve			15 min
5	Requirements Gathering	Roya Askari			4 days
6	Technical Analysis	Praful Surve			30 min
7	Feasibility Analysis	Justin Shelley			30 min
8	Design	Praful Surve			7 days
9	Coding	Bhaviya Gandani			17 days
10	Database Connection	Bhaviya Gandani			4 days
11	Implementation	Roya Askari			5 days
12	Testing	Justin Shelley			13 days
13	Deployment	Praful Surve			8 days
14	Configuration Mgmt.	Roya Askari			2 days
15	Project Mgmt.	Bhaviya Gandani			2 days

Priority - Low Medium High

Status - Done In Progress Pending

Table 3.1.3.1: Task Management

3.2 Risk Management Plan

ID	Risk	Description	Probability	Impact	Priority	Mitigation
1	Hardware & Software Defects	A computer hardware or software crashes	10%	5	High	Backup the saved project in another system every time when changes are made
2	Wrong Estimates of Schedule	Tasks assigned are pending after deadline	4%	3	Medium	New Schedule to be created urgently with the tasks assigned by the Project Manager
3	New Features in project	Features such as Rent a Product, Payment Gateway to be added	30%	4	Medium	New Features should be divided among project members
4	Lack of Communication among project members	More than 1 Project Members doing the same task	20%	2	Low	Project Manager should collaborate and assign tasks to each project member
5	Project Member resigned from project	Tasks Pending of the resigned Project Member	40%	4	High	Each and every project member should know about each other's work
6	Software not available	software license is expired	5%	3	High	Software installed in another system

Table 3.2.1: Risk Management Plan

3.3 Project Plan

3.3.1 Phase Plan

Phase	Effort	Schedule	Status	Activities
Inception	5%	10%	✓	1.Vision & Scope 2.Cost Estimates 3.Business Case
Elaboration	20%	30%	✓	1.Find Requirements 2.High Risks Resolution
Construction	65%	50%	✓	1.Lower Risks Implementation 2.Preparation for Deployment
Transition	10%	10%	✓	1.Beta Tests 2.Deployment




Status -  Done  In Progress  Pending

Table 3.3.1.1: Phase Plan

3.3.2 Iteration Plan

Artifacts	Days	Description	Status
Initial project plan	2	Finding the problem description, project scope and major benefits for creating the project	✓
Vision and product feature requirements	1	Understanding the project vision and finding low-level requirements	✓
Supplementary requirements	3	Focusing on the non-functional requirements	✓
Risk Management	3	Analyzing the risks and their mitigation plans	✓
Use-Case model	4	Creating the Use-Case model of the project	✓

Status -  Done  In Progress  Pending

Number of Days for Inception Iteration Plan = 13

Table 3.3.2.1: Iteration Plan for Inception

Auction Based E-Commerce Web Application

Artifact	Days	Description	Status
Domain Model	3	Creating the conceptual model that incorporates both behavior and data	✓
Design Model	6	Creating object model describing the realization of use cases, and serves as an abstraction of the implementation model and its source code	✓
Software Architecture Document	4	Creating the architectural view of the project and understanding different aspects of the project	✓

Status -  Done  In Progress  Pending

Number of Days for Elaboration Iteration 1= 13

Table 3.3.2.2: Iteration Plan for Elaboration (Iteration 1)

Artifact	Days	Description	Status
Data Model	5	Creating an abstract model that organizes elements of data and standardizes how they relate to one another	✓
Use Case Storyboards	8	Creating a logical and conceptual description of how a use case is provided by the user interface	✓

Status -  Done  In Progress  Pending

Number of Days for Elaboration Iteration Plan = 13

Table 3.3.2.3: Iteration Plan for Elaboration (Iteration 2)

Artifact	Days	Description	Status
Process Optimization	6	Minimizing the cost and maximizing throughput and efficiency	✓
Project Design	7	Creating the User Interface for the project	✓

Status -  Done  In Progress  Pending

Number of Days for Construction Iteration 1 = 13

Table 3.3.2.4: Iteration Plan for Construction (Iteration 1)



Artifact	Days	Description	Status
Project Database	4	Creating Database schema and tables for the project	✓
Project Integration	9	Integrating database connectivity with UI	✓

Status -  Done  In Progress  Pending

Number of Days for Construction Iteration 2 = 13

Table 3.3.2.5: Iteration Plan for Construction (Iteration 2)



Auction Based E-Commerce Web Application

Artifact	Days	Description	Status
Code-behind Logic	8	Developing the code behind logic for the project	
Module Testing	5	Testing the project including unit testing, stress testing and integration testing	

Status -  Done  In Progress  Pending

Number of Days for Construction Iteration 3 = 13



Table 3.3.2.6: Iteration Plan for Construction (Iteration 3)

Artifact	Days	Description	Status
Alpha Testing	8	Integration testing and testing the project functionality	
Bug Fixes	5	Fixing bugs discovered in alpha testing	

Status -  Done  In Progress  Pending

Number of Days for Transition Iteration 1 = 13

Table 3.3.2.7: Iteration Plan for Transition (Iteration 1)

Artifact	Days	Description	Status
Project Deployment	8	Deploying Project	
Beta Tests	5	User Acceptance Testing to satisfy User's requirements	

Status -  Done  In Progress  Pending

Number of Days for Inception Iteration 2 = 13

Table 3.3.2.8: Iteration Plan for Transition (Iteration 2)

3.3.3 Iteration Objectives

In each iteration of a phase, the objectives were created in order for a project team to complete the objectives in the minimal amount of time.

1. Objectives in Inception Iteration:
 - Define the Vision and Scope of the project
 - Define the Business Case of the project
 - Identify Cost Estimates
2. Objectives in Elaboration Iteration:
 - Identify Main requirements
 - Create Use Case Models related to the project
 - Implementation of Core Architecture
3. Objectives in Construction Iteration:
 - Create Activity Diagrams, Context Diagrams and Sequence Diagrams
 - Designing and Coding of the project
 - Identify risks associated with project
4. Objectives in Transition Iteration:
 - Beta Tests
 - Deployment

- User Feedback

3.3.4 Releases

In Version 1.0, Auction based website shall be built where the seller and the buyer has the flexibility to sell and buy the product with profit margin. The timer shall be implemented for the auction where multiple buyers can bid on the product posted by the seller within a stipulated amount of time. Further versions may fix the bugs if any and few enhancements in the project.

3.3.5 Project Resourcing

Resource Name	Skillset	Educational Qualification	Role
Bhaviya Gandani	ASP .NET, C#, MS SQL	M.S. Computer Science	Project Manager
Praful Surve	ASP .NET, C#, MS SQL	M.S. Computer Science	Software Developer
Justin Shelley	ASP .NET, MS Excel, MS SQL	B.S. Computer Science	Software Designer
Roya Askari	ASP .NET, Automation testing	B.S. Computer Science	Software Tester

Table 3.3.5.1: Project Resource Allocation

3.4 Project Monitoring and Control

3.4.1 Budget Control Plan

Activities	Estimated Costs
Project Management	\$50
Hardware	\$30
Software	\$20
Testing	\$10
Reserves	\$20
Total	\$130

Table 3.4.1.1: Budget Control Plan

3.4.2 Quality Control Plan

Project Deliverables	Quality Standards	Activities	Frequency
Application in which a seller posts a product for sell	End User does not face any errors which the product is posted	Unit Testing done by Tester	Twice per week
Application in which a seller posts a product for rent	End User does not face any errors which the product is posted	Unit Testing done by Tester	Twice per week
Application in which a buyer but or gets the product for rent	End User does not face any errors which the product is purchased	Unit Testing done by Tester	Once per week

Table 3.4.2.1: Quality Control Plan

3.4.3 Reporting Plan

Reporting Plan	Description
Report Summary	Project is 70% Completed along with the requirements
Project Progress	Cost Estimates and Analysis is done
Planned Progress	Design, Coding and Database Connectivity are in progress and shall be done very shortly
Risks	Hardware and Software risks
Budget	Current - \$90 Future - \$40
Schedule	Every weekend, a meeting shall be placed to discuss about the current project status and what shall be implemented in future

Table 3.4.3.1: Reporting Plan

3.4.4 Measurement Plan

Objective	KPI's	Measurement	Segment	Status	Implementation
Product Sell Online	Increase Products for sale	Free Signup or Registration	By Geolocation	Yes	Basic Report
Website Awareness	Increase Marketing in social networking sites	Number of socially engaged users	Socially Engaged	No	Basic Report
Seller/Buyer Loyalty	Verification Link sent to email address of Seller/Buyer	Number of loyal users	By Geolocation	Yes	Basic Report

Table 3.4.4.1: Measurement Plan

4. DESIGN DESCRIPTION

4.1. Product Perspective

In near future we would like to add the features such as rent and payment gate way to this system since there is high demand for renting.

- **Rental Services:** offer a service for users to rent out their items for a specified period of time and amount of money.
- **Online Payment:** offer a payment gateway as a service to handle purchasing and renting online.
- **Community Driven User Ratings:** Offer users the ability to rate others by their fulfillment in buying or selling products.
- **Expansion:** Localize the web app for other markets around the world.

4.2. Product Features

This product is developed on windows 10 and it is a web based system implementing client-server model. This e-commerce software provides simple mechanism for the user.

This web based e-commerce system has the following features:

- **Cross platform:** this feature supports most known operating systems.
- **User account:** the system allows users to create their own accounts in this system and offers the edit feature.
- **Email confirmation:** the system sends the order confirmation to the user through email.
- **Online sell of products:** this system provides the selling feature which enable users to sell their products.
- **Online purchase products:** this feature allow users to bid or buy a product
- **Search:** It is a local search engine based on keyword

4.3. Use Cases

4.3.1. UC1 - Registration for new account creation

Use Case ID: UC #1

Scope: Auction based e-commerce web application

Primary Actor: User

Stakeholders and Interests:

- Seller: Wants to post a product for sale
- Buyer: wants to bid/buy the product posted by seller.

Preconditions: User does not have account. Internet connectivity.

Main Success Scenario:

1. User clicks on “Create an Account” from the home page.
2. System displays the “Registration” page.
3. User inputs First Name.
4. User inputs Last Name.
5. User inputs Address Line 1.
6. User inputs Address Line 2.
7. User inputs City.
8. User inputs State.
9. User inputs Zipcode.
10. User inputs emailid.
11. User inputs password.
12. User inputs confirm password.
13. User clicks on “Register” button.
14. System creates the account for user.

Alternative Tasks:

- 3a. User keeps first name as blank.
 - 3a1. System displays an error message saying “This field is required”.
 - 3a2. System navigates to step 3.
- 4a. User keeps last name as blank.
 - 4a1. System displays an error message saying “This field is required”.

Auction Based E-Commerce Web Application

4a2. System navigates to step 4.

5a. User keeps Address Line 1 as blank.

5a1. System displays an error message saying “This field is required”.

5a2. System navigates to step 5.

7a. User keeps City as blank.

7a1. System displays an error message saying “This field is required”.

7a2. System navigates to step 7.

8a. User keeps State as blank.

8a1. System displays an error message saying “This field is required”.

8a2. System navigates to step 8.

9a. User keeps Zipcode as blank.

9a1. System displays an error message saying “This field is required”.

9a2. System navigates to step 9.

10a. User keeps emailid as blank.

10a1. System displays an error message saying “This field is required”.

10a2. System navigates to step 10.

10b. User keeps emailid without ‘@’ sign.

10b1. System displays an error message saying “Incorrect format of emailid”.

10b2. System navigates to step 10.

11a. User keeps password as blank.

11a1. System displays an error message saying “This field is required”.

11a2. System navigates to step 11.

11b. User inputs password without uppercase character.

11b1. System displays an error message saying “Atleast one uppercase character is required”.

11b2. System navigates to step 11.

12a. User keeps confirm password as blank.

12a1. System displays an error message saying “This field is required”.

12a2. System navigates to step 12.

12b. User enters confirm password other than password.

12b1. System displays an error message saying “Entered password does not match”.

12b2. System navigates to step 12.

Post-conditions: System successfully creates user account.

4.3.2. UC2 - Login into the account

Use Case ID: UC #2

Scope: Auction based e-commerce web application

Primary Actor: Seller/Buyer

Stakeholders and Interests:

- Seller: Wants to post a product for sale
- Buyer: wants to bid/buy the product posted by seller.

Preconditions: UC #1.

Main Success Scenario:

1. User clicks on “Login to an Account” from the home page.
2. System displays the “Login” page.
3. User inputs emailid.
4. User inputs password.
5. User clicks on “Login” button.
6. System creates the session for the user.

Alternative Tasks:

- 3a. User keeps emailid as blank.
 - 3a1. System displays an error message saying “This field is required”.
 - 3a2. System navigates to step 3.
- 4a. User keeps password as blank.
 - 4a1. System displays an error message saying “This field is required”.
 - 4a2. System navigates to step 4.
- 5a. User inputs incorrect emailid.
 - 5a1. System displays an error message saying “emailid/ password is incorrect”.
 - 5a2. System navigates to step 3.
- 5b. User inputs incorrect password.
 - 5b1. System displays an error message saying “emailid/ password is incorrect”.
 - 5b2. System navigates to step 3.

Post-conditions: System successfully creates session for user.

4.3.3. UC3 - Edit a profile

Use Case ID: UC #3

Scope: Auction based e-commerce web application

Primary Actor: Seller/Buyer

Stakeholders and Interests:

- Seller: Wants to post a product for sale
- Buyer: wants to bid/buy the product posted by seller.

Preconditions: UC #1, UC #2.

Main Success Scenario:

1. User clicks on “Edit your profile” from the home page.
2. System displays the “Profile” page to edit.
3. User edits First Name.
4. User edits Last Name.
5. User edits Address Line 1.
6. User edits Address Line 2.
7. User edits City.
8. User edits State.
9. User edits Zipcode.
10. User clicks on “Change password”.
11. System displays “Change Password” page.
12. User enters new Password.
13. User enters new Password in “Confirm Password” field.
14. System saves the new password.
15. User uploads “Profile picture”.
16. System displays local system directory to browse for picture.
17. User selects profile picture and selects okay.
18. System displays the profile picture in the user profile.
19. User clicks on “Save Changes”.
20. System saves the changes made by the user.

Alternative Tasks:

- 3a. User keeps first name as blank.

Auction Based E-Commerce Web Application

3a1. System displays an error message saying “Please enter First Name”.

3a2. System navigates to step 3.

4a. User keeps last name as blank.

4a1. System displays an error message saying “Please enter Last Name”.

4a2. System navigates to step 4.

5a. User keeps Address Line 1 as blank.

5a1. System displays an error message saying “This field is required”.

5a2. System navigates to step 5.

7a. User keeps City as blank.

7a1. System displays an error message saying “This field is required”.

7a2. System navigates to step 7.

8a. User keeps State as blank.

8a1. System displays an error message saying “This field is required”.

8a2. System navigates to step 8.

9a. User keeps Zipcode as blank.

12a. User keeps password as blank.

12a1. System displays an error message saying “Please enter new password”.

12a2. System navigates to step 12.

13a. User keeps Confirm password field as blank.

13a1. System displays an error message saying “This field is required”.

13a2. System navigates to step 13.

13b. User enters password other than new password.

13b1. System displays an error message saying “Password does not match”.

13b2. System navigates to step 13.

17a. User selects filetype other than jpg, bmp.

17a1. System displays an error message saying “Filetype not supported”.

17a2. System navigates to step 17.

Post-conditions: System successfully saves the changes made to the profile.

UC4 – Posting a Product for sale

Use Case ID: UC #4

Scope: Auction based e-commerce web application

Auction Based E-Commerce Web Application

Primary Actor: Seller

Stakeholders and Interests:

- Seller: Wants to post a product for sale
- Buyer: wants to bid/buy the product posted by seller.

Preconditions: UC#1, UC#2.

Main Success Scenario:

1. User clicks on “Sell a product” from the home page.
2. System sets usertype flag as ‘Seller’.
3. System displays the “Post a product” page.
4. User inputs product name.
5. User inputs product category.
6. User inputs brief description.
7. User inputs images of product.
8. User inputs base price.
9. User clicks on “Post product” button.
10. System posts the product for sale.
11. System displays ‘Products for auction’ page
12. System displays message “Successfully posted product for sale.”
13. System places the product at the beginning of the available products for auction

Alternative Tasks:

- 4a. User keeps product name as blank.
 - 4a1. System displays an error message saying “This field is required”.
 - 4a2. System navigates to step 4.
- 5a. User keeps product category unselected.
 - 5a1. System displays error message saying “Choose one category”
 - 5a2. System navigates to step 5.
- 6a. User keeps product brief description as blank.
 - 6a1. System displays error message saying “This field is required”
 - 6a2. System navigates to step 6.
- 7a. User does not upload product images.
 - 7a1. System displays an error message saying “At least one image required”

Auction Based E-Commerce Web Application

7a2. System navigates to step 7.

8a. User keeps base price as blank.

8a1. System displays an error message saying “This field is required”

8a2. System navigates to step 8.

8b. User inputs base price other than numbers.

8b1. System displays an error message saying “Only numbers allowed”

8b2. System navigates to step 8.

Post-conditions: System successfully posted a product for the user.

4.3.5. UC5 – Bid on a Product for sale

Use Case ID: UC-5

Scope: Auction based e-commerce web application

Primary Actor: Buyer

Stakeholders and Interests:

- Seller: Wants to post a product for sale
- Buyer: wants to bid/buy the product posted by seller.

Preconditions: UC#1, UC#2.

Main Success Scenario:

1. User clicks on “Online Bid” button from the home page.
2. System sets usertype flag as ‘Buyer’.
3. System displays the page which shows current products up for bidding.
4. User clicks on a product image in which they are interested in buying.
5. System displays the page that contains the product information.
6. User inputs the bid price for the product.
7. User clicks on “Submit bid” button.
8. System updates base price with new bid.
9. System shows user they are highest bidder.

Alternative Tasks:

- 3a. System shows no products currently for bidding.
- 4a. User is not interested in any products currently up for bidding.
- 6a. User inputs bid price less than or equal to base price.

Auction Based E-Commerce Web Application

6a1. System displays error message saying “Bid price cannot be less than base price”

6a2. System navigates to step 6

6b. User keeps the base price as blank.

6b1. System displays error message saying “This field is required”

6b2. System navigates to step 6

7a. System reloads same page and say “Product has been sold after timer expired.”.

7a1. System hides “Submit bid” button

7a. System hides the message saying “You are the highest bidder” as soon as someone bids higher than the base price.

Post-conditions: System updated the base price for product.

4.3.6. UC6 – Buy a product from auction

Use Case ID: UC-6

Scope: Auction based e-commerce web application

Primary Actor: Buyer

Stakeholders and Interests:

- Seller: Wants to post a product for sale
- Buyer: wants to bid/buy the product posted by seller.

Preconditions: UC#1, UC#2, UC#5.

Main Success Scenario:

1. User clicks on “Buy” button from the Product page.
2. System sends the emailid, mobile no. and mailing address of user to Seller.
3. System marks the Product as ‘Sold’

Post-conditions: User successfully buys the product from auction.

4.3.7. UC7 – Buy a product from shopping catalog

Use Case ID: UC-7

Scope: Auction based e-commerce web application

Primary Actor: Buyer

Stakeholders and Interests:

- Seller: Wants to post a product for sale
- Buyer: wants to bid/buy the product posted by seller.

Preconditions: UC#1, UC#2.

Main Success Scenario:

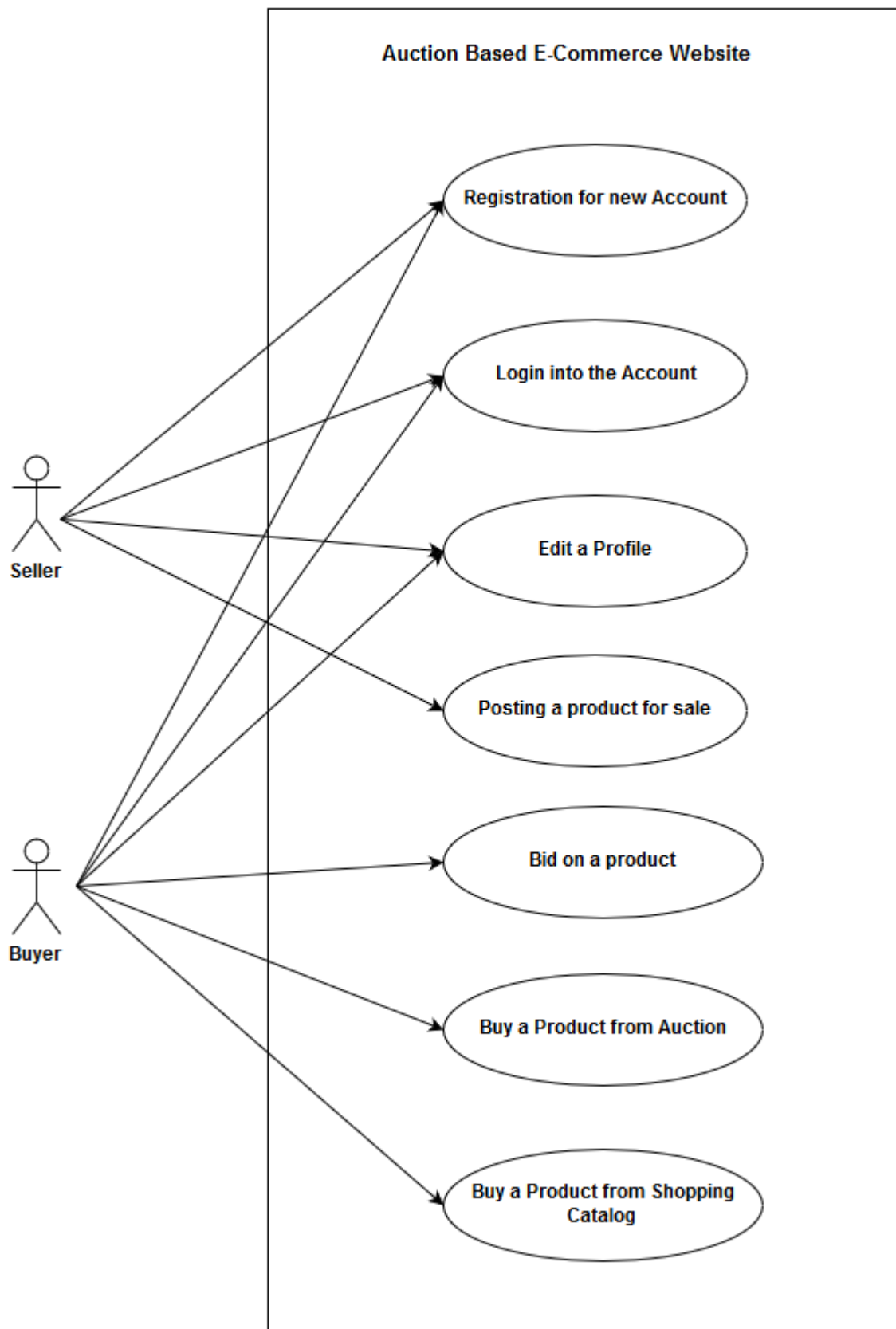
1. User clicks on “Shopping Catalog” button from the home page.
2. System sets usertype flag as ‘Buyer’.
3. System displays the page which shows current products in shopping catalog.
4. User clicks on a product image in which they are interested in buying.
5. System displays the page that contains the product information.
6. User clicks on “Buy” button from the Product page.
7. System sends the emailid, mobile no. and mailing address of user to Seller.
8. System marks the Product as ‘Sold’.

Alternative Tasks:

- 4a. User is not interested in any products from shopping catalog

Post-conditions: User successfully purchased Product from Shopping Catalog.

4.4. Context Diagram



4.5. System Sequence Diagrams

4.5.1. SSD1 - Registration for new account creation

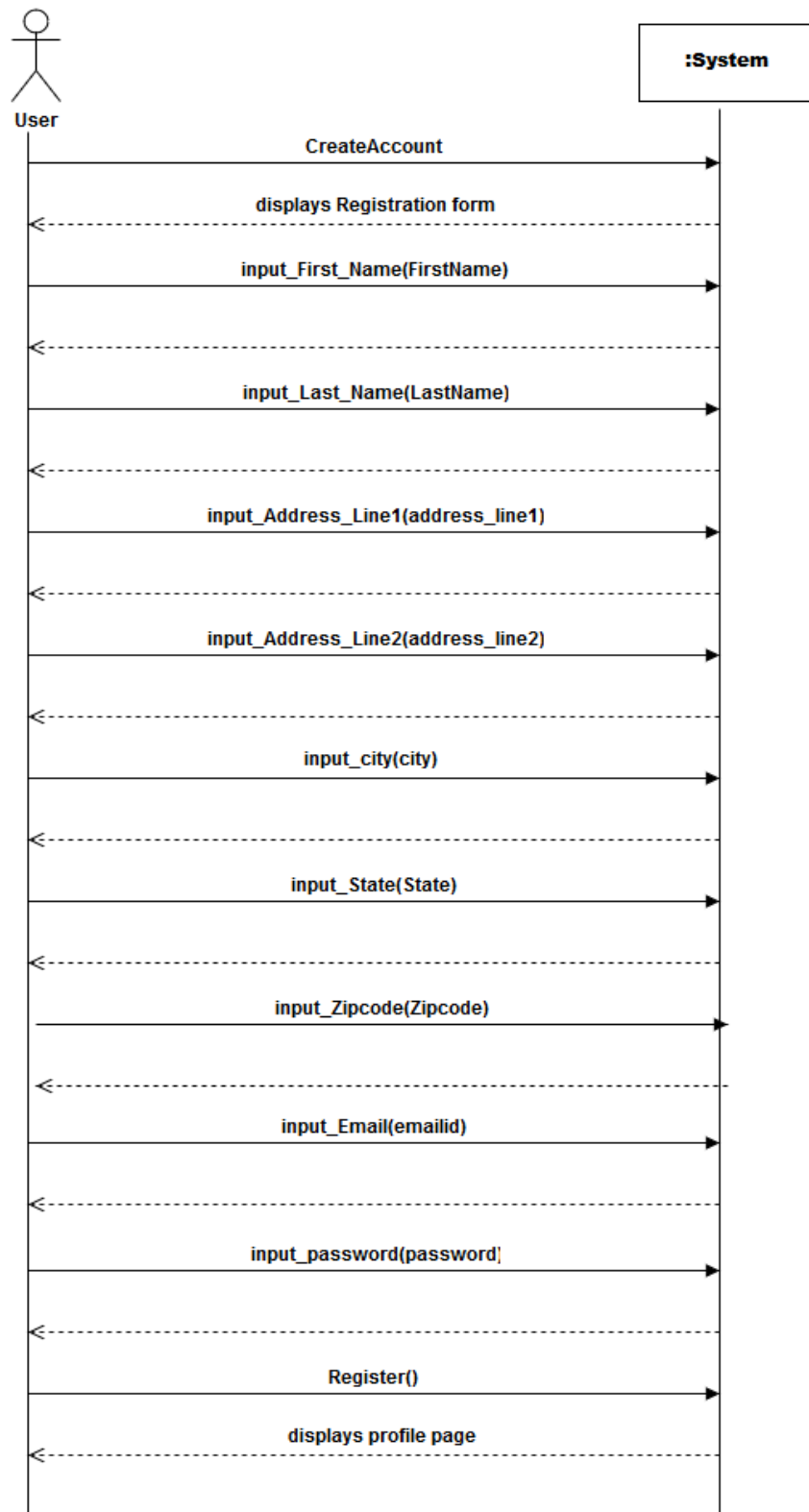


Figure 4.5.1.1: SSD1 - Registration for new account creation

4.5.2. SSD 2 - Login into the account

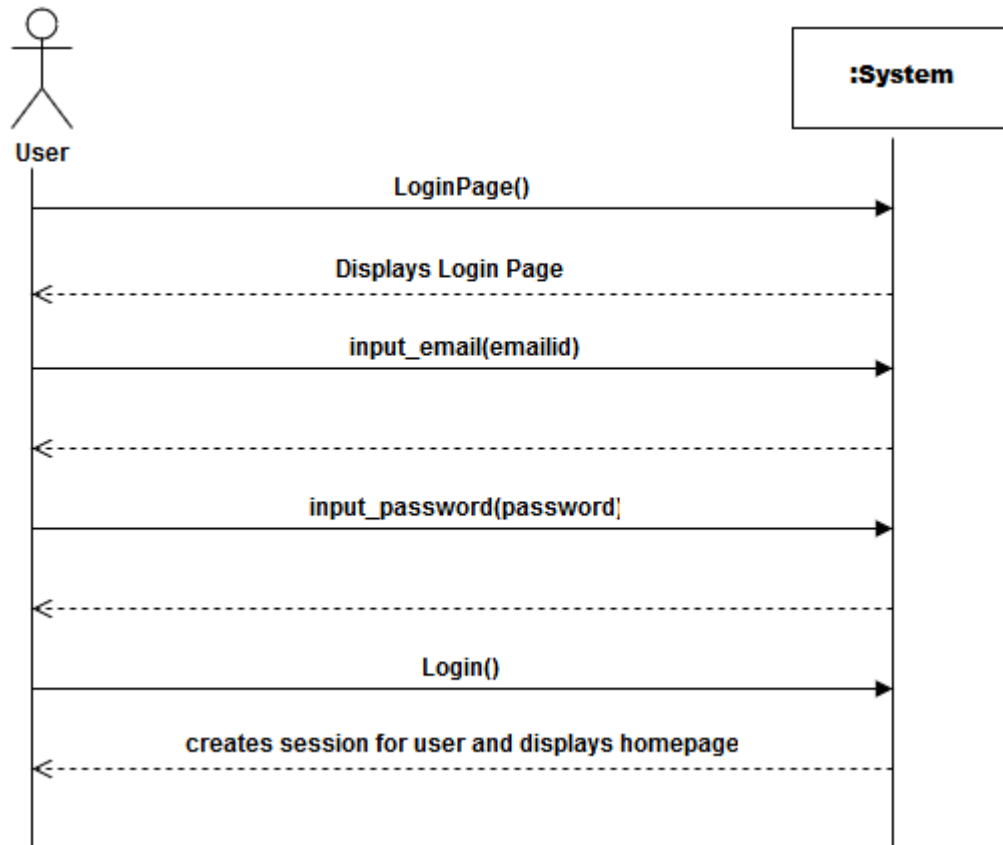


Figure 4.5.2.1: SSD 2 - Login into the account

4.5.3. SSD3 - Edit a profile

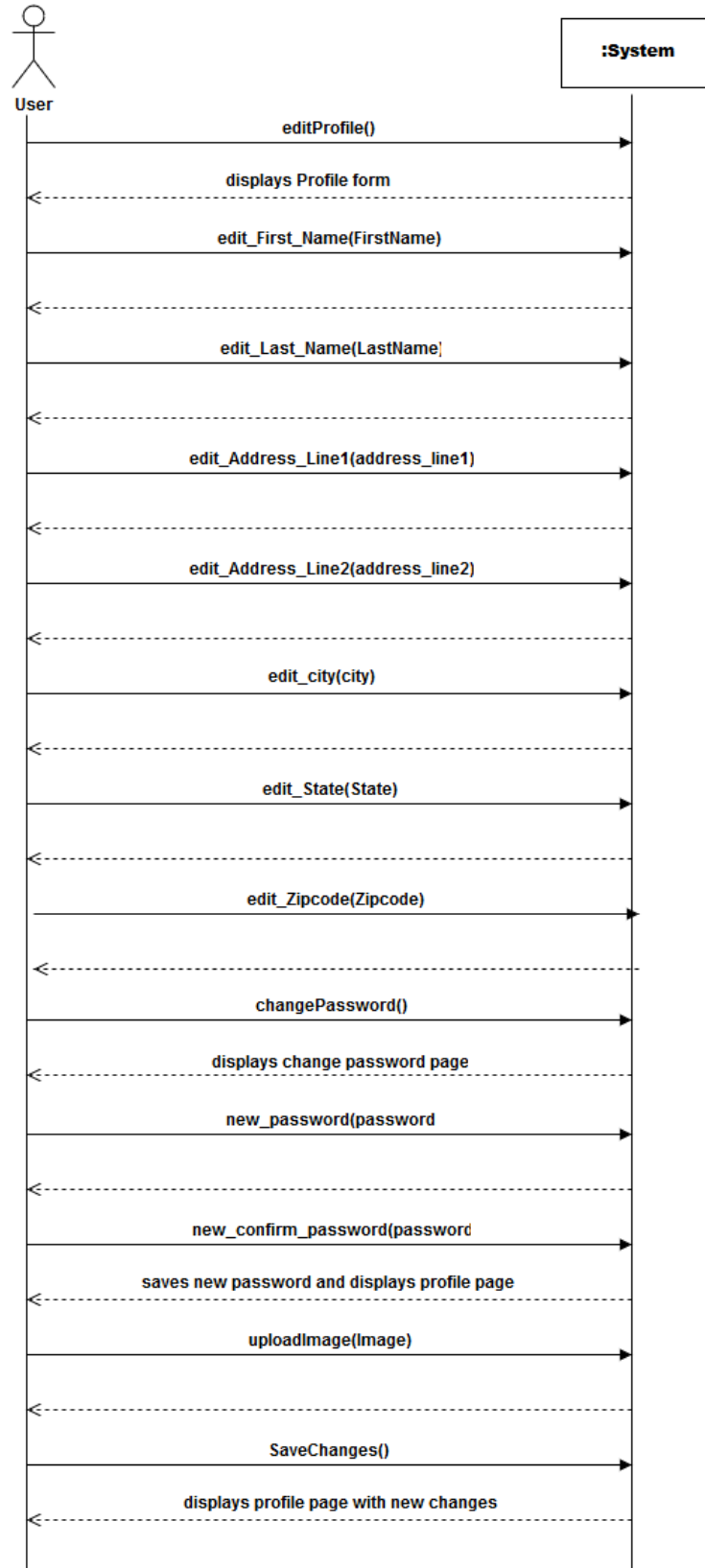


Figure 4.5.3.1: SSD3 - Edit a profile

4.5.4. SSD4 - Posting a Product for Sale

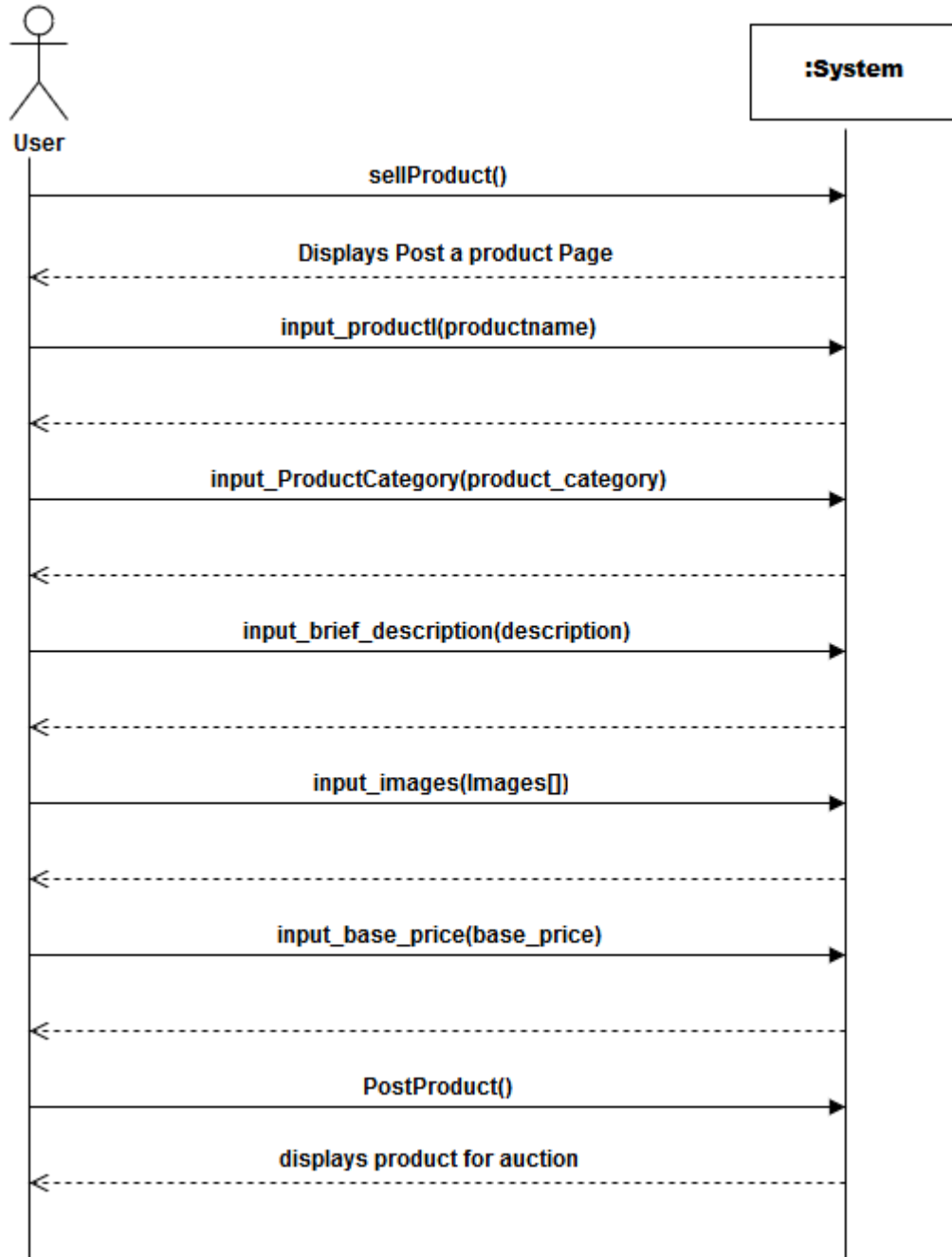


Figure 4.5.4.1: SSD4 - Posting a Product for Sale

4.5.5. SSD5 - Bid a Product for sale:

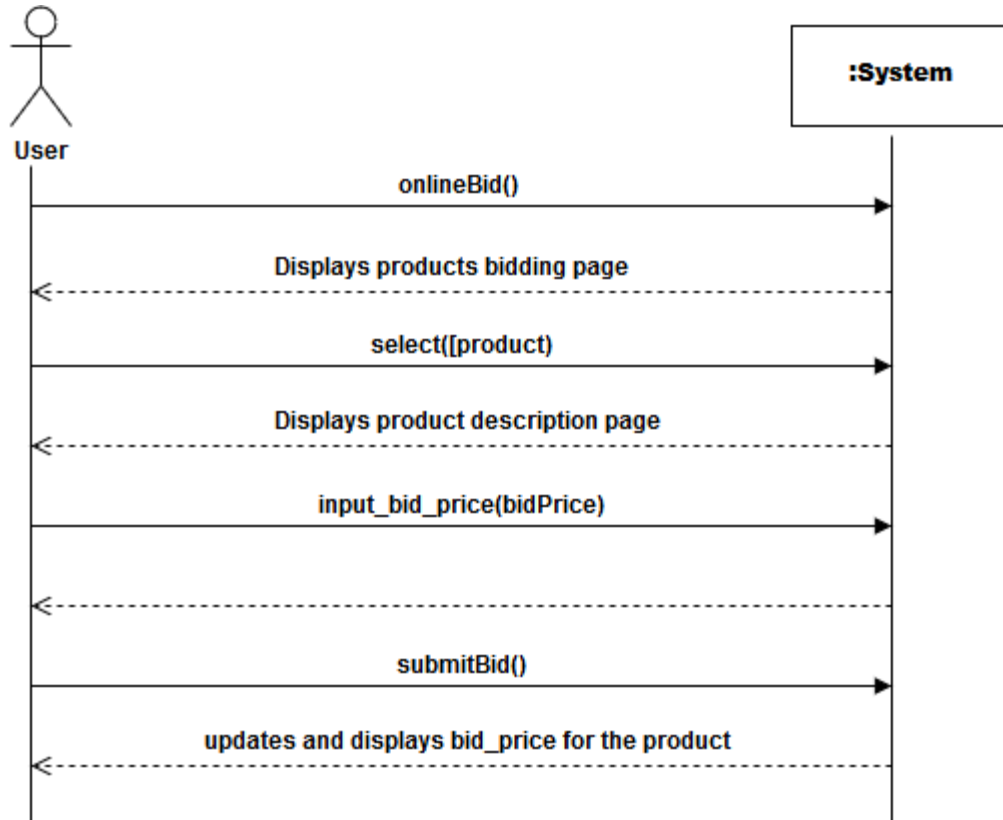


Figure 4.5.5.1: SSD5 - Bid a Product for sale

4.5.6. SSD6 - Buy a product from auction:



Figure 4.5.6.1: SSD6 - Buy a product from auction

4.5.7. SSD 7 - Buy a product from shopping catalog:

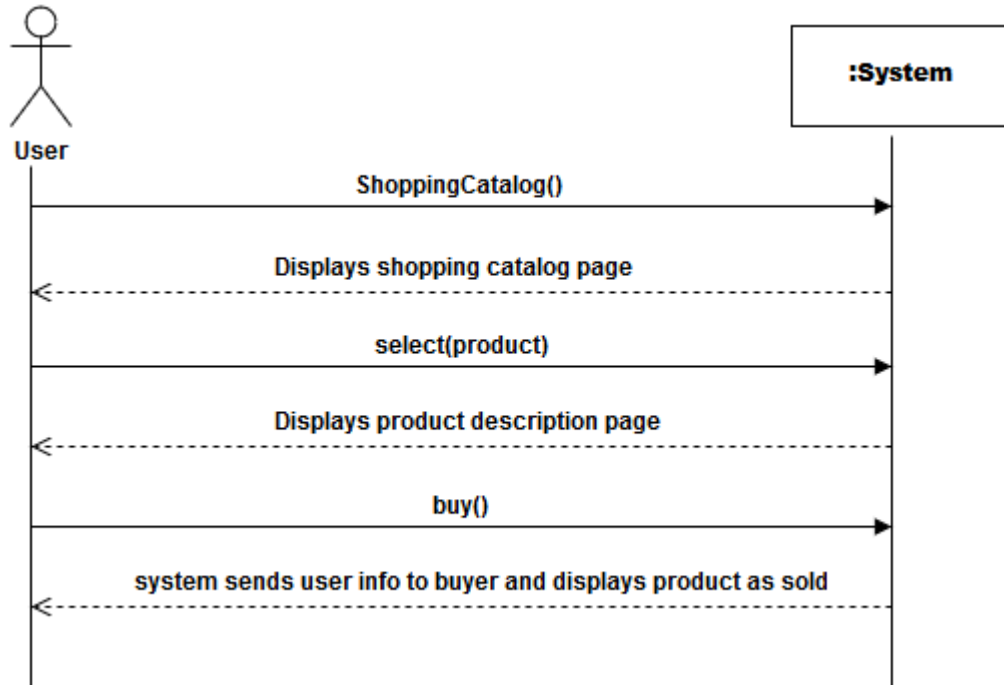


Figure 4.5.7.1: SSD 7 - Buy a product from shopping catalog

4.6. Operation Contracts

4.6.1. Operation Contract 1:

Operation: register(first-Name:string, last_name:string, email_id:string, password:string, address:string, city: string, zip_code:integer)

Cross References: UC1-create a new account

Precondition: User does not have account, Internet connectivity.

Post condition:

- An account instance acc was created
- acc.firstName became first_name
- acc.lastName became last_name
- acc.emailId became email_id
- acc.password became password
- acc.address became address
- acc.city became city
- acc.zipcode became zip_code
- Account was created for the user

4.6.2. Operation Contract 2:

Operation: login(email_id:string, password: string)

Cross References: UC2 :Log in to the account

Precondition: User is a member

Postcondition:

- System created a session for the user
- Login instance li, was created
- li.emailId became email_id
- li.password became password

4.6.3. Operation Contract 3:

Operation: saveChanges(first_name:string, last_name:string, email_id:string,password:string, address:string, city: string, zip_code:integer)

Cross References: UC3: Edit a profile

Precondition:UC1 and UC2

Postcondition:

- acc associated with buy, and sell
- acc.first_name became first_name
- acc.last_name became last_name
- acc.email_id became email_id
- acc.password became password
- acc.address became address
- acc. city became city
- acc.zip_code became zip_code
- The changes on profile were saved

4.6.4. Operation Contract 4:

Operation: postProduct(product_id : integer, product_name: string, product_catagory:string, product_image:Image, description:string, base_price:float)

Cross References: UC4: Posting a product for sale

Precondition: User is logged in

Postcondition:

- Product instance, pproduct was created
- pproduct was associated with User,
- Pproduct was associated with Timer
- Pproduct was associated with Product Description
- pproduct.id was set to unique id.
- pproduct.pname became product_name
- pproduct.pctagory became product_catagory
- pproduct.pimage became product_image
- pproduct.pprice became base_price

Auction Based E-Commerce Web Application

- Timer instance t, was created
- t.start_time was set to current system time
- Product was posted on the system for sale

4.6.5. Operation Contract 5:

Operation: onlineBid(product_Id : integer, amount : float)

Cross References: UC5:bid on a product for sale

Precondition: operation contract 2, sale is underway

Postcondition:

- Base price was updated
- Online bid instance ob was created
- Ob has logical associated with user, Product and Timer
- Ob.price became amount
- ob.productId became product_id

4.6.6. Operation Contract 6:

Operation: buy(product_id: int, email_Id: string, amount)

Cross References: UC6:buy a product from auction

Precondition: operation contract#2, the last bid in period of 60 minutes

Postcondition:

- User instance li was associated with typeflag as 'Buyer', Product and Bid.
- li. product_Id became product_Id
- li.emailId became email_Id
- li.price became amount

4.6.7. Operation Contract 7:

Operation: shoppingCatalog(product)

Cross References: UC7: buy a product from catalog

Precondition: UC2, Operation Contract 2

Postcondition: Operation Contract 6

4.7. Domain Model Diagram

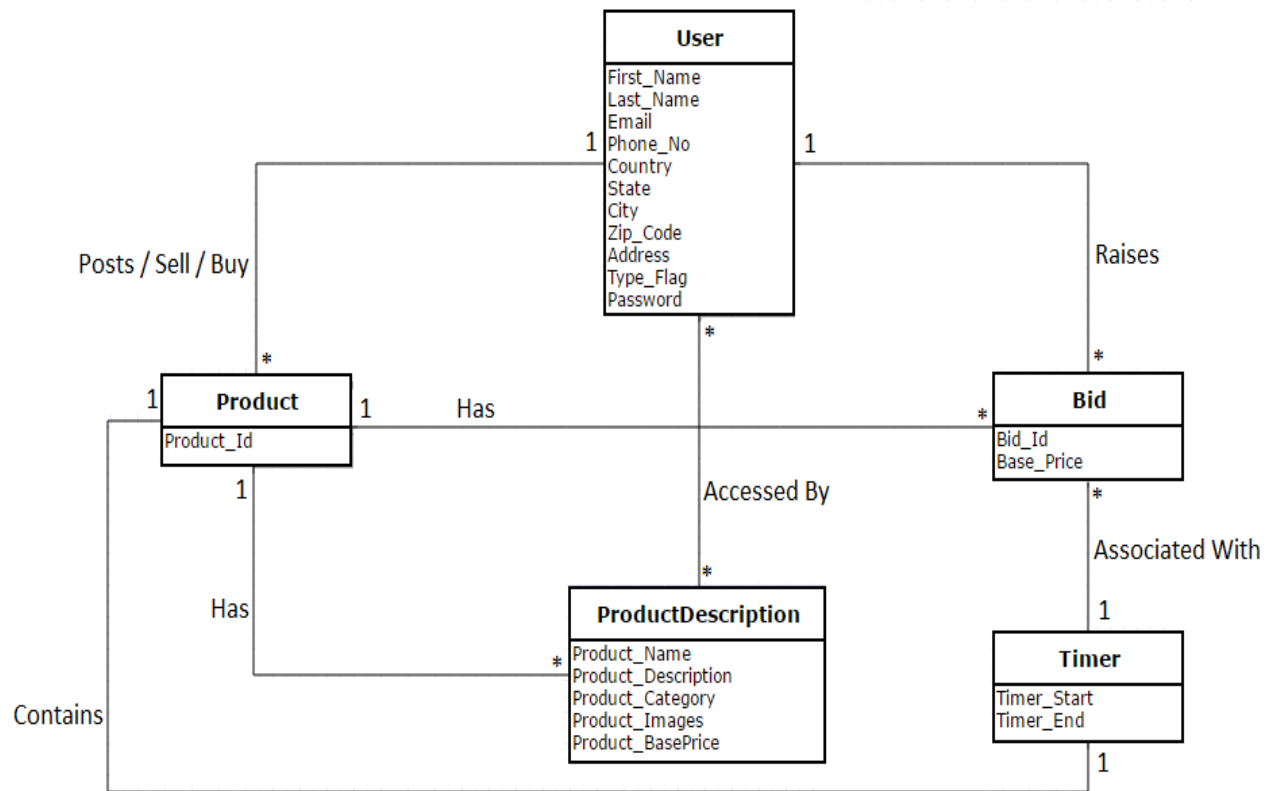


Figure 4.7.1: Domain Model Diagram

4.8. Database Information

4.8.1 Database Tables

Database Tables	Description
Registration	Stores the personal details of Users i.e. First Name, Last Name, Email, Phone Number, Password, Country, Address
Product Category	Stores various product categories i.e. Electronic Appliances, Kitchen Appliances, Games, Jewelry
Product	Stores the product information i.e. Product Name, Product Category, Product Images, Product Description, Product Base Price

Table 4.8.1.1: Database Tables

4.8. System Class Diagrams

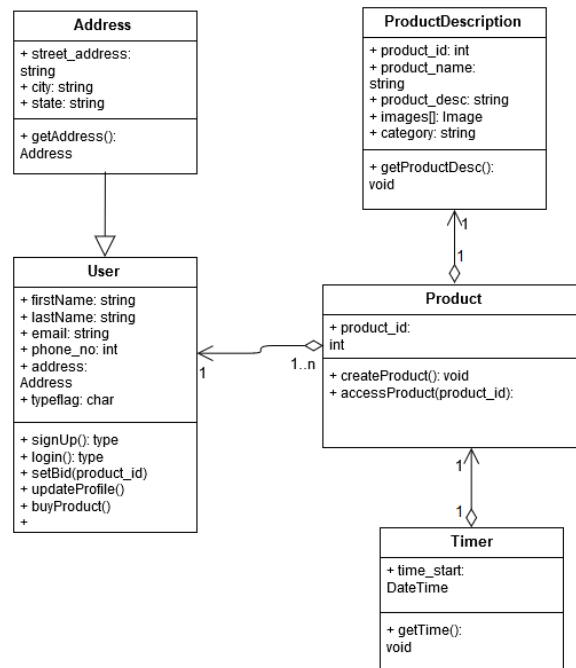


Figure 4.8.1: System Class Diagram

5. TEST AND INTEGRATION PLANS AND RESULTS

5.1 Test Cases

Test Case Document									
	Project ID:	5			Project Name:	E- commerce			
	Author of Test Cases:	Roya Askari			Version Name:	1.1			
	Date Of Creation:	11/20/2016			Date Of Release:	12/25/2016			
							Cycle #1		
Test Case ID	Type of the Test Case	Version Number	Test Case Name	Action	Expected	Actual	Status	Bug ID	Remarks
#1	Unit Testing	1.0	Registration for new account	tested	User successfully create user account	User successfully create user account	Pass		
#2	Unit Testing	1.0	Login into the account	tested	System succesfully create a session for	System succesfully create a session for user.	Pass		
#3	Unit Testing	1.0	Edit a profile	tested	System save the changes made by the	System save the changes made by the	Pass		
#4	Unit Testing	1.0	Posting a product for sale	tested	System successfully post a product for	System successfully post a product for user	Pass		
# 5	Unit Testing	1.0	Bid on a Product on Ssle	tested	System updates the base price for the	System updates the base price for the product	Pass		
#6	Unit Testing	1.0	Buy a product from auction	tested	User successfully buys the product from	User successfully buys the product from Auction	Pass		
#7	Unit Testing	1.0	Buy a product from auction	tested	User successfully buys Product from shopping catalog	User successfully buys Product from shopping catalog	Pass		
#8	Integration Testing	1.0	Database Connectivity with	tested	Database Connectivity	Database Connectivity Integrated Successfully	Pass		
#9	Integration Testing	1.0	Code Behind with Design	tested	Code Behind Logic Integrates Successfully with	Code Behind Logic Integrated Successfully with Design	Pass		
#10	Validation Testing	1.0	UI Controls Validation	tested	UI Controls give proper validation	UI Controls gave proper validation errors	Pass		
#11	Verification Testing	1.0	Email Address Verification	tested	Successfully verifies Email Address	Successfully verified Email Address	Pass		
#12	Stress Testing	1.0	Multiple Buyers Bid	tested	Successfully handles multiple buyers bids	Successfully handled multiple buyers bids	Pass		
#14	Alpha Testing	1.0	Project Modules Tests in White Box	tested	Project works as per functional	Project worked as per functional requirements	Pass		
#15	Beta Testing	1.0	Project Modules Tests in Black Box	tested	Project works as per functional	Project worked as per functional requirements	Pass		

Table 5.1.1: Test Cases

Test Case ID: #1

Test Items Registration for new account creation

Input Specifications

Data Names	First Name, Last Name, Address, Password
Ordering	1
Values	1
States	Input
Timing	30 sec

Output Specifications

Data Names	First Name, Last Name, Address, Password
Ordering	1
Values	1
States	Output
Timing	30 sec

Environmental Needs

Hardware	1.6 GHz Processor or higher, 1 GB of RAM
Software	Google Chrome, Microsoft Edge

Table 5.1.2: Test Case 1

Test Case ID: #2

Test Items Login into the account

Input Specifications

Data Names	Email Address, Password
Ordering	1
Values	1
States	Input
Timing	30 sec

Output Specifications

Data Names	Email Address, Password
Ordering	1
Values	1
States	Output
Timing	30 sec

Environmental Needs

Hardware	1.6 GHz Processor or higher, 1 GB of RAM
Software	Google Chrome, Microsoft Edge

Table 5.1.3: Test Case 2

6. INSTALLATION INSTRUCTIONS AND USER DOCUMENTATION

6.1 Prerequisites

The server machine should have SQL Server 2016 installed. The IIS comes pre-installed on Windows Server. The Installation section defines the configuration of the website. The website is designed on .NET framework 4.0. The server machine should have .NET framework 4.0 installed. The 'inetpub' directory in C: drive must have read and write access to the directory.

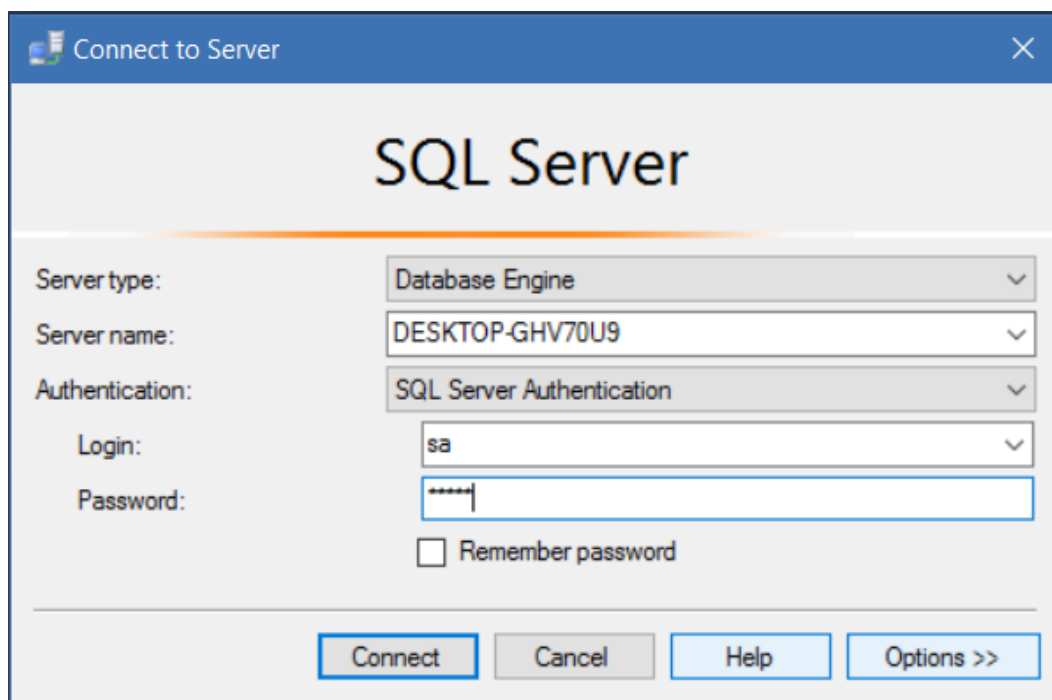
6.2 Database Installation

The web application needs to be hosted on IIS (Internet Information Service) server. The server shall have IIS service running on the system. The server shall also have SQL Server 2016 as database engine with DBA access to 'sa' user. SQL script provided in software setup shall be able to set up the required database tables. The website shall be accessible with the domain address binding with server's IP in IIS website configuration section.

Database installation Steps:

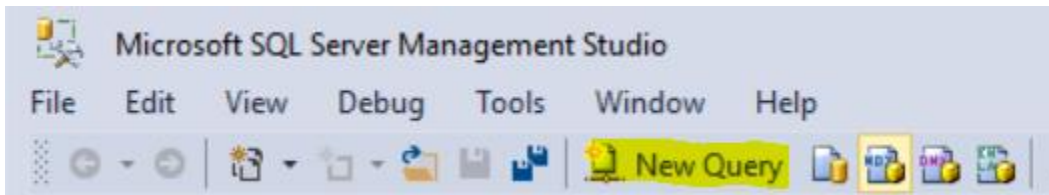
Step 1: Open SQL Management Studio

Step 2: Login to the system admin account.

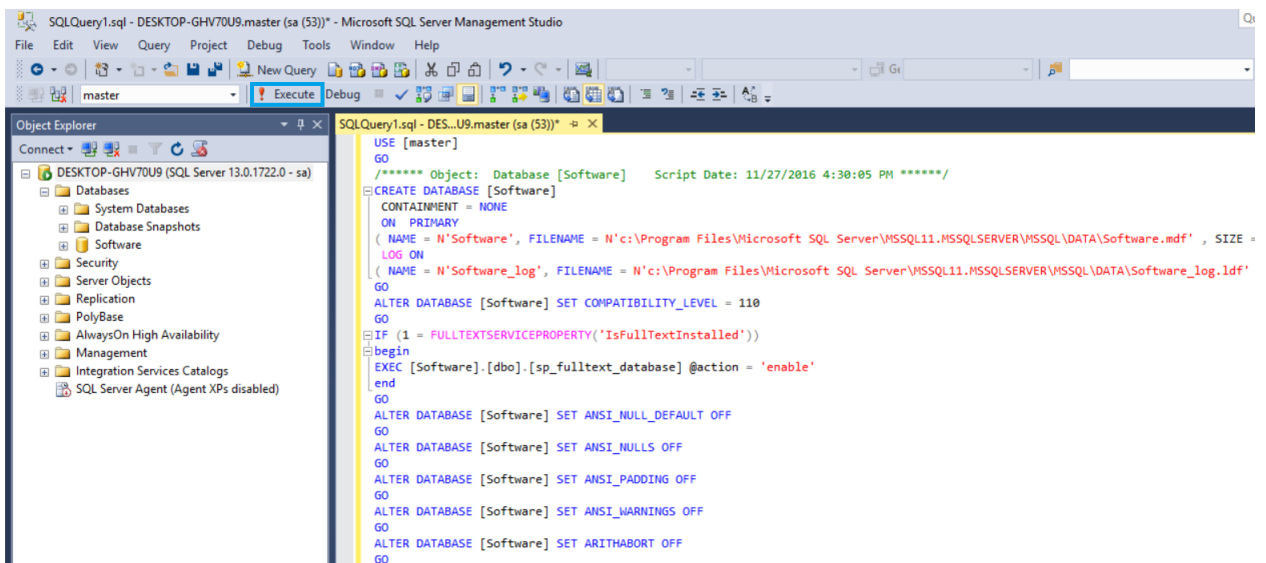


Auction Based E-Commerce Web Application

Step 3: Click on new query from the management studio's toolbar.

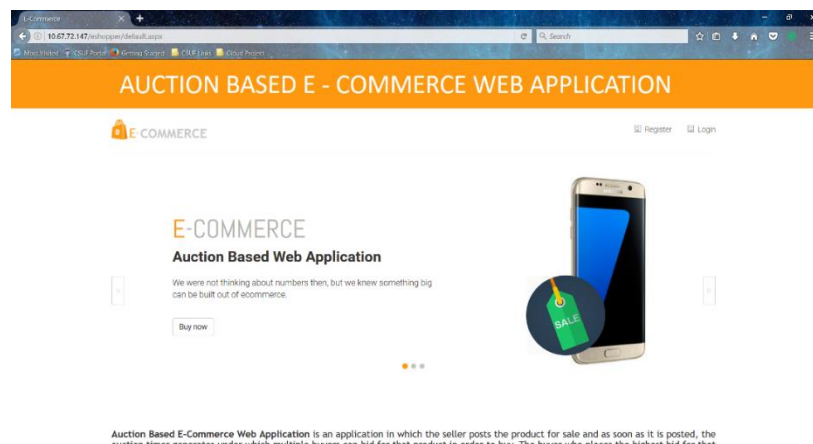


Step 4: Copy the contents of auction.sql (file can be found in installation package) to the new query file and click on execute. The SQL script will create the database tables on the server machine.



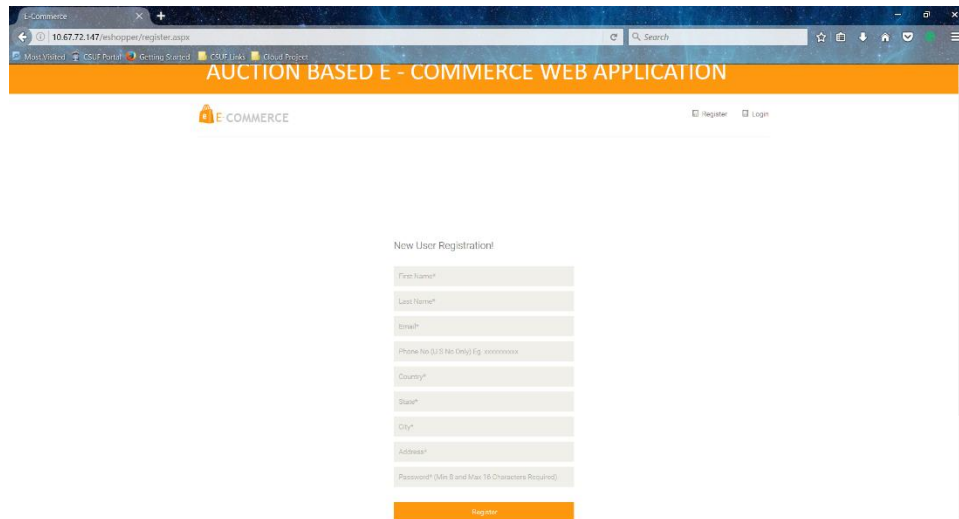
6.3 User Manual, Operational Manual and Instruction

6.3.1 Registration and Logging in



Auction Based E-Commerce Web Application

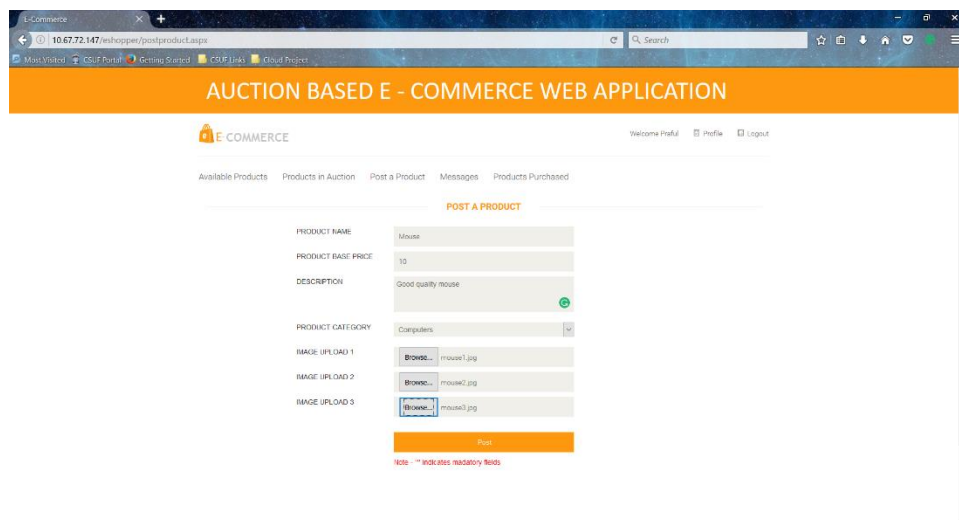
On the main page, the application has buttons for new users to register. In order to register, new users must provide the following information: First name, last name, phone number, email, country, state, city, street address, and password. If the user does not input all of the required fields, or if the data is not valid for a certain field, the application tells the user to correct the data before they continue.



The screenshot shows the 'New User Registration!' form. It includes input fields for First Name*, Last Name*, Email*, Phone No (10-12 No Dots) (Eg: 9999999999), Country*, State*, City*, Address*, and Password* (Min 8 and Max 16 Characters Required). A red asterisk indicates a mandatory field. A blue 'Register' button is at the bottom.

Once registered, the user logs in through the login page by providing their email address and password. They are directed to the main page, where they have the option to view products for sale, view products for auction, or post a product for sale/auction.

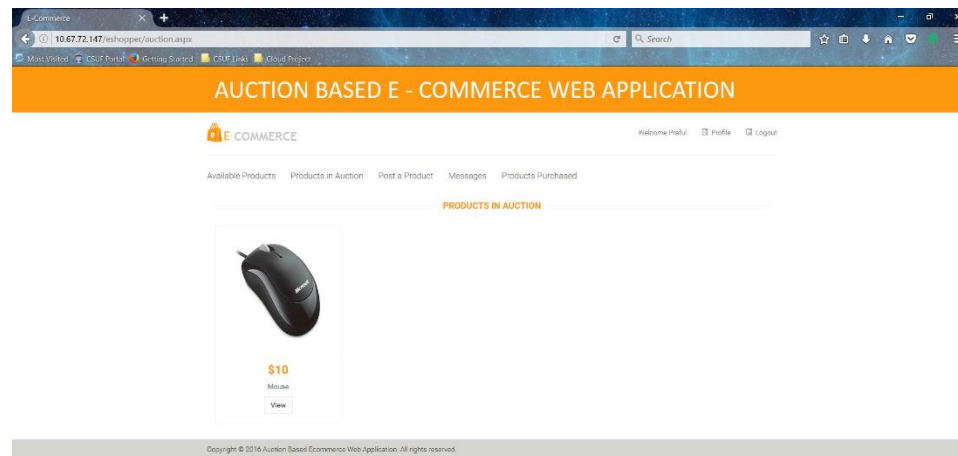
6.3.2 Posting a Product



The screenshot shows the 'POST A PRODUCT' form. It includes input fields for Product Name, Product Base Price, Description, Product Category, and three Image Upload fields (Image Upload 1, Image Upload 2, Image Upload 3). Each image upload field has a 'Browse...' button. A blue 'Post' button is at the bottom. A red asterisk indicates a mandatory field.

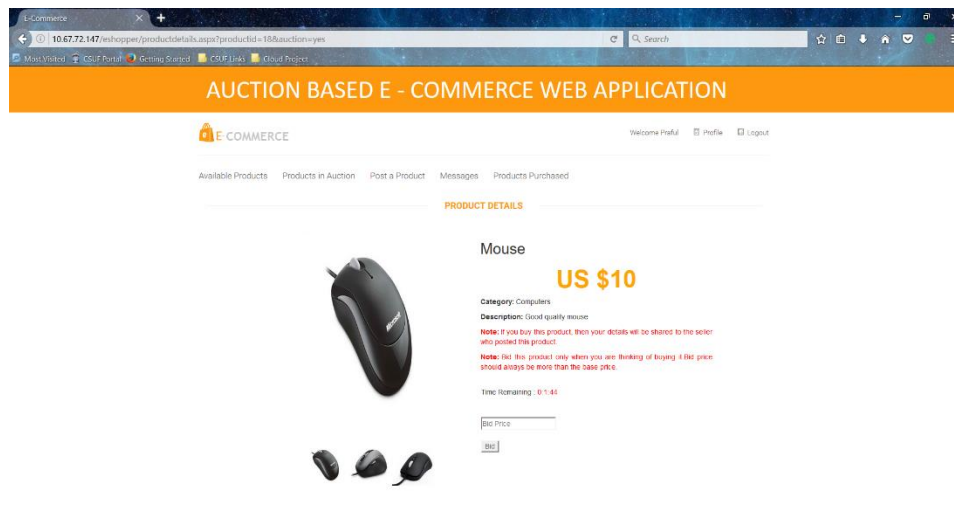
Auction Based E-Commerce Web Application

On this page, the user enters information about the product being sold. Most of this information is required, including the name, description, price, category and at least one image. After posting the product, the item can be seen in "Products in Auction".



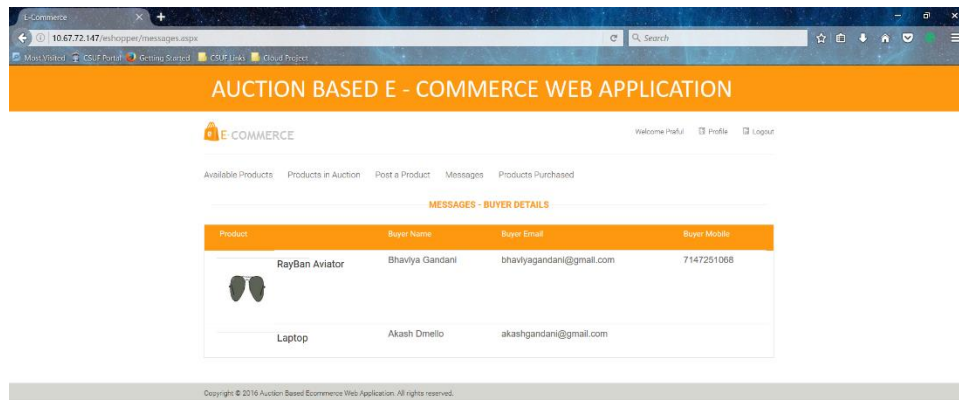
6.3.3 Bidding on an item

Clicking on an item from the products in auction page brings up the product details page. From here, the user sees information on the product, including how much time is left to make a bid. If the user wants to place a bid, they can enter a price higher than the current price and click on the "Bid" button. The application tells the user if they currently have the highest bid.

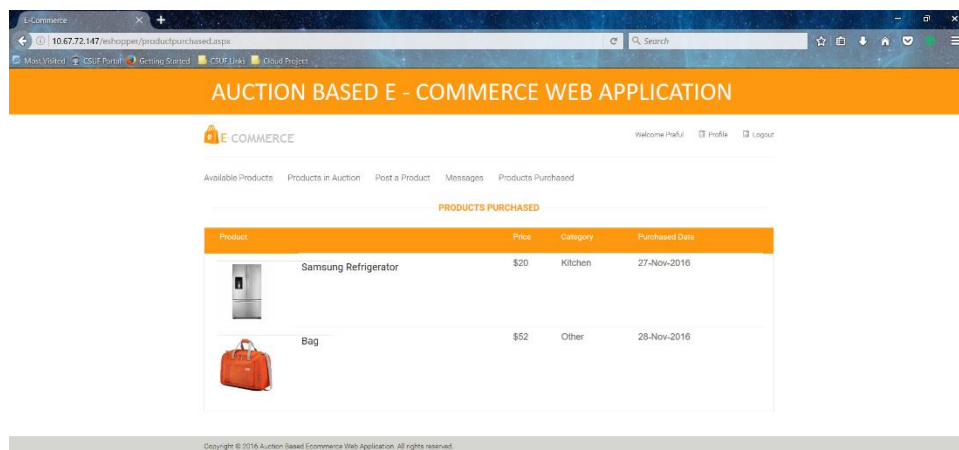


6.3.4 Messages and Products Purchased

Clicking on the messages button shows information about buyer details. When a buyer wins a bid on an auction, their contact information is shared with the seller so they can arrange payment and shipping. This information includes name, email, and phone number.



Users can also click on "Products Purchased" to see a list of products they have purchased. The page shows them the price, category, and purchase date.



6.3.5 Editing Profile

Users can edit their profile from any page by clicking on the "Profile" page. From here the user can change their name, email, phone number, address and password.

Auction Based E-Commerce Web Application

The screenshot shows a web browser window with the address bar displaying '10.67.72.147/eshopping/profile.aspx'. The browser's address bar also shows 'Most Visited' links for 'CSUF Portal', 'Getting Started', 'CSUF Links', and 'Cloud Project'. The page has an orange header with the title 'AUCTION BASED E - COMMERCE WEB APPLICATION'. Below the header, the 'E COMMERCE' logo is on the left, and 'Welcome Pafu!', 'Profile', and 'Logout' links are on the right. A navigation bar contains links for 'Available Products', 'Products in Auction', 'Post a Product', 'Messages', and 'Products Purchased'. The main content area is titled 'EDIT PROFILE' and contains a form with the following fields: 'Profile', 'Name', 'Email' (pre-filled with 'surajpafu@yahoo.com'), 'Age' (pre-filled with '19/03/1990'), 'US', 'California', 'Fullerton', 'Cal State Fullerton', and 'Password' (with a note '(Min 6 and Max 16 Characters Required)'). An orange 'Save' button is at the bottom of the form. The footer of the page states 'Copyright © 2016 Auction Based Ecommerce Web Application. All rights reserved.'

7. RECOMMENDATIONS FOR THE ENHANCEMENT

- Limit maximum price of an item. This can cut down on fraudulent users bidding an outrageously high price on products with no intention of buying it. Have users set a maximum price or make the application enforce one.
- Implement a gateway to make financial transactions easier for users.
- Have a system for users to rate each other after a successful exchange of money and products. This helps other users figure out who can be trusted and who they should be wary.
- Support for localizing languages and currency.

8. REFERENCES AND BIBILIOGRAPHY

- <http://www.brighthubpm.com/project-planning/57950-example-and-evaluation-of-project-scope-statements/>
- <http://www.badtesting.com/test-documentation/test-case-specification/>
- Craig Larman. 2004. *Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development (3rd Edition)*. Prentice Hall PTR, Upper Saddle River, NJ, USA.