

Online Auction

By

**Muhammad Hashim
(2002-NUST-BIT-136)**



**Project Report in partial fulfillment of
the requirements for the award of
Bachelors in Information Technology**

In

**NUST Institute of Information Technology
National University of Science and Technology
Rawalpindi Pakistan**

(July 2006)

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Handwritten signature and initials



Certificate

It is to certify that the contents and form of project proposal entitled "Online Auction" submitted by Muhammad Hashim has been found satisfactory for the requirement of the degree.

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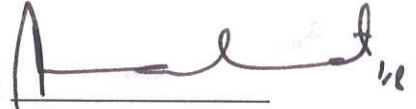
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Dedicated To

Mama, Abu, Mesam, Zain, Noor, my sister, my bhabs and to JMTS,

Acknowledgements

Thanks to Almighty ALLAH, who enabled me to complete this project. I feel depth or obligation for my loving parents whose prayers have enabled me to reach at this stage.

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Abstract

Infrastructure of the online auction is the solution to the problems faced by seller and the buyer of items. There is no such system available in Pakistan that allows online bidding of goods. This system eliminates the constraints of buyer and seller being present there at the same geographical location. This system is time as well as cost efficient. The buyer can save his time by just going to web site and by purchasing the items on a less price and seller can save its time by easily uploading the product on the site and checking the highest bid offered by any of the buyer. When a buyer becomes a regular customer i.e. he all the time buy books from the auction he will start getting the adds of books from his third or fourth visit. Moreover when ever some new item comes into the database and it is of the interest of the buyer , the buyer will get an email for that arrival.

The system being implemented and has potential to attract the buyers and sellers of the product and to make it easier for both the parties to sell or purchase the product online. There is a separate account for each seller and buyer of the product on this application and they will interact with the system through the specified account. All the transactions and other information will be communicated through email given in the account.

The system developed is Robust and reliable. The account verification is done thorough web services. Besides that the seller of the product will also get the mails regarding the latest bid. The system built has all the potential and attractive capabilities to attract the customers i.e. seller and buyers.

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INTRODUCTION

Online Auction is basically an intermediary between the sellers and the buyers of goods. It will narrow the gap between sellers and buyers. Online Auction is basically providing web space for the already established brick and mortar companies to go online. It provides ease to both sellers and buyers as seller places its product on the site and do not have to arrange the traditional auction and finally the buyer can buy the product regardless of its location without going to that place. More than that it is also displaying adds to the customer of his interest and he is also getting emails about the articles of its choice when those items are available in the stock. It is site where seller can sell and the buyer can buy through bidding or by paying the fixed price.

1.1 Scope of the Project

The main purpose of this project is to create a website which will bring together both the seller and the buyer at a platform where they can do business easily, Basically this web site will provide services to both the seller and the buyer. This site will act as online intermediary between the seller of the product and the buyer of the product. The seller will place its item on the web site and the buyers will come and they will participate in the auction of that item and the person with highest bid will get the item. The most important feature of the this project will be the customer trend analysis .The administrator of the web site will maintain the profile of the

the customer trend analysis .The administrator of the web site will maintain the profile of the customers and specific customers will get advertisements according to their interests. They will also get email of items of their interests when those items will be available for auction.

1.2 Problem Statement:

The system will provide services as of online intermediary between seller and the buyer of products as there is no such system available in Pakistan that are providing these services.

1.3 Domain:

The domain of the project will be and the E-commerce

1.4 Motivation:

The main purpose of this web site is to provide the facilities to the both the seller and the buyer of the products. All the businesses are moving online on all over the world and shopping has become a lot easier and secure on the internet. But in Pakistan people are still reluctant to shop online. I am aiming to actually implement this system to improve online shopping facilities in Pakistan.

1.5 Proposed Solution:

1.5.1 Seller

The Seller who wants to sell its item will upload the picture of that item which he wants to sell on the site so that buyer can view the item. The seller has to specify a time for the bid and the buyers can come to that system and they can bid there until the time specified by the seller of the product. Once the time is over the seller can

sell that product to one who has offered the highest bid or on the other hand the seller can simply cancel the bid for that item. There is also an facility of direct buying of the product with out participating in the bidding. For that seller hash given the fixed price for that product you can simply buy that product by giving the Credit card number.

1.5.2 Buyer

Buyer can simply offer the bid to the product he finds suitable for him. There are two types of bidding that can be used by the buyer. One is simple budding and the other is Proxy Bidding. In proxy bidding the buyer can simply set a range for the product and if an other buyer bids for that product and he sets the bid greater then the current bid and then too his bid is not shown as current bid. The reason for this is that in order to set his bid as a current bid other buyer have to set a bid higher than the secret range.

1.5.3 Technical Solution

The payments of the items will be done through credit cards. For credit card numbers there must be some security regarding weather the card number is valid or not. For this purpose we will be using web services and this true concept of banking will be used. Another problem which buyers will face is the problem of delivery of the particular product.

As discussed above that the credit card validity will done through web services and delivery problem will be done by the intermediary but the seller will pay the intermediary for the delivery and intermediary will not be responsible for the delivery. The intermediary will also charge the seller of the product as the intermediary is doing the advertisement of its product and it is also helping the

sell that product to one who has offered the highest bid or on the other hand the seller can simply cancel the bid for that item. There is also an facility of direct buying of the product with out participating in the bidding. For that seller hash given the fixed price for that product you can simply buy that product by giving the Credit card number.

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seller in selling seller's product. The payment will be sent through intermediary to the seller and this can be through credit card or bank drafts in the name of seller. The deal between the seller and the buyer will be finalized by the intermediary "NET Framework" will be used for the development of the System as in NET Framework" there is ASP.NET in which we have a facility of drag and drop which makes thing easier in a Sense that in stead of writing code for each module we can simply drag the component on the page. Another reason is that for databases ADO is more powerful because of it flexibility and reliability. Also we can create crystal reports very easily for the analysis of the systems performance.

1.6 PROJECT FEATURES AND LIMITATIONS

The limitations and application features of the system titled "Design & Development of Web Based Auction System" are given as:

- Application is Windows based using Client Server Architecture.
- Development is in .Net and SQL server 2000.
- The application should be scalable and be useful for an enterprise environment.
- The application makes use of the available network bandwidth and other features of the existing network.
- The application does not operate in an environment other than that of .Net and SQL.

1.7 Deliverables:

The main deliverables of this Project are:

1. Documentation
2. Databases

- 2.1 Seller's Record
- 2.2 Buyer's Record
- 2.3 Inventory Management Record
- 2.4 Returns Record
- 2.5 Sales Record
- 2.6 Payments Record
- 2.7 Products Details DB
- 2.8 Products Images DB
- 3. Configuration Files
- 4. WebPages
 - 4.1 Home Page
 - 4.2 Login Page / Registration Page
 - 4.3 Seller's Page
 - 4.4 Buyer's Page
 - 4.5 Help Page
 - 4.6 Contact Us Page/Suggestions Page
 - 4.7 Web Forms/Crystal Reports
- 5. Programs
 - 5.1 HTML(ASPX)/XML Codes, C# Codes, ADO.NET Codes
 - 5.2 Security Implementation for Credit card validation.
 - 5.3 DB Queries

Literature Review

This chapter contains the details of the work which has been done in past in the field of auction. The project was divided into major phases and each phase was performing a major task. So I have search for the literature that was available related to each task. As it is always easy to use modular approach while doing a project that is why I have used this approach because it was easy to study one module and then develop it. Details of every module are discussed as follows.

2.1 Related Work

2.1.1 Survey of Online Stores

This survey was divided in two categories which are as follows

- International online shopping stores
- Local online shopping stores.

2.1.2 International Online shopping Sites

Working of EBAY

In the field of online auction eBay is the first site that was launched successfully and is still doing its business. EBay provides its customers with a wide variety of products ranging from every day domestic use to commercial use. There are categories available like Computers and Networking, Multimedia, Clothes Antiques and Watches and Video Games. During its stay on the EBay if a person likes some thing and he want to buy that thing he will click on the title of auction and he can see the

see the Auction details it will include the picture of the item verbal description about the product, types of payment available for that item and information about the shipping of that item. There is also a facility of searching items on the eBay site for that you must have a very clear idea of what you are looking for. Suppose if you have a clear idea of what you are looking for you can simply type the name of that product on the search bar and it will help your cause.

Buying on Ebay

If a person is interested in buying some thing from eBay and he wants to give or place a bid for that item that customer has to enter a contractual agreement to buy that product if the customer wins the bid for that product.. Every item which is placed for auctions have some minimum starting bids, and some have a reserve price -- a secret minimum amount the seller is willing to accept for the item. If the bidding for that item or product doesn't reach up to the reserve price, the seller doesn't have to pay for that item.. Moreover, there are also tons of items available for which a buyer don't have to take part in lengthy and time consuming auction procedure there is an option of fixed price buying available on eBay. This is similar to shopping at any online shopping store or online market place. You see what you like, you buy it, you pay for it and you wait for it to arrive at your door. There are also auction listings that give you the option to "Buy it Now" for a price that's typically higher than the auction's start price. If you choose to buy the item for the "Buy it Now" price instead of bidding on it, the auction ends instantly and the item is yours.

The Buyer or Seller can adopt many ways to pay for an item on eBay including money order, cashier's check, cash, personal check and electronic payment services

like PayPal and BidPay. It is totally dependant on the choice fo seller of the item or product which methods he likes or with which he is convenient. . PayPal is the easiest way to buy something on eBay, because eBay owns PayPal. The PayPal payment process is already built into any auction listing on eBay.

Selling on eBay

EBay is a place for both the buyers and sellers of the items. Any body can come and can subscribe to the eBay, and he can place its item for selling. A person can sell almost anything. Using a simple listing process, you can put all of the junk in your basement up for sale to the highest bidder. There are millions of people who sell their old laptops on eBay just because their laptops have become obsolete. There are lots of cloths available for auction as the person using that clothes is grown out. There are brand new things available for auction as some body has gifted a person a brand new couch and it is not going through that person's main door.. Some people even make a business of eBay by opening their own "eBay store." When you sell an item on eBay, you pay listing fees and turn over a percentage of the final sale price to eBay.

Working of Amazon

Just like eBay, Amazon.com is selling million and millions of stuff to the consumers. The direct Amazon-to-buyer sales approach is basically and really the same as done by the other online retailers with the only one difference and that makes the real difference is the range of products that Amazon is offering, Amazon is offering a wide range of products which other online retailers can not even think of providing. A person

can almost find each and every thing of its interest on Amazon.com including Beauty supplies, clothing, jewelry, gourmet food, sporting goods, pet supplies, books, CDs DVDs computers furniture, toys, garden supplies, bedding and almost anything else you might want to buy. The thing which is making Amazon a giant in this industry is the range of products offered by the Amazon. What makes Amazon a giant is in the details. Besides its tremendous product range, Amazon makes every possible attempt to customize the buyer experience.

This is a very attractive feature of the Amazon.com that when a person visits the and he arrives at the homepage he will find not only special offers and featured products and attractive advertisements but if he has been to Amazon before that he will find some interesting and useful recommendations. Amazon knows a person by name and tries to be his personal shopper. These kind of embedded and penetrating marketing techniques that Amazon employs to personalize one's experience are probably the best example of the company's overall approach to sales: Know your customer very, very well. **Customer tracking** is an Amazon stronghold. It is all about letting the cookie left on your hard disk and you will be receiving lots and lots of ads and attractive features that will make your shopping a lot easier on the internet. You will be getting recommendations on your past shopping and you will be displayed a large number of reviews and remarks given by the people who have already used that product. Another important and main feature of the Amazon that put it to another level is **multi-leveled e-commerce** strategy it employs.

Amazon.com allows almost anyone and every one sell almost anything and everything using its platform. Since 2000, one can also find items and products advertised or placed for selling by third-party sellers which might be the individuals sellers, small companies and retailers like Target and Toys 'R Us. One can find second hand goods, refurbished goods and auctions. You could say that

Amazon is simply the best, ultimate and most suitable place for selling goods on the Web. More than that except that the company has recently added a more extroverted angle to its strategy In addition to the affiliate program through which Amazon was adding links of the other sites in its site and Amazon was getting profit from that sites if a sales is made on that reference. There is a new program that allows affiliates to build their own website using that Amazon Platform Those affiliates can build their own small Amazon website and that small web site will use the same big and large database of the Amazon.

2.1.3 Local Shopping Malls

In Pakistan there is not any trend of online auction yet but there are some stores available in Pakistan that are providing the facility of online shopping. This system is developed in order to facilitate the shoppers in Pakistan so that they can shop with relative ease and this will narrow down the gap between the sellers and buyers as it will act as intermediary between the seller and the buyer.

2.1 Tools and techniques

In this portion there is a discussion of tools and techniques used in the development of the system.

2.1.1 .net frame work

The .NET Framework is an environment for building, deploying, and running Web Services and other applications. It consists of three main parts: the Common Language Runtime, the Framework classes, and ASP.NET. .

NET is the Microsoft Web services strategy to connect information, people, systems, and devices through software. Integrated across the Microsoft platform, .NET technology provides the ability to quickly build, deploy, manage, and use connected, security-enhanced solutions with Web services. .NET-connected solutions enable businesses to integrate their systems more rapidly and in a more agile manner and help them realize the promise of information anytime, anywhere, on any device.

The Microsoft platform includes everything a business needs to develop and deploy a Web service-connected IT architecture: servers to host Web services, development tools to create them, applications to use them, and a worldwide network of more than 35,000 Microsoft Certified Partner organizations to provide any help you need.

Application Service Provider is a third party entity that manages and distributes software based services and solutions to customers across a wide area network from a central data center. ASPs host and manage applications from their facilities and coordinate the support, maintenance, upgrades and administration of the software. ASPs combine state-of-the-art hardware, software, networking technologies and technical know-how to provide superior performance, increased security, and 24/7 reliability more effectively and affordably than traditional, in-house IT departments. In short, ASPs are a way for companies to outsource some or almost all aspects of their information technology needs.

Application Service Providers operates by hosting software package/application for clients to access through the internet or in certain cases through dedicated communication channels via a web interface.

2.2 SQL SERVER 2000

Microsoft SQL Server 2000 is the complete database and analysis solution for rapidly delivering the next generation of scalable Web Applications.

SQL Server 2000 Enterprise Edition is the complete SQL Server offering for any organization. It offers the advanced scalability and reliability features necessary for mission critical line-of-business. It also takes full advantage of the highest-end hardware with support for up to 32 CPUs and 64 GB of RAM. SQL Server 2000 Enterprise Edition includes advanced features which are discussed as follows.

2.2.1 Features and technologies

SQL Server 2000 is a powerful tool for turning information into opportunity.

Industry-leading support for XML, enhanced tools for system management and tuning, and exceptional scalability and reliability make SQL Server 2000 the best choice for developing a web based system.

Driven by customer requests, cutting-edge research and strategic direction, SQL Server 2000 is the complete database and analysis offering for rapidly delivering the next generation of scalable e-commerce, line of business and data warehousing solutions. It includes features and technologies that make it :

- Fully Web-Enabled
- Highly Scalable and Reliable
- Deliver Fastest Time-to-Market

In addition to focusing on these core design themes, the SQL Server development team, at every level has emphasized quality.

Other features due to which this specific tool was adopted are:

Rich XML Support: Simplify the integration of your back-end systems and data transfer across firewalls using XML.

Integration with Windows Server System—BizTalk Server and Commerce Server: SQL Server 2000, in conjunction with other Microsoft Windows Server System™ integrated server software, provides even more power for your e-business.

Web-Enabled Analysis: Analyze data from remote OLAP cubes that are Web accessible.

Web Access to Data: Connect to your SQL Server 2000 databases and OLAP cubes flexibly, by using the Web with no additional programming.

Application Hosting: With multi-instance support, SQL Server enables you to take full advantage of your hardware investments so that multiple applications can be run on a single server, or outsourced.

Clickstream Analysis: Gain a deep understanding of online customer behavior, so that you can make better business decisions.

Security: Ensure your applications are secure in any networked environment, with role-based security and file and network encryption.

Full Text Search: Use and manage both your structured and unstructured data, including searching through Microsoft Office documents.

High Availability: Maximize the availability of your business applications with log shipping, online backups, and fail over clusters.

Security: Ensure your applications are secure in any networked environment, with role-based security and file and network encryption.

Distributed Partitioned Views: Partition your workload among multiple servers for additional scalability.

Indexed Views: Gain performance from your existing hardware by storing query results and reducing response times.

VI SAN: Improve your overall system performance with built-in support for a virtual system area network (VI SAN).

Replication: With SQL Server 2000 you can implement merge, transactional, and snapshot replication with heterogeneous systems.

Simplified Database Administration: Automatic tuning and maintenance features enable administrators to focus on other critical tasks.

Improved Developer Productivity: User-defined functions, cascading referential integrity, and the integrated Transact-SQL debugger allow you to reuse code to simplify the development process.

Data Transformation Services: Automate routines that extract, transform, and load data from heterogeneous sources.

Extend Applications: Support for access by devices, such as Microsoft Windows[®] CE handheld units, provides broader access to applications and extends your user base.

Web and Application Hosting: Have your e-commerce solution hosted by a third party, with SQL Server 2000 support for multiple instances.

English Query: Enable your users to pose questions in English instead of using multi-dimensional expressions (MDX).

Data Mining: Discover patterns and trends with data mining, and make predictions about future trends in your business.

Analysis (OLAP) Services: Perform rapid, sophisticated analysis on large and complex data sets using multi-dimensional storage.

OLAP Flexibility: Use multiple dimension types for flexible business analysis.

Closed-Loop Analysis: Take analysis one step further with OLAP actions, allowing results to drive next steps in the business process.[1]

2.3 Bidding

“An offer made by an investor, trader, or dealer to buy a product or article”. In other words we may say that a bid is defined as The price at which a market maker is willing to buy a product or a article. The word bidding is mostly used in auction. In traditional auction bidding is done on the one article or a thing which is displayed for auction. The people who are interested in buying that article or buyers offer a range of prices for article to be auctioned and one with the highest bid takes that item. You may say that the person who has offered that highest bid will be the ultimate buyer of that product. In this bidding system both the seller and the buyer of the product

Online bidding is based on traditional auction but it has many advantages attached with it. It allows the buyer to bid for time allocated by the seller of the product secondly buyer can take part in auction no matter in which part of the world the buyer is sitting. There is no need of seller and buyer to be present at the same location. Also along with this feature the buyer will have an option of comparing different products of the same type which is not mostly available in traditional auctions due to physical limitations where as there is no limit to the space of web and you can keep as much items for bidding as you want. One new development in the context of bidding online is that of ‘Proxy Bidding’ or in simpler words ‘Secret Bidding’. This term will be explained separately

Some commonly used terms in auction are as follows

Ask: The price a seller is willing to accept for a product or article, also known as the offer price

Ask size: The number of products a seller is selling at a quoted ask price.

Bid Size: The number of products a buyer is willing to purchase at the quoted bid price.

Bid-Ask Spread: The amount by which the ask price exceeds the bid.[2]

2.4 Proxy Bidding

Internet users can buy or sell almost anything and everything via online auctions and via fixed price purchasing. The Auctions of items or Product range from multimedia, to collectibles to real-estate. EBay and Amazon are the best, biggest and leading auction sites, and these essentially are the marketplaces where buyers and sellers can interface.

A important feature of Online auctions is that typically these auctions last for a fixed period of time that is typically and usually seven days but the it is dependant on the seller of the item foe how long he wants to places his item for auction. Those who are interested in buying of the item place their bids for that item. Bidders or buyers place the highest amount which they can afford or are willing to pay for an item or a product. The person or bidder who has given or placed the highest bid for an item at the close of the auction earns the right to buy that product at the agreed price. This is kind of bidding that is most commonly known and this is very straightforward but there are some other types of bidding that are also available to which only few people are aware of. Proxy bidding is one of them and the only site which is providing with the concept of Proxy bidding is EBay.com.

There is only one site that is using the concept of proxy bidding and that is eBay. Consider an example in order to completely understand the concept of Proxy bidding. Suppose that there is a seller who has listed a mobile phone for sale on eBay and the auction ends on Saturday normally what happens is that there are many people that are interested in an item but in this for the sake of simplicity, we are assuming that there are only two people interested in this particular auction of mobile phone and those two people are Sajjad and Shumail. Shumail discovers the auction on Monday and places a bid for \$1.00. On Tuesday, Sajjad notices the auction and sees that someone else (Shumail) has already placed a bid. Sajjad is interested in purchasing the mobile phone, but he won't be able to monitor the auction since he is very busy. So instead of entering \$1.25 as his bid (he couldn't bid \$1.01 because Ebay has minimum-increment requirements), Sajjad enters \$9.63. He enters this as a regular bid, but only Ebay 'knows' this amount - it isn't revealed to anyone else. On the auction listing, Sajjad is shown as the highest bidder with a bid of \$1.25 even though he bid much more. Ebay has placed the lowest bid possible on behalf of Sajjad

On Wednesday, Shumail checks the listing again, and sees that she has been outbid, and so he places a bid of \$1.50, but seconds later he sees that the highest bidder is listed as Sajjad for \$1.75. Ebay has instantly placed a bid on Sajjads behalf - again the lowest amount possible to remain the high bidder. Shmail is frustrated and continues to place bids; the process continues until Shmail reaches \$3.00 at which point he gives up. No other bids are placed, and when the auction closes, Sajjad is pronounced the winner for \$3.25 (one bid increment higher than Shmail highest bid) even though the bid he entered was \$9.63. This kind of bidding is known as proxy bidding.

2.5 ONLINE TRANSACTIONS

2.5.1 Transaction

Transaction is defined as an agreement between a buyer of the product and a seller of the product for the exchange of goods or services for payment. The two parties which are taking part in a transaction have an obligation to perform their part. For example, if a buyer has bought some thing from seller it is the moral obligation on the buyer to pay fully the price on which both the parties are agreed upon and on the other hand it is the duty of seller to deliver that product completely to the buyer.

There is simple order form page available in the shopping sites in which buyer if the product has to enter information about him and the products which he wants to buy. There is least or no automation involved in this page and the all the information has to be entered by the buyer himself. There is another option available in many other sites that is when the buyer wants to buy something he clicks on that item and all the related information of that product is transferred to order form page. In this way buyer don't have to enter all the information himself and in both the cases discussed above the information about the product and the products which buyer have bought are sent as email to buyer.

A slightly more advanced option is available by using a shopping cart software product as most carts have the ability to either store credit card numbers securely so you can view them over the Internet or send them securely over e-mail. By making use of an existing merchant account, payments can be processed by using a PDQ swipe card machine or by old -fashioned credit card slip.

Advantages

- Secure forms require a minimal outlay
- Avoid paying for a Payment Service Provider facility.
- Avoid an extra internet merchant number for online transactions
- Merchants can manually screen orders as they come in and reject risky transactions
- Site superficially appears to be fully credit/debit card enabled

Disadvantages

- Secure forms have limited use for more than one product on your site.
- Some bank acquiring services disapprove of merchants using an offline merchant number for Internet transactions so the merchant may be in breach of their acquiring bank's terms and conditions.
- There is no "live" authorization of card details so incorrect details will still appear to have been accepted. Contact (by telephone) may then be necessary.
- Transactions are processed manually - time consuming.

2.5.2 Credit

A credit is type of transaction in which funds are being transferred from the account of merchant to the credit card of the customer of buyer. This is the way to handle refunds when a transaction has been completed but either of two parties is not happy and the product is returned back to the seller. A credit can be performed in the Transaction Terminal area or through a merchant's storefront application. Check

refunds can only be done via credit card or through a non-electronic, paper check. A credit can only be issued to an account that has not had a previous authorization.

2.6 PAYMENTS METHODS

There is no doubt that electronic payments are costly and challenging but it provides you the competitive edge. Different system of payments that are available for online shopping are traditional card payments, mail order, online payments, payment bureaus, secure order forms, BACs alternative payment options and no payment option

2.6.1 Credit Card

In this form of borrowing there are often some extra charges involved like there is some mark up involved then there is credit card fee and there are lots of other fees involved when we are using credit card form of borrowing. A credit card often involves charges. Credit terms and conditions affect your overall cost. So it's wise to compare terms and fees **before** you agree to open a credit or charge card account. Usually credit card is being issued by financial institution to its client or customers based upon the transactions made by the clients. This allows the client to shop any thing using that credit card. A person or customer having credit card can buy any thing and almost every thing and instead of paying cash money he can simply use his credit card and the bank will pay for him. After a given time period person has to pay back the bank the amount equivalent to use by him in doing shopping. This amount is with out interest for a given time period but after that person has to pay a interest on that money known as mark up. Online shopping is done mostly using the credit card. The seller's bank first confirm from buyer's bank that is that card

number given by the customer is valid and after that customer is given the item for which he is using credit card. The seller's bank also confirm that weather the person who is using the card has the remaining credit limit equal to the price of that item. All this is done by using web service which will be discussed later. The terms commonly used in credit card system are as follows.

Free Period. Also called a "grace period," a free period lets you avoid finance charges by paying your balance in full before the due date. Knowing whether a card gives you a free period is especially important if you plan to pay your account in full each month. Without a free period, the card issuer may impose a finance charge from the date you use your card or from the date each transaction is posted to your account. If your card includes a free period, the issuer must mail your bill at least 14 days before the due date so you'll have enough time to pay.

Annual Fees. Most issuers charge annual membership or participation fees. They often range from \$25 to \$50 and 500RS to 1000 RS , sometimes up to \$100; "gold" or "platinum" cards often charge up to \$75 and sometimes up to several hundred dollars.

Transaction Fees and Other Charges. A card may include other costs. Some issuers charge a fee if you use the card to get a cash advance, make a late payment, or exceed your credit limit. Some charge a monthly fee whether or not you use the card.

2.6.2 Debit Card

Debit card is also known as ATM card issued by the different banks. This allows the person to use that card for the shopping purposes but its different from credit

card in a sense that it allows only that much amount which is present in the bank in person's account. There is no credit limit available in debit cards and there is no mark up on interest money that has to be paid to the bank after a specified period of time. Debit cards can also be used for online shopping as we can give the account number online and the rest will be done by the banks themselves.

2.6.3 Master card

MasterCard Incorporated is a membership organization owned by the 25,000 financial institutions that issue its card. MasterCard is also the company's brand of credit cards. It was originally created by United California Bank, Wells Fargo, Crocker Bank, and the Bank of California as a competitor to the Bank Americard issued by Bank of America. Bank Americard is now the VISA credit card, issued by Visa International.

The name Master Charge was licensed by these California banks from the First National Bank of Louisville, Kentucky in 1967. With the help of New York's Marine Midland Bank (now HSBC Bank USA), these banks joined with the Interbank Card Association (ICA) to create "Master Charge: The Interbank Card".

2.6.4 Visa Card

A card that bears the Visa symbol and which enables a Visa cardholder to obtain goods, services or cash from a Visa merchant or acquirer [3]

2.7 Security

The Internet has created many new global business opportunities for enterprises conducting online commerce. However, the many security risks associated with conducting e-commerce have resulted in security becoming a major factor for online success or failure.

Over the past 7 years, consumer magazines, industry bodies and security providers have educated the market on the basics of online security. The majority of consumers now expect security to be integrated into any online service they use, as a result they expect any details they provide via the Internet to remain confidential and integral. For many customers, the only time they will ever consider buying your products or services online is when they are satisfied their details are secure.

2.7.1 Secure Socket Layer (SSL):

Secure Sockets Layer, SSL, is the standard security technology for creating an encrypted link between a web server and a browser. This link ensures that all data passed between the web server and browser remain private and integral. SSL is an industry standard and is used by millions of websites in the protection of their online transactions with their customers. In order to be able to generate an SSL link, a web server requires an SSL Certificate.

When you choose to activate SSL on your web server you will be prompted to complete a number of questions about the identity of your website (e.g. your website's URL) and your company (e.g. your company's name and location). Your web server then creates two cryptographic keys - **a Private Key and a Public Key**.

Your **Private Key** is so called for a reason - it must remain private and secure. The **Public Key** does not need to be secret and is placed into a Certificate Signing Request (CSR) - a data file also containing your details. You should then submit the CSR during the SSL Certificate application process Comodo, the Enterprise SSL Certification Authority, who will validate your details and issue an SSL Certificate containing your details and allowing you to use SSL.

2.7.1.1 Benefits of using SSL

Enterprise SSL Certificates are the most cost effective SSL Certificates you can buy which include:

- " Full validation conducted quickly - in many cases you can expect your SSL Certificate to be issued within minutes
- " Telephone, email, web support available 3am - 7pm EST
- " Over 99% browser compatibility
- " 128 bit strong encryption security
- " Backed by warranties ranging from \$500,000 to \$1 Million

Enterprise SSL Certificates provide you with the key to successfully using on your web server. [4]

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- " 128 bit strong encryption security *
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Enterprise SSL Certificates provide you with the key to successfully using on your web server. [4]

System Architecture

As I have explained earlier that the whole system consist of two major modules i.e.

- Seller
- Buyer

So in the architecture of the system I have also divided the architecture into these separate modules

3.1 Seller Process Architecture

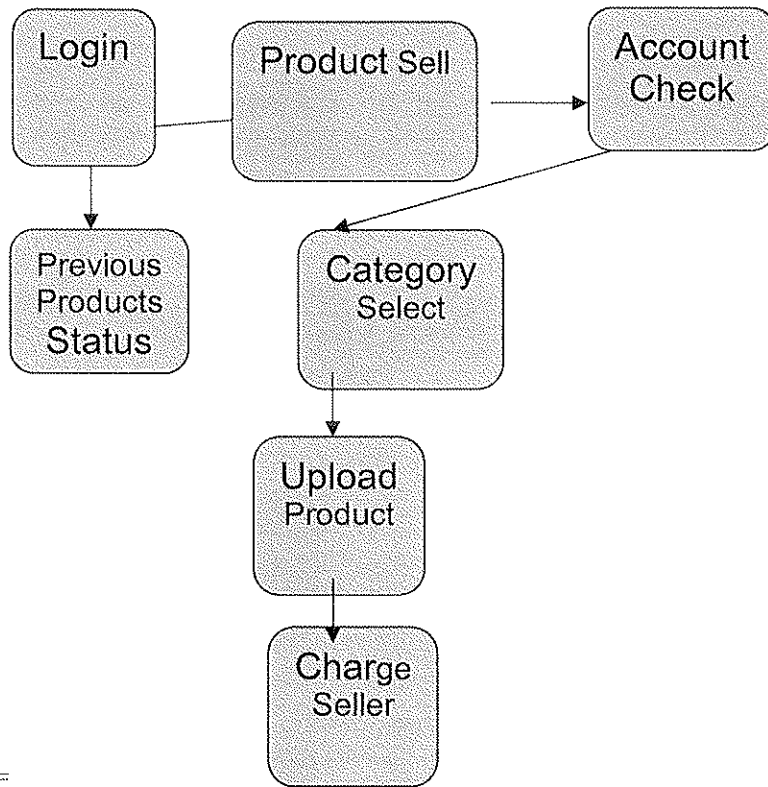


figure 3.1 seller process architecture

3.2 Buyer's Process Architecture

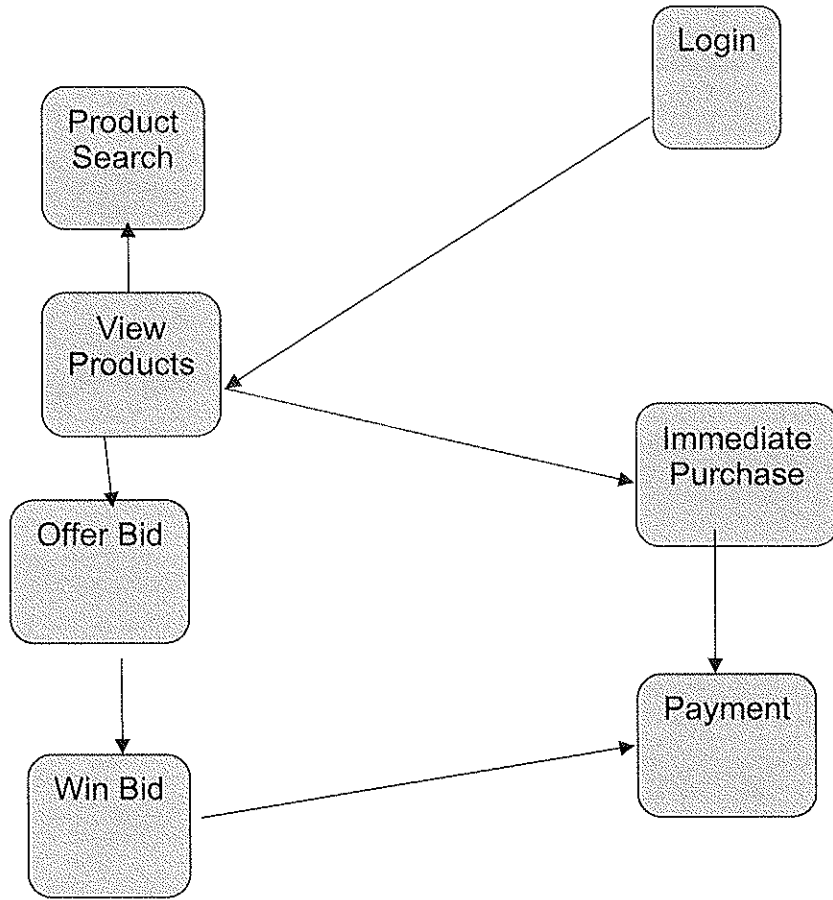


figure 3.2 Buyer process architecture

3.3 Architecture

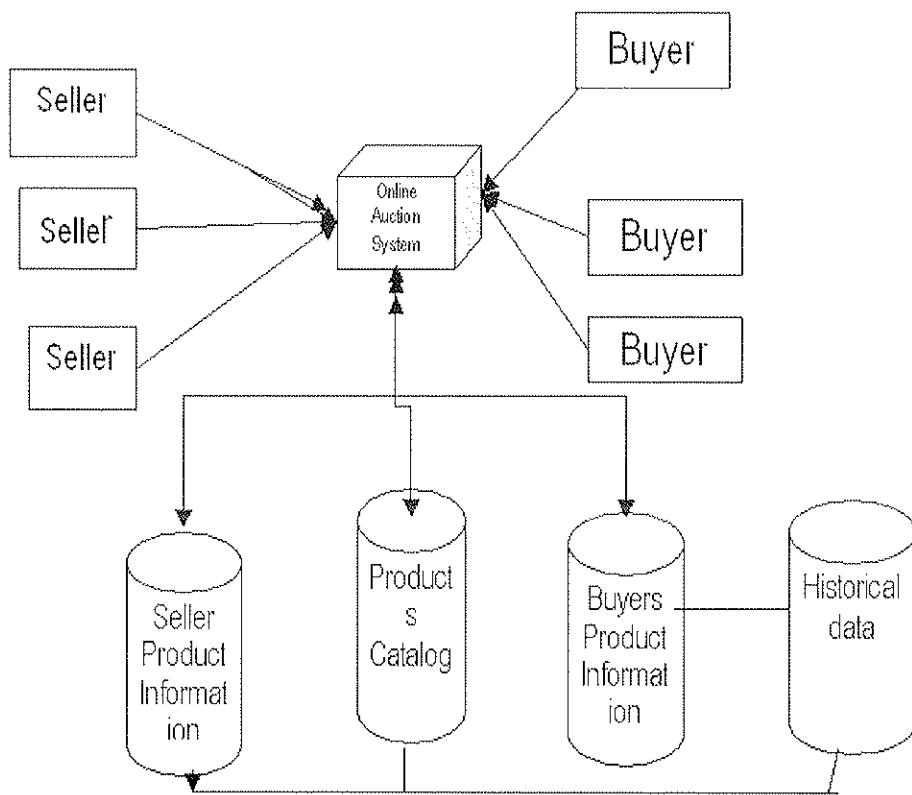


fig 3.3 Whole Architecture of the system

3.5 Data Flow Diagrams

3.5.1 Context data flow diagram

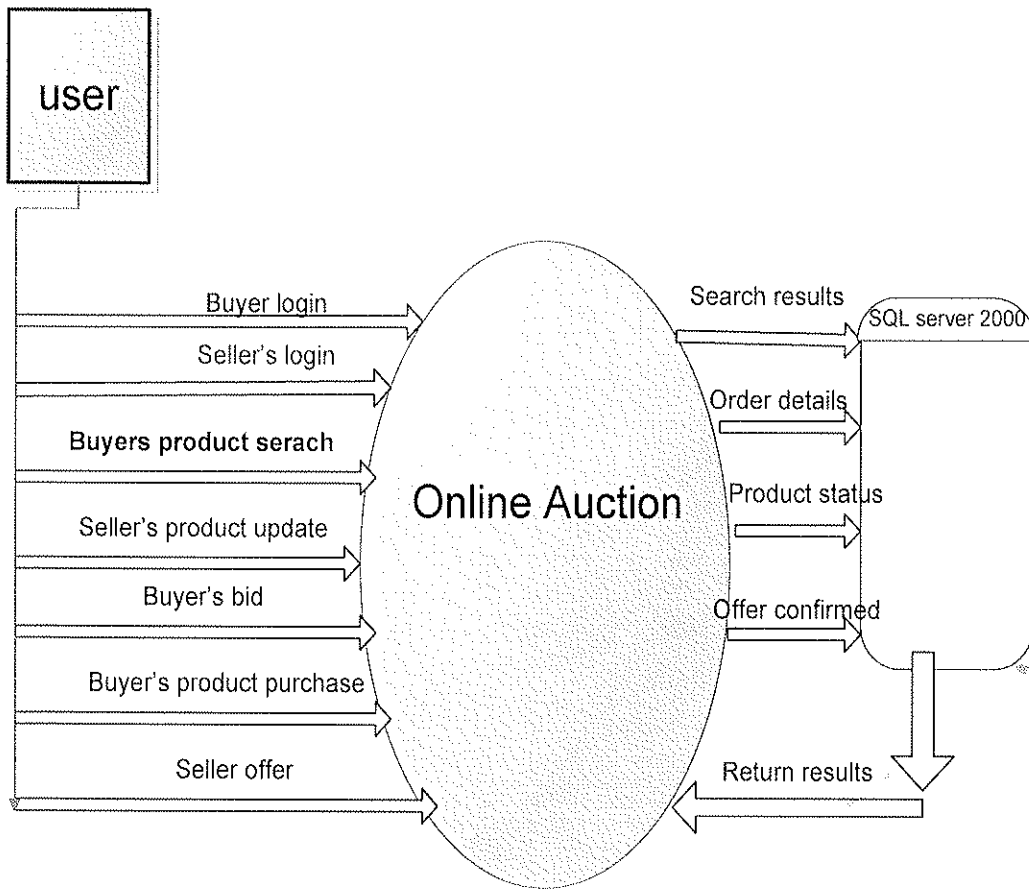


figure 3.4 context diagram

3.5.2 Data flow diagram 0

3.5.3 Buyer's Process

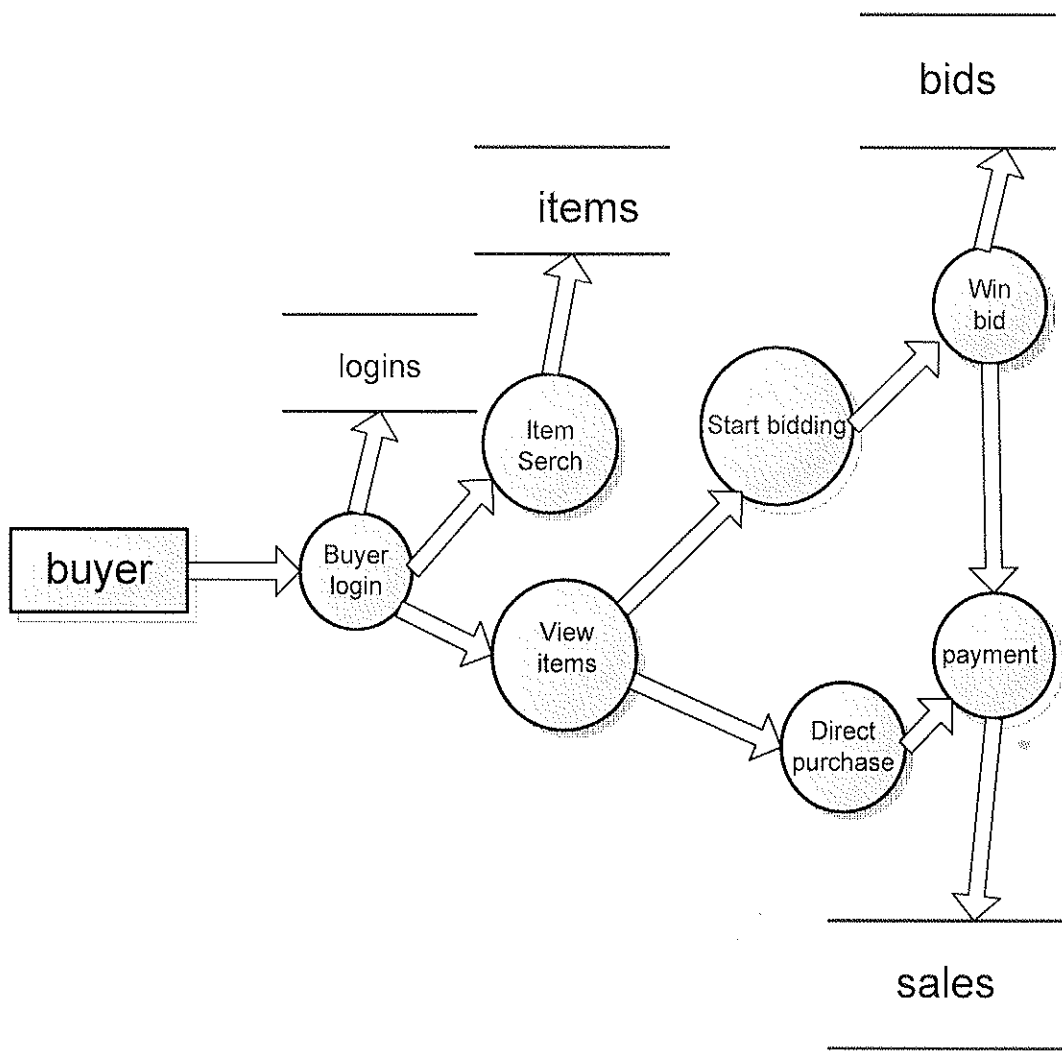


fig 3.5 buyer process DFD

3.5.4 Data flow diagram level 0 Seller's Process

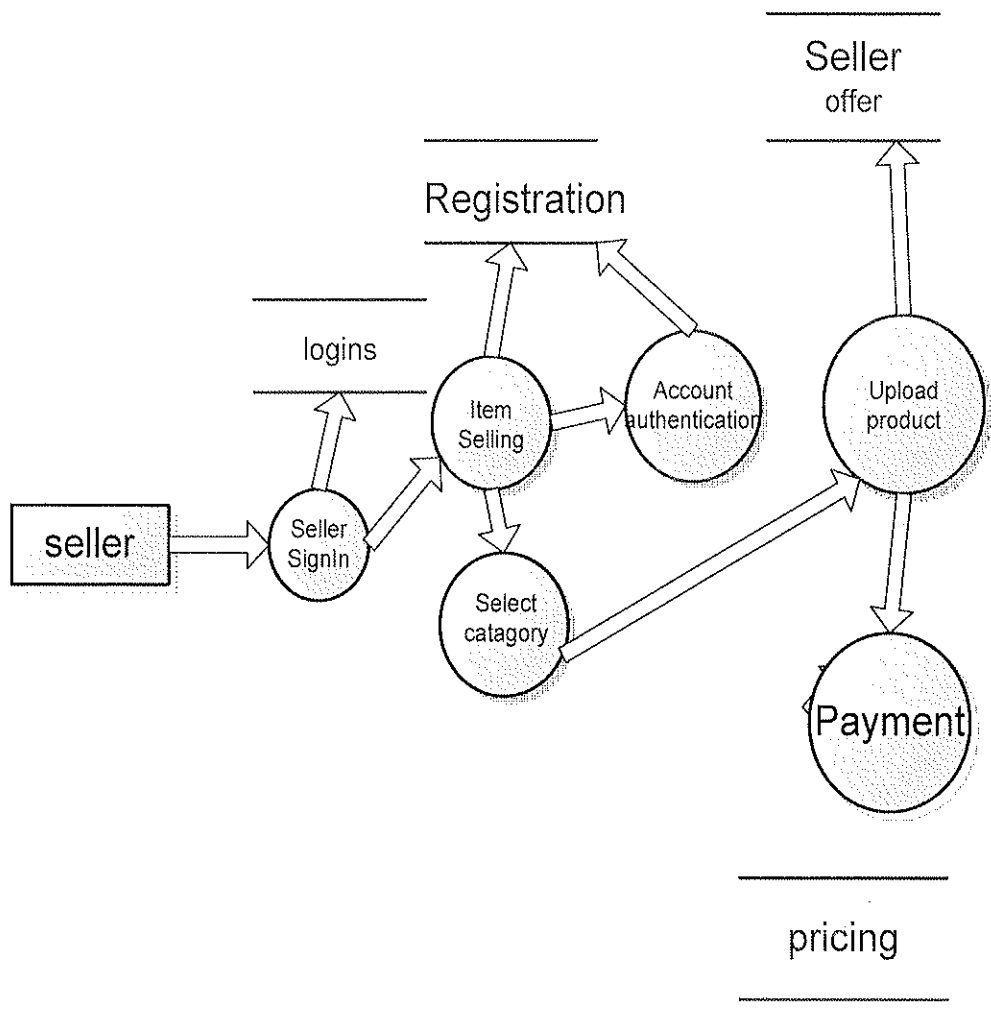


figure 3.6 Seller process DFD

3.6 Use Case Diagrams

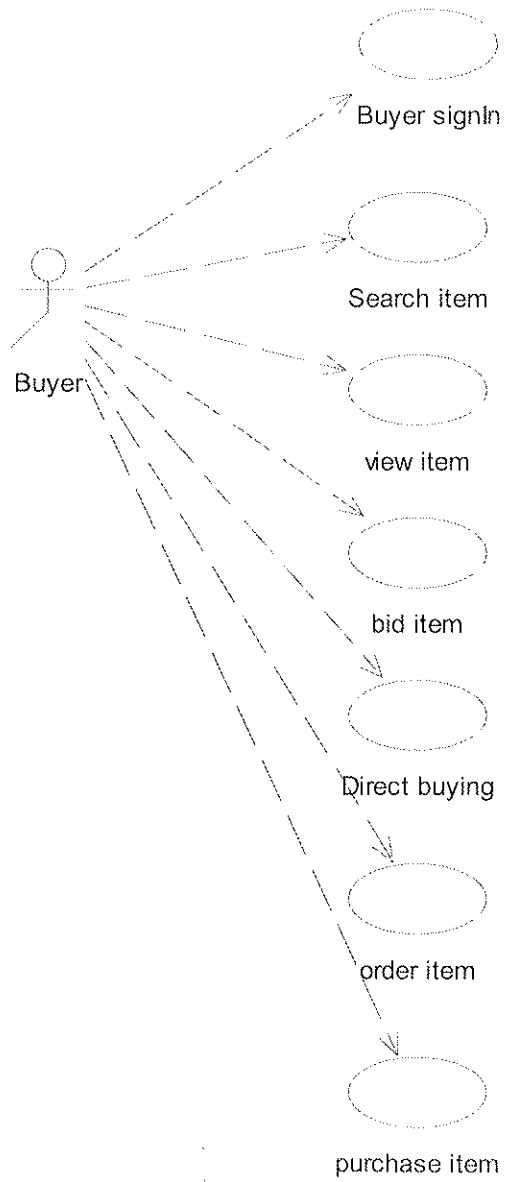


figure 3.7 buyer use case diagram

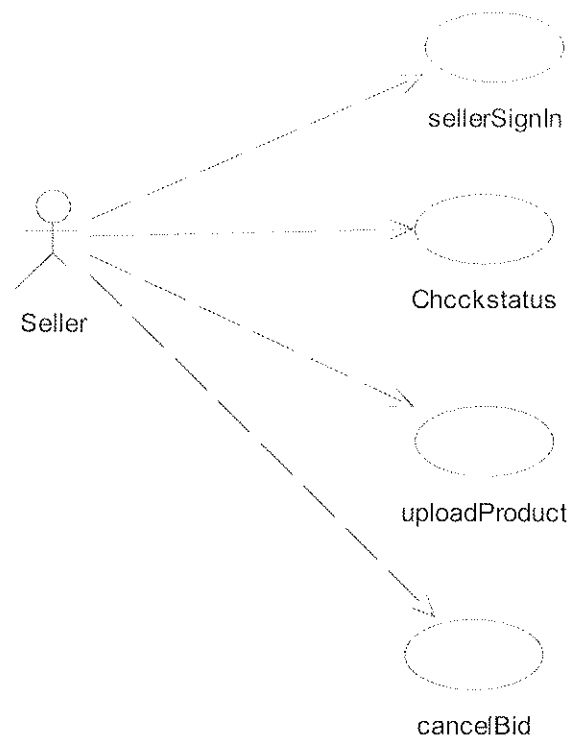
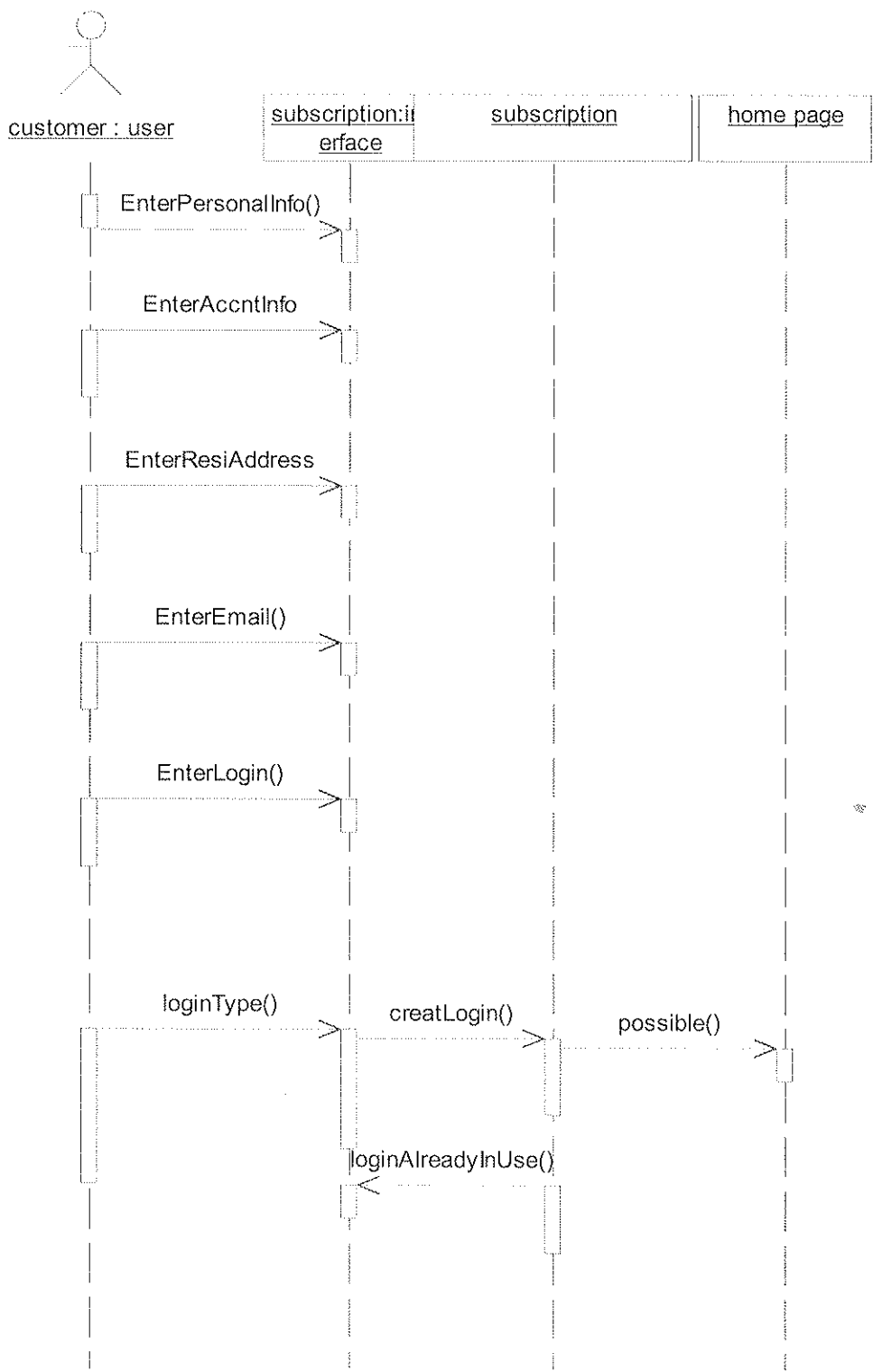


figure 3.8 Seller use case diagram

3.7 Sequence Diagrams

Subscription



Buyer Sign in page

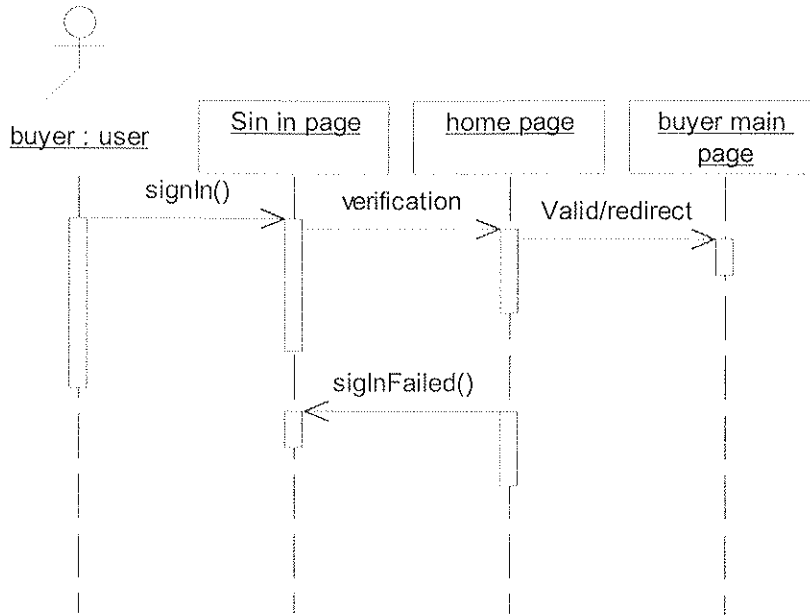


fig 3.10 Buyer login sequence diagram

Direct Buying without Bidding

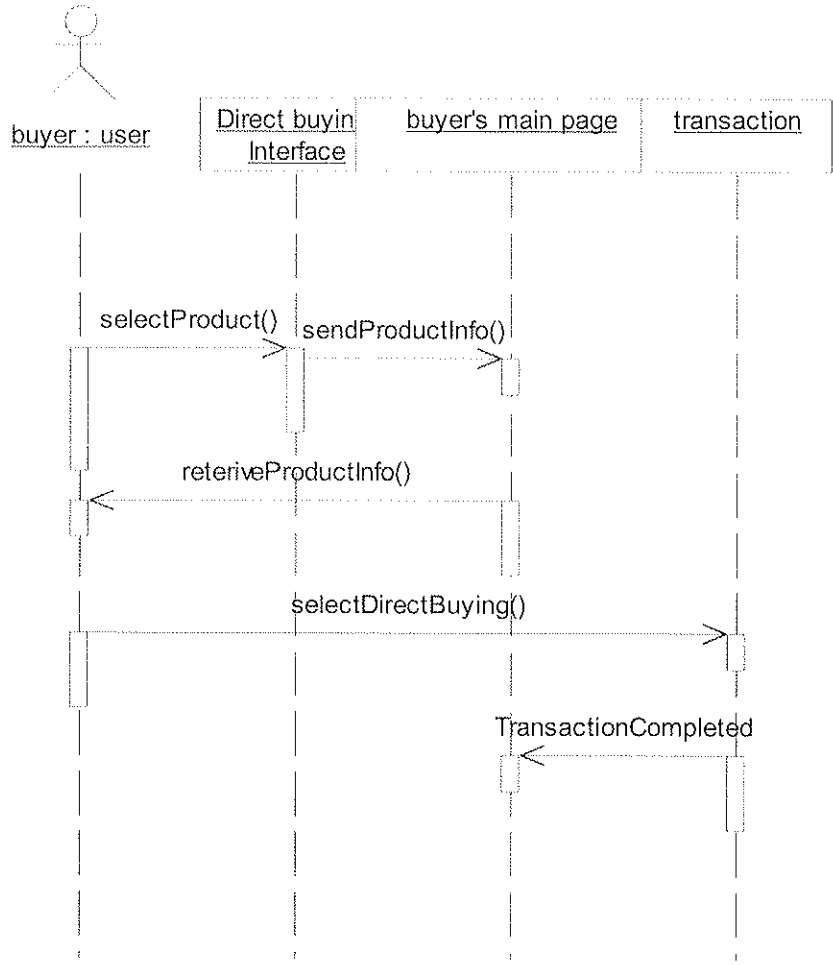


figure 3.11 Direct Buying sequence diagram

Seller sign in page

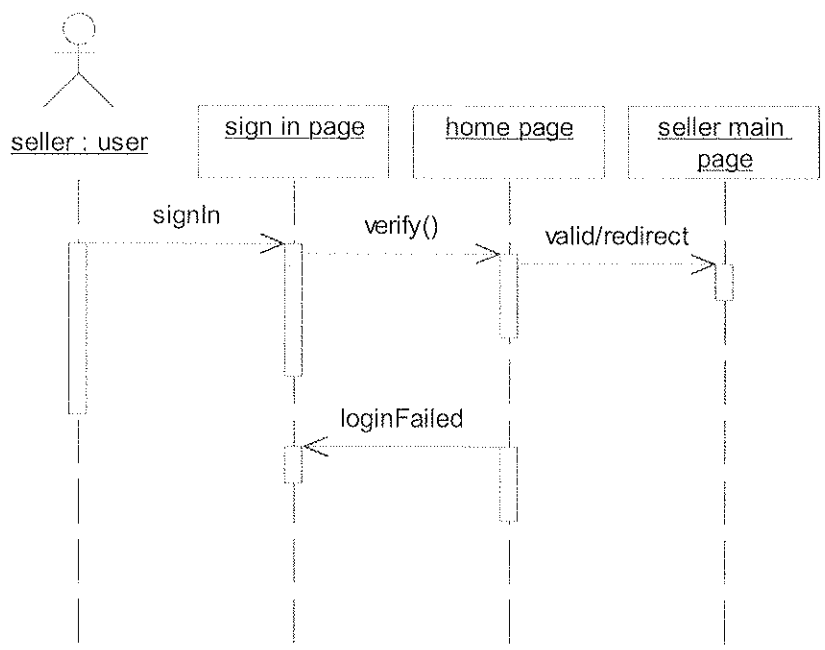


figure 3.12 Seller sign in sequence diagram

Product Search

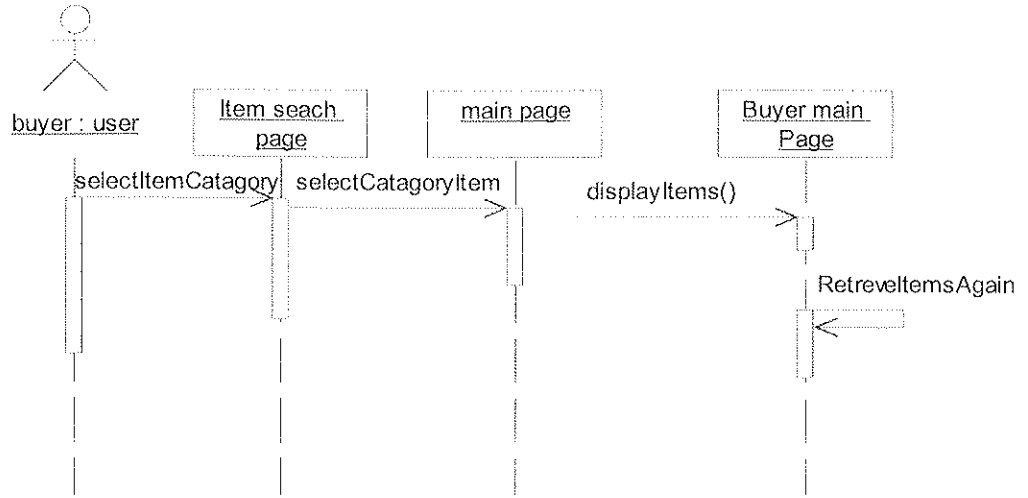


figure 3.13 Product search sequence diagram

Product Order

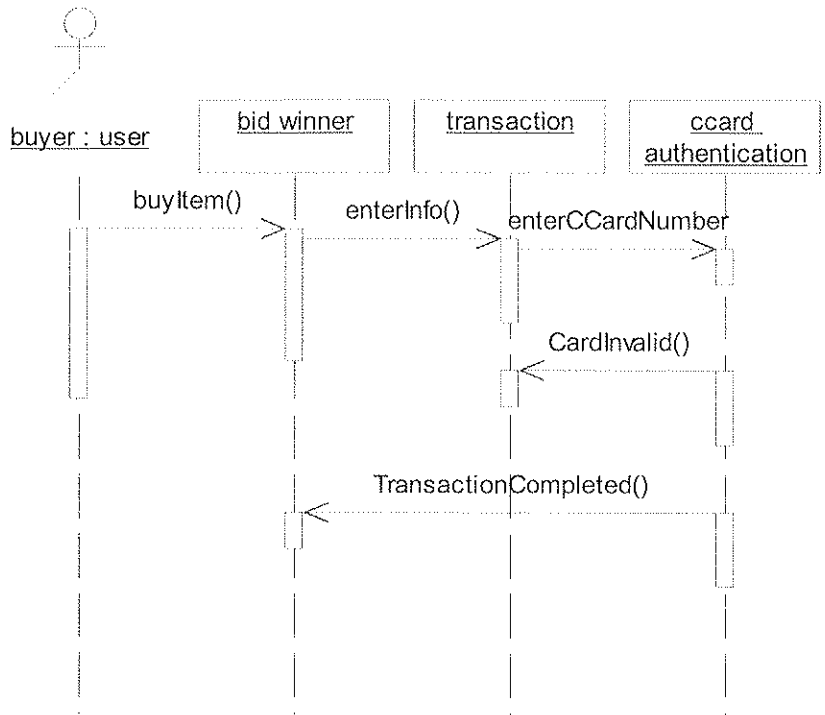


figure 3.14 Product order sequence diagram

3.8 Collaboration Diagrams

Subscription

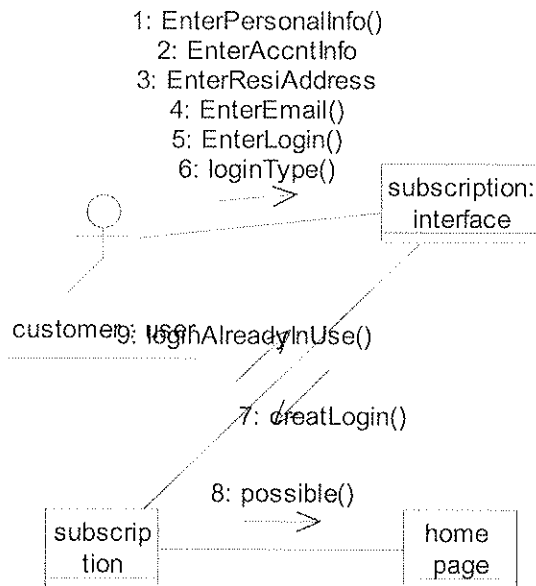


figure 3.15 customer subscription collaboration diagram

Buyer Sign in

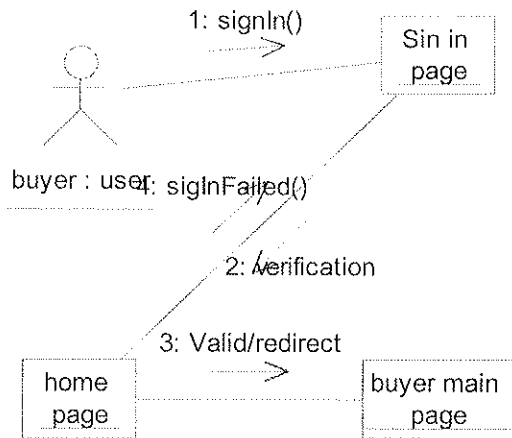


figure 3.16 Buyer sign in collaboration diagram

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Direct without Bidding Buying

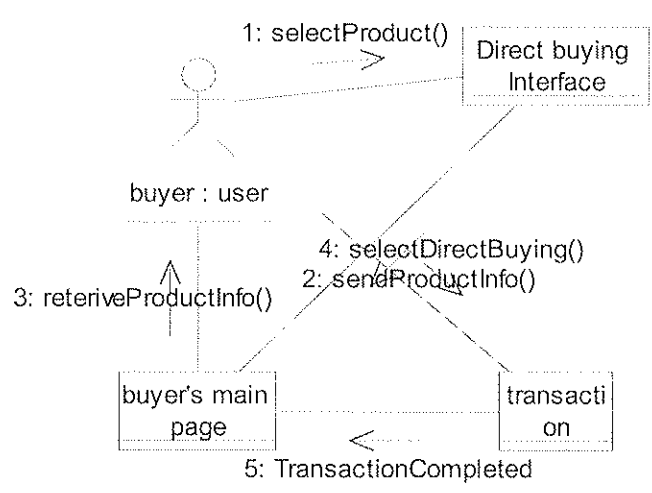


figure 3.17 Direct Buying collaboration diagram

Seller sign in page

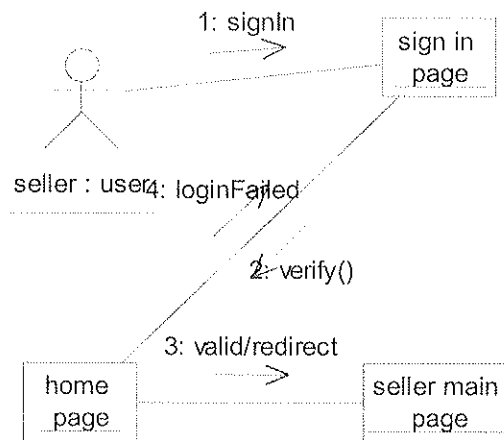


figure 3.18 seller sign in collaboration diagram

Product Search

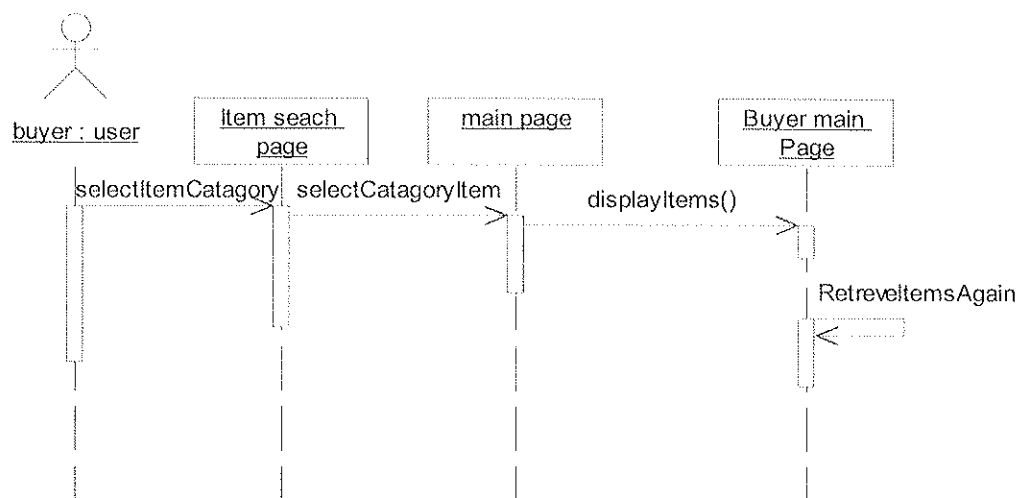


figure 3.19 Product search collaboration diagram

Order

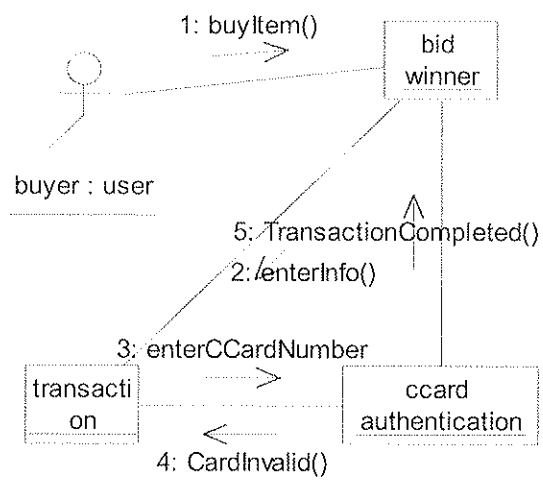


figure 3.20 product order collaboration diagram

System Implementation

4.1 Graphical User Interface

The graphical user interface of the system is designed in ASP. NET. The reason for using ASP.NET is that there is easy drag and drop facility available in .net. it was very difficult in other languages as you have to write code for each component.

4.2 Coding Details for each page

4.2.1 Sign in page

When you enter the system you see that there are fields for user name and password, you can enter the system by giving the details of your user name and password if you are existing user and if you are not existing user you can register yourself on the system by giving some details. There are two types of user that are as follows.

- buyer
- seller

if you are a buyer you have to select that you are a buyer and if you are a seller then you have to specify that you are logging in as a seller.

4.2.2 Subscription page.

In this page user has to enter its personal details there are fields in this page that will be asking user about its name, contact address, email address and account number. Then the user will be entering the login which he wants to use for signing in purpose and if that login is already in use he will not be given that login and there will be a message displayed that you must enter some other login as this is already in use. The user is not registered or subscribed unless he has a unique login.

4.2.3 Buying through Bidding or auction.

Once the user has registered himself and he has logged into the system that he can buy and sell things over there. For buying a thing using bidding the user have to select an item from displayed items and then there is an option to enter a bid for that item. When the buyer reaches the bidding page of a particular product he sees that there is an a bid already present for that particular item. You always have to enter a value or bid higher then the already displayed bid. if you don't enter the value higher then the current value a message will be displayed that you have to re-enter the bid again as you have entered the value lower than the current value.

Some times it also happens that the user enters the value higher than the current value but again your entered value is not displayed as a current value. The reason for this is "proxy bidding." As I have explained the proxy bidding in my chapter two that is literature review so there is no need to explain that here again this chapter.

4.2.4 Direct Buying

The system provides the facility of direct buying of items. There is no bidding in of these items. There is a fixed price for that item you can simply buy that product by giving your credit card number.

4.2.5 Searching of Products

There is also facility of search any product in the website. There are two types of searches available which are as follows

- search by item name
- search by vendor name

4.2.6 Search by item

Suppose you want to search some particular computer or you want to buy some item from multimedia section u will simply write the name of that multimedia item like cameras you will be displayed the cameras present in the database

4.2.7 Search by Vendor.

Suppose you want to search cameras but these cameras should be made by Sony so you will enter your search in such a way "Camera by Sony". So the system will perform the searching in database and the results will be displayed to the user.

4.2.8 Placing an item.

As discussed above that there are two types of user that i.e. seller and buyer. Suppose a seller wants to place a new item on the web site and he want that item to be auctioned. Seller will enter the system by providing its user name and password and he will select sell new items from the seller's main page. After that he will enter all the related information associated with that product. After that a an agreement will be made between the seller and the system that seller will complete the transaction with out ant kind of fraud and he will also provide his credit card number during that agreement process. Finally that product will be entered to the data base and the that will be available to buyer .

4.2.9 Status Check

Seller can also go to view items page of the system where he can check the status of previously placed items. He can also check weather those items are sold or still there to be purchased.

4.2.10 Check bid

This option is present with all three major participants of the system i.e. buyer seller and the administrator.

4.2.11 Administrator's check bid.

The administrator can check which items have completed their bid state and are ready for transaction. The administrator can do this by clicking on checkbid button on the administrate page.

4.2.12 Buyer's check bid.

The buyer can see which items are there in the system whose highest bidder is the buyer himself, he can select the checkbid button on the buyer mainpage

4.2.13 Seller's check bid.

the seller can see which items are there in the system whose bid has been completed and should be forwarded for a transaction. For this the seller has to click on the checkbidstatus button on the seller mainpage.

Conclusions

Online Auction is service based system. It is providing services to sellers and buyers of things. Seller can place its product on the system and the buyer can purchase it in lesser price from the market as he himself sets the price for that thing by taking part in the bidding of that product. At any point in time where he feels that the bid is going higher than the worth of the thing he can stop participating in that bid by not giving the next bid for that item. There is also an option for the buyers that they can buy things directly on fixed price. This system is providing ease to both sellers and buyer which can be both individuals and organizations as there is no paper work associated with it and using this system fraudulent activities can be stopped or eliminated from the purchasing process as this process is easy to manipulate.

The future recommendation for this project is that this system should be implemented as there is no or very few businesses which are providing the facility of online shopping. As far as my knowledge is concerned there is no online business which is providing the facility online auction. So as the world is moving towards technology and every one is saving its time by using facilities on the internet we must develop such systems in order to save our precious time and should use that time for advancing in the fields of science and technology.

Future Recommendations

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Infrastructure of the online auction is the solution to the problems faced by seller and the buyer of items. There is no such system available in Pakistan that allows online bidding of goods. This system eliminates the constraints of buyer and seller being present there at the same geographical location. This system is time as well as cost efficient. The buyer can save his time by just going to web site and by purchasing the items on a less price and seller can save its time by easily uploading the product on the site and checking the highest bid offered by any of the buyer.

When a buyer becomes a regular customer i.e. he all the time buy books from the auction he will start getting the adds of books from his third or fourth visit.

Moreover when ever some new item comes into the database and it is of the interest of the buyer , the buyer will get an email for that arrival.

The system being implemented and has potential to attract the buyers and sellers of the product and to make it easier for both the parties to sell or purchase the product online. There is a separate account for each seller and buyer of the product on this

application and they will interact with the system through the specified account. All the transactions and other information will be communicated through email given in the account.

The system developed is Robust and reliable. The account verification is done thorough web services. Besides that the seller of the product will also get the mails regarding the latest bid. The system built has all the potential and attractive capabilities to attract the customers i.e. seller and buyers.

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