DEVELOPMENT OF WEB BASED ONLINE SHOPPING SITE

Thesis

Submitted to the Punjab Agricultural University
in partial fulfilment of the requirements
for the degree of

MASTER OF TECHNOLOGY
in
COMPUTER SCIENCE & ENGINEERING
(Minor Subject: Electrical Engineering)

By

Gagan Deep Kaur Thind
(L-2000-AE-249-M)

Department of Computer Science & Electrical Engineering
College of Agricultural Engineering
PUNJAB AGRICULTURAL UNIVERSITY
LUDHIANA – 141 004

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DEDICATED TO MY PARENTS WHOSE LOVE HAS BEEN A BEACON OF LIGHT AND WARMTH AND MAY IT REMAIN THERE GLITTERING FOREVER

CERTIFICATE I

This is to certify that the thesis entitled, **" Development of Web based Online Shopping Site"** submitted for the degree of Master of Technology, in the subject of **Computer Science & Engineering,** (Minor Subject: Electrical engineering) of the Punjab Agricultural University, Ludhiana, is a bonafide research work carried out by Gagan Deep Kaur Thind(L-2000-AE-249-M) under my supervision and that no part of this thesis has been submitted for any other degree.The assistance and help received during the course of investigation have been fully acknowledged.

M S Seekree 2/8/2002
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Major Advisor
(Prof. Manmohan Singh Seekree)
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CERTIFICATE II

This is to certify that the thesis entitled, **"Development of Web Based Online Shopping Site"** submitted by Gagan Deep Kaur Thind (L-2000-AE-249-M) to the Punjab Agricultural University, Ludhiana, in partial fulfillment of the requirements for the degree of M.Tech, in the subject of Computer Science & Engineering, (Minor Subject: Electrical Engineering) has been approved by the Student's Advisory Committee after an oral examination in the same, in collaboration with an External Examiner.

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Gagan Deep

Dated: 2/8/02

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ABSTRACT

The current demand of agriculture sector is accuracy of information and its quick and easy availability so that agriculture production is sustainable and return increased along with reduction in cost of production. The current aspect is purchasing their requirements online. In Punjab Agriculture University presently the information needs of farmers are met by Directorate of extension education. This center also publishes literature for the farmers and gives advice and market information. Good quality seeds are also sold. But the farmers have to come to university from long distances to buy seeds and books etc. Large numbers of man hours are wasted. This manual approach makes the system very slow and inefficient. These Drawbacks of commerce can be removed to quite a good extent by the implementation of the software developed herein. Thus, this works aims at developing the system using web technology. The database has been designed using the Microsoft Access at the backend and the application has been developed using the Active Server Pages at the front end. In the current project, the backend and the front end are connected by means of Active Data Objects (ADO).

Keywords: Active Data Objects, Active Server Pages, Commerce, Microsoft Access, Web Technology.

M S Seekree
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Signature of Major Advisor

Gagan Deep

Signature of Student

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LIST OF ABBREVIATIONS

ADO	ActiveX Data Object
API	Application Program Interface
ASP	Active Server Page
CGI	Common Gateway Interface
CPU	Central Processing Unit
DBMS	Database Management System
DDB	Distributed Database Architecture
DHTML	Dynamic Hypertext Mark up Language
DLL	Data link Layer
DSN	Data Source Name
GUI	Graphics User Interface
HTML	Hypertext Mark up Language
HTTP	HyperText Transfer Protocol
IIS	Internet Information Server
IP	Internet Protocol
MMC	Microsoft Management Console
MTS	Microsoft Transaction Server
NTFS	Windows NT File System
ODBC	Open Database Connectivity
PWS	Personal Web Server
RDBMS	Relational Database Management System
RPC	Remote Procedure Call
SQL	Structured Query Language
SSL	Secure Socket Layer
TCP	Transmission Control Protocol

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CHAPTER-I

INTRODUCTION

The use of computer technology in almost every sphere of development has become indispensable. Computers are being used in all fields where a large amount of information needs to be processed for management of an organization.

With the rapid advancement of technology, internet is fast changing the various aspect of our everyday life. The benefits of internet are not only confined to the tertiary and secondary sectors (services and industries etc.) but also in the development of primary sector (agriculture etc.). In a country like India which has agriculture dominated economy, technology like internet assumes even much larger role.

The current demand of agriculture sector is accuracy of information and its quick and easy availability so that agriculture production is sustainable and return increased along with reduction in cost of production. The one aspect is purchasing their requirements online. Internet technology has the capability of making it possible to have access to such requirements at best cost .

The project in hand deals with " DEVELOPMENT OF WEB BASED ONLINE SHOPPING SITE ".

1.1 EXISTING MANUAL SYSTEM FOR COMMERCE

In Punjab Agriculture University presently the information needs of farmers are met by Directorate of extension education. This center also publishes literature for the farmers and gives advice and market information . Good quality seeds are also sold.

But the farmers have to come to university from long distances to buy seeds and books etc. Large number of man hours are wasted .This manual approach makes the system very slow and inefficient. These drawbacks of commerce can be removed to quite a good extent by the implementation of the software developed herein.

ADVANTAGES OF THE PROPOSED SYSTEM

This project is aimed at establishing an online e-shopping system using a web based model. Electronic commerce can be defined as "the buying and selling of information, product and services via computer networks and support for any kind of business transactions over a digital infrastructure". The database system created for this purpose keeps track of data related to the goods / services to be sold.

The corresponding front end application developed helps easy and fast retrieval of different types of information related to goods. Moreover this system provides enormous advantages over existing laborious and inefficient system of buying and selling .Some of them are:

1. Compactness: No need for possible voluminous paper files.
2. Speed: The machine can retrieve and change data far faster than a human can .Also a person sitting anywhere in the world can have access.
3. Less drudgery: Most of the tedium of maintaining files by hand is eliminated.
4. Redundancy: Redundancy of stock entry can be eliminated.

1.2 STATEMENT OF THE PROBLEM

Farmers are located at remote areas, so most of the times they are not able to come to Punjab Agriculture University for buying new improved varieties of seeds.

Internet is the modern tool by which quick response time can be generated. Thus the current project will focus on the "Development of Web Based Online Shopping Site ". It is required that the software developed should help the farmers to buy and procure their requirement by just visiting the site.

1.3 OBJECTIVES OF THE RESEARCH

1. Comparative study of various internet based technologies with respect to e – commerce.
2. Selecting proper model for online shopping site which could be implemented with this technology.
3. Design of internet technology based online shopping site.
4. Implementation and testing of design.

1.4 ORGANIZATION OF THESIS

The thesis has been organized in the following manner

- Chapter II reviews the literature about web technology and the application of advanced computer techniques to the field of e-commerce.
- Chapter III discusses the software of the system developed and structure of database files and forms designed.
- Chapter IV discusses the testing of the software.
- Chapter V discusses the result and discussion.
- Chapter VI summarizes the research carried out and suggestions for future scope of this work

CHAPTER-II

REVIEW OF LITERATURE

The project involves development of software for online shopping. The literature has been reviewed in this context. E-commerce refers to the process of buying or selling a product or service over an electronic network. The most popular medium in which E-commerce is conducted is the internet. E-commerce encompasses three types of business transactions. First, a transaction can occur between a business and consumer. A second general form of e-commerce involves transactions between one business and another. Third form of e-commerce that has become very popular over past couple of years involves consumer to consumer transactions. (Stephen, 2000)

Bowman and Ian (1997) have reported how a company could go from customer contact right through design, manufacturing and distribution process using web for business include platform, network and operating system transparency, integration with end users and environments and application programs.

Joseph and Vijayasarthy (1997) have reported that online shopping has received considerable attention in the popular press as the future of direct marketing. There are too many potential benefits to retailers and consumers alike to ignore electronic shopping as a fad. In this paper they extended prior research on individual differences and shopping media selection with reference to online shopping.

As reported by Albert and Endres (1998), a project called "MeDoc" is exploring information about important aspects of the electronic market for scientific literature in computer science. A number of publishers, libraries and users are cooperating in order to propagate and to evaluate the use of books and journals as online offerings.

Bradford and Mark (1998) have reported that electronic commerce is an emerging approach which allows the sharing of online information via extranets. By streamlining business processes that support an effective supply chain, organizations can

speed up deliveries, orders and payments. The level of contact between organizations improves significantly, manufactures can put out requests to suppliers of components on the extranet and sign up the most appropriate partner for the project.

Cavino (2000) have reported about a road map for the economic and policy issues that will arise from the adoption of electronic commerce in agriculture. It is argued that the economic and policy implications of the internet and information technologies on agriculture commerce will be driven by five factors:

(1) The ability of the internet and digital measurement technologies to allow for both product differentiations.

(2) Identity presentation through the increased flow of information on product attributes and related information in the agri-food supply chain.

(3) The structure of business development of firms providing internet commerce applications.

(4) The ability of individual producers and agribusinesses to adopt information technologies and use them in ways that improve the capacity for coordination in the areas of production, logistics and marketing.

(5) The regularity environment that emerges to monitor electronic commerce.

The internet, CD-ROM and on-line services are the most viable media for supporting electroniccommerce in the next 2 to 4 years . Of these, Web commerce depends on systems and applications must be fast, cost-efficient and user friendly. Commercial communications networks including the internet must provide adequate end to end bandwidth, be reliable , affordable and secure. Since many of the enabling factors and technologies are now in place, one can be reasonably optimistic that web commerce will take off.(Minoli,1999)

The emergence of the internet as a worldwide standard for communicating information has opened up a huge number of new business opportunities. One of these opportunities is the area known as electronic commerce. Essentially, the internet is able to take the place of traditional bricks and mortar store playing the role of vendor. For

very little overhead, people are now able to sell their products electronically. The internet has enabled the buyer and the seller to be brought together in a virtual (rather than physical) manner. When an organization is going to implement its network using web technologies, it has to keep in mind the target browsers. Some browsers support some features while others not (for example, some are text based).The software must thus be compatible with various types of browsers the users are going to use. Contents of web are somewhat static as compared to client/server. Web is a stateless environment which means that after fulfilling request of the client, server forgets about this. And client has to make a new request if he needs more information. Whereas client / server is a state full technology which keeps record of every request. Due to stateless nature of web it is slow and consumes more bandwidth than client/server. (Godbole, 1998)

Times Foundation, Switzerland describes the potential of e-commerce as a tool for marketing products in the farm sector in USA. Fundamental issues on the use of e-commerce are also discussed. (Anonymous, 2000)

Mansell and Pare (2001) have reported about the benefits offered by business-to-business electronic commerce to producers in developing countries, as well as the obstacles to reaping these benefits. It is suggested that commerce is not just a matter of bridging the 'digital' divide that arises from poor telecommunication infrastructure and lack of computer related skills. Only with improvements in the transport of material goods and in the institutional arrangements that facilitate, trust in electronic commerce can accelerate.

Hopkins and Marehart (2001) have reported the use of internet by US farmers in year 2000. The reasons for using the internet, the farms which are likely to use the internet, and the rural-urban digital divide, are discussed. The future of farm communications and information technology is then explored.

Venancio (2000) has presented a report of recent developments with regard to agribusiness internet sites in Brazil. There are, at present 60 agribusiness websites in Brazil trading electronically. A total of US$14 billion was observed in transactions in e-

commerce in 1999, with a forecast of 1.5 trillion in 2004. It was concluded that the success of e-commerce companies for agribusiness will depend on various factors, including delivery of promises, realization that agribusiness is a very big and diverse sector.

Mueller (2000) has reported the advent of e-commerce in the agriculture sector of California (USA). One in 25 US farms had access to the internet in 2000. E-commerce transactions are classified according to the partners involved, consumers, business and government. This brief provides some background, current facts and interpretation of the role of e-commerce in agriculture covering : the accessibility of e-commerce to farmers ; categories of agriculture e-commerce sites according to the economic purpose they serve (saving transaction cost, e-market intermediation ,integrating e-commerce services and providing e-commerce support services) and the three reliable growth rates(Moore's law of microchip capacity growth , growth of hard disk capacity and Gilder's law of internet bandwidth growth) upon which the technology and its adoption will continue to be based.

By placing the entire system on the internet, the upstream and downstream communications are accomplished using a single medium – a web browser. The sale becomes more of an auction, because many potential buyers, all with equal status, can bid for the same item. So, it is fairer for all purchasers and gets a better deal for the seller. (David, 2000)

Technologies exist to encrypt sensitive information being sent to and received from a specific web page or pages. One of them is Secure Socket Layer (SSL).Most mainstream shopping sites use this secure connection when payment details are sent by a user over the internet .Any information transmitted in this secure way is encrypted for the duration of the transfer. The retailer decodes the messages once it has arrived in order to take payment, but nobody else has access to details of user along the way.

(Minoli, 1997) Introduction to secure socket layers. This document introduces the Secure Sockets Layer (SSL) protocol. Originally developed by Netscape, SSL has been

universally accepted on the World Wide Web for authenticated and encrypted communication between client and server. The SSL Protocol The Transmission Control Protocol/Internet Protocol (TCP/IP) governs the transport and routing of data over the Internet. Other protocols, such as the Hyper Text Transport Protocol (HTTP), Lightweight Directory Access Protocol (LDAP), or Internet Messaging Access Protocol (IMAP), run "on top of" TCP/IP in the sense that they all use TCP/IP to support typical application tasks such as displaying web pages or running email server. The SSL protocol runs above TCP/IP and below higher-level protocols such as HTTP or IMAP. It uses TCP/IP on behalf of the higher-level protocols, and in the process allows an SSL-enabled server to authenticate itself to an SSL-enabled client, allows the client to authenticate itself to the server, and allows both machines to establish an encrypted connection.

The SSL Protocol, the transmission control protocol / internet protocol (TCP/IP) governs the transport and routing of data over the internet. Other protocols , such as Hypertext protocol (HTTP) , Lightweight Directory Access Protocol (LDAP) , or Internet Messaging Access Protocol (IMAP) , run " on top of" TCP/IP in the sense they all use TCP/IP to support typical application tasks such as displaying web pages or running email server. The SSL protocol runs above TCP/IP and below higher –level protocols such as HTTP or IMAP. It uses TCP/IP on behalf of the higher level protocols and if the process allows SSL enabled server to authenticate itself to SSL enabled client , allows the client to authenticate itself to the server and allows itself to the server and allows both machines to establish an encrypted connection.

(John, 1997) These capabilities fundamental concerns about communication over the Internet and other TCP/IP networks:

- SSL server authentication allows a user to confirm a server's identity. SSL-enabled client software can use standard techniques of public-key cryptography to check that a server's certificate and public ID are valid and have been issued by a certificate authority (CA) listed in the client's list of trusted CAs. This confirmation might be important if the user, for example, is sending a credit card number over the network and wants to check the receiving server's identify.
- SSL client authentication allows a server to confirm a user's identity. Using the same techniques as those used for server authentication, SSL-enabled server software can check that a client's certificate and public ID are valid and have been issued by a certificate authority (CA) listed in the server's list of trusted CAs. This confirmation might be important if the server, for example, is a bank sending confidential information to a customer and wants to check the recipient's identity
- An encrypted SSL connection requires all information sent between a client and a server to be encrypted by the sending software and decrypted by the receiving software, thus providing a high degree of confidentiality. Confidentiality is important for both parties to any private transaction. In addition, all data sent over an encrypted SSL connection is protected with a mechanism for detecting tampering-that is, for automatically determining whether the data has been altered in transit.

The SSL protocol includes two sub-protocol; the SSL record protocol. The SSL record protocol defines the format used

to transmit data. The SSL handshake protocol involves using the SSL record protocol to exchange a series of messages between an SSL-enabled server and an SSL-enabled client when they first establish an SSL connection. This exchange of message is designed to facilitate the following actions:

- Authenticate the server to the client.
- Allow the client and server to select the cryptographic algorithms, or ciphers, that they both support.
- Optionally authenticate the client to the server.
- Use public-key encryption techniques to generate shared secrets.
- Establish an encrypted SSL connection.

The SSL protocol supports the use of a variety of different cryptographic algorithms, or ciphers, for use in operations such as authenticating the server and client to each other, transmitting certificates, and establishing session keys. Clients and servers may support different cipher suites, or sets of ciphers, depending on factors such as the version of SSL they support, company policies regarding acceptable encryption strength, and government restrictions on export of SSL-enabled software. Among its other functions, the SSL handshake protocol determines how the server and client negotiate which cipher suites they will use to authenticate each other, to transmit certificates, and to establish session keys. The suite descriptions that follow refer to these algorithms:

- DES. Data Encryption Standard, an encryption algorithm used by the U.S. Government.
- DSA. Digital Signature Algorithm, part of the digital authentication standard used by the U.S. Government.

- KEA. Key Exchange Algorithm, an algorithm used for key exchange by the U.S. Government.
- MD5. Message Digest algorithm developed by Rivest.
- RC2 and RC4. Rivest encryption ciphers developed for RSA Data security.
- RSA. A public-key algorithm for both encryption and authentication. Developed by Rivest, Shamir, and Adleman.
- RSA key exchange. A key-exchange algorithm for SSL based on the RSA algorithm.

Arora (2000) has reported about the creation of storefront where customers can shop and place orders, validate payments and maintain a customer profile, apart from getting the backend infrastructure in place.

Kumar (2000) has reported about the problems of sending information from website on a browser to remote server in plain text and discusses about the security of information being processed.

Another system is secure HTTP that was developed by Enterprise Integration Technologies (EIT). This supports user and web server authentication using digital signatures. Privacy of transaction is maintained using several methods. Even though a browser may support secure transactions using SSL or S-HTTP, no transactions are secure except those between the browser and compatible web server (Jerkins, 1998).

Database system is an integrated collection of related files, along with details of the interpretation of the data contained therein. Database systems are the need of every organization. Database is used to store information useful to an organization. File systems server can be used as an interface between application programs and stored data, permitting data to be accessed without concern for device related details. File systems encourage a close dependency between data and programs that use the data . If the file is restructured to be usable by multiple application programs, all of the programs must be modified. If multiple copies of the file are kept, each copy is structured to meet the needs of a few applications and the problem arises of maintaining the consistency of the file copies. Database management systems have evolved from file systems to overcome these limitations. A database management system isolates application programs from physical file structures. Physical file formats can be changed in response to changing application needs, but the logical data definition need not be changed. A database management system also encourages the definition of subfiles, to ensure that programs confine their attention to relevant portions of a logical file. These facilities increase the data independence of application software, increasing its immunity to change in the logical and physical organization of files. (Yao et al, 1978)

Database security is the protection of the information contained in the database against unauthorized access, modification or destruction. The security of database is necessary for the protection of data and programs, both in primary and secondary memories. For keeping security, proper mechanisms for the identification and verification of the users should be provided. Each user is assigned an account number and password. The application ensures that access to system is denied unless the number and a password are not valid. For keeping security, the operating system must ensure that files belonging to the database are not used directly without proper authorization. The operating System must also ensure that illegal users using public communication facilities are not allowed to access to the system (Desai, 1991)

Web is making a profound impact on the way the software systems are implemented. The basic building blocks of a web based system are a web browser, an internet server and a set of data transmission and presentation protocols. The web browser acts as the client and is responsible for accepting user input and displaying information to the user. The internet server responds to client requests for information and processes those requests accordingly.(Bjeletick and Greg ,1999)

If an organization is going to use web technology to meet its software needs, then a website has to be set up. This website may be internal to organization or may be available to every one on the internet. Using web technologies organization can be directly connected to the internet. Internet, being an open architecture is more vulnerable to breaches. (Devson and Gunaranjan ,1998)

Battershill and Gilg (2000) have reported the extent to which the direct selling of farm produce might offer a more environment friendly farming system and various advantages:

(1) All the profits go to producer.

(2) If value-added products are sold greater profits should be made.

(3) If value-added products are sold more local employment is created.

(4) If the products sell on the basis of an environment friendly production system, the environment benefits.

Public key cryptography is an appropriate technology to use for securing web servers. In a secure web server scenario, one of the PCs is replaced with a web server .The web server has a private key for itself and shares a public key with the world. Although it is not apparent, when we are communicating with a secure web server, we are using a key pair during the interaction. When a connection is made to secure web server, the server will send a certificate to end user. A public key can be extracted from this certificate and this public key can be used as part of the encryption process which allows the user to communicate sensitive information (like credit card number) to the server. (Reynolds, 2000)

CHAPTER –III

MATERIAL AND METHODS

The Methods and Procedures followed in designing of web Based online shopping site are as follows:-

1. Comparative study of the Internet Technologies.

2. Designing of Web based online shopping Site.

3.1 Introduction to web technology

The need of human beings to communicate gave rise to various forms of communication techniques. Today computers are being used to send information across the globe. In the scientific world, data networks are essential because they allow scientists to send programs and data to remote computers for processing ,to retrieve the results and exchange information with colleagues and common people.

The internet is a world wide network of millions of machines. The internet has worldwide broadcasting capability, a mechanism for information dissertation and medium for collaboration and interaction between individuals without regard of their geographic locations.

The World Wide Web is an architectural framework for accessing linked documents spread all over millions of machines connected to the internet. The web is basically a client server system. A server is a machine which allows other computers (referred to as clients) to access certain files and programs without requiring an account on serving computer. The system works as follows:

3.1.1 THE CLIENT

From the user's point of view, the web consists of vast, worldwide collection of documents, usually just called pages for short. Each page may contain links (pointers) to others related pages anywhere in the world. User can follow link .e.g. by clicking on it, which then takes them to page pointed to. Pages that point to other pages are said to use hypertext.

Pages are viewed with a program called browser of which Netscape navigator and internet explorer are two popular ones. The browser fetches the page requested, interpreted the text and formatting command that it contains and display the page, properly formatted on screen.

3.1.2 THE SERVER

Every web site has a server process listening to a protocol like TCP for incoming connections from clients (normally browsers).After the connection has been established, the client sends one request and server sends one reply. Then the connection is released. The protocol that defined legal requests and replies is called HTTP.

For example, when a user clicks on some piece of text or perhaps on an icon that points to the page whose name (URL-Uniform Response Locator) is http://www/w3/org/hypertext/www/Theproject.html. The steps that occur between the user's click and page being displayed are as follows:

1. The browser determines the URL.
2. The browser asks DNS for the IP address of www.w3.org.
3. DNS replies with 18.23.0.23
4. The browser makes a TCP connection to port 8018.23.0.23
5. It then sends a GET/ hypertext/www/Theproject.html command.
6. The www.w3.org server sends the file Theproject.html command.
7. The TCP connection is released.
8. The browser displays all the text in Theproject.html.

9. The browser fetches and displays all images in Theproject.html.

3.1.3 Remote Procedure Calls (RPC)

Remote Procedure Call (RPC) is a technique, which allows program to span many machines without being aware of the boundaries between Remote Procedure Call is a technique for building distributed systems. It allows a program on one machine to call a subroutine on another machine without knowing that it is remote. RPC presumes the existence of a low level transport protocol, such as Transmission Control/ Internet Protocol (TCP/IP). For carrying the message data between Communicating programs. RPC implements a logical client-to-server communications system designed specifically for the support of network applications. The client/ server view of RPC programming describes the distributed resource model implemented by the RPC mechanism. In this view, programming tasks are divided between servers, which provides services or make resource available to remote clients, which seek and make use of these services or resources.

The central component of the client / server model is the interface. An interface is a set of remotely callable operation offered by a server and invokable by clients. Interfaces are implemented by managers, which are sets of server routines that implement the interface operations. RPC offers an extensive set of facilities for defining, implementing and binding to interfaces.

Servers need to make their resources widely available, and clients need some way to find them without knowing the details of network configuration and server installation. Hence, the RPC mechanism supports the use of name services, where servers can advertise their bindings and clients can find them, based on appropriate search criteria. The RPC API provides clients and servers with a variety of routines that can be used to export and import bindings to and from name services. When the client calls the server, the RPC system takes care of:

Taking all the parameters, which are passed to the subroutine, and transferring them to the remote node;

- Having the subroutine executed on the remote node.
- Transferring back all the parameters, which are returned to the calling routine.

3.2 Web Publishing Technologies

In a client Server model, two computers work together to perform a task, a client and a server. A server computer and the client computer is the computer that retrieves the information from the server. Earlier the client server model was prevalent. In the client server the information could be accessed from the server by the clients who are connected by Local Area Network (LAN). Thus the location of the client and the server is confined to one premise. With the development of technology, this model has got extended in free space to server- client interaction using Internet Technology i.e. TCP/IP.

Under the Internet, the server is a web server, where the whole set of information resides and a client is a remote machine running a web browser which can get the information from the server. There are two types of data that can be sent and retrieved from the internet.

- Static Data.
- Live Data.

Static Data: - Is a snapshot of data at a certain point in time. If the data changes only at certain intervals, It might make more senses to build static HTML pages. The data is updated by the webmaster only.

Live Data: - It is a data that is on-line. If the data changes at the source, then the data that is displayed is automatically updated. Live Data is essential for certain web Application which requires frequent updates.

TABLE 3.1 COMPARISON OF INTERNET TECHNOLOGIES:

ATTRIBUTE	STATIC PAGES	SERVER GENERATED PAGES	BROWSER GENERATED DYNAMIC PAGES
Technology used to view the information	Standard browser	Requires internet or intranet access and a web server	Standard browser
Tools to generate the pages	Database built in utilities, third party utilities or manually	Specialized CGI, ASP, Cold Fusion or similar technology	Either custom programming or automated tools available
Generation tools usable by non-programmers.	Yes	No	Custom tools: no; Automated tools: yes
Flexibility for the user	Very little: lists cannot be sorted nor searches refined	As much as provided by the back end server programs; usually very flexible for the user	Comparable to the server based solution i.e.maximum flexibility
Ability top update look and feel	Limited with utilities ,practically none with manual generation	Excellent, but requires programmers intervention	Limited to very good, depending on the tool used
Access to rapidly changing data	None	Excellent	Delayed because an intermediary file needs to be generated
Require users browser	No	No	No

configuration			
Access speed	Excellent, although if large lists cannot be trimmed, the display time can become significant	Very good	Good
Can be used on a CD-ROM by stand alone PCs	Yes	No	Yes
Cost to develop	Low	High to very high	High when using custom programming, low when using automated tools
Implementation methods	Generate the HTML pages from the database requires minimal knowledge of the tool. This generates a set of files that can be incorporated in the site. The page generation can also be done with custom designed programs to tailor the display to exact specifications	The programs that connects to the database and generates the page (CGI, ASP etc.) needs to be written by a programmer. once the program is written, no action is needed, as each page is generated as it is requested by the users.	When using custom built tools, the programmes that generates the pages needs to be written. With automated tools, there is no need for using a programmer. The pages are generated automatically as the user requests them

3.3 Designing of web based online shopping site

Design of web based online shopping site basically includes three things:

- Front-end (HTML/ASP)
- Back-end (databases)
- Structured query language (SQL)

Active server Pages (ASP) provides us the live data and Hyper Text Markup Language (HTML) provides us the static data. When visit to a static web page is made through a web browser, the following steps occur:-

- The Client (the Web browser) locates the web server specified by the first part of the Uniform Resource Locator (URL).
- The Client then request a static web pages specified by the second part of the URL (For Example , index.htm)
- The web Server sends the contents of that particular file to the client in HTML format.
- The Client receives the HTML sent by the server and displays it.

ASP scripting provides the functionality needed to read the database and display the results. Content that changes with each request is called Dynamic content. Sites that provide only static content may not attract the revisit. Sites that provide dynamic content , especially those in which the user interacts with the content rather than simply pointing and clicking to change pages are called web applications. Dynamic sites dominate the web today ASP can be used to build simple web sites and complex applications.

Active Server Pages contain two parts:

- Programming code
- Embedded HTML

The programming code is written in the scripting language. Some popular web related scripting languages are VBscript and Javascript .

In the web application developed ASP pages are created using VBscript. ASP pages contain a combination of HTML and programming code. This code, which can be

written in many different languages, allows ASP pages to be dynamic. However, the web server has to process this programming code before sending the HTML to the client When a web browser requests an ASP page, the programmatic code is interpreted on the server none of it is send to the client .When ASP requests reaches the server, the server routes the request to the ASP engine rather than the default internet information server response engine. ASP engine then takes three actions:

1. The ASP engine inserts any include files. Include files are separate files that internet information server(IIS) can place into a requested file .After the insertion ,IIS processes the file exactly as if the inserted file were part of the originally requested file. The insertion of include files occurs before the ASP engine processes any code.
2. The ASP engine begins to interpret the code. It interprets code in sequence, except for code sections marked as Functions or Subs.
3. The ASP engine returns the response. It can be controlled whether the engine begins to return the response immediately or whether it stores the response string until the response is complete via IIS settings.

3.3.1 Technologies with reference to ASP

(a) Practical Extraction and Report Language (PERL)

PERL is a powerful scripting language widely used by web application developers. ASP supports PERL. ASP applications can be built using all the powerful features of PERL.

(b) Common Gateway Interface (CGI)

CGI is perhaps the oldest web application development technology in existence. It was designed to give web application developers the opportunity to build programs executed on the server each time a web user requests that application through a URL. The difference between a CGI program and static web page is that the html returned to the browser can be different based on who is making the request, where they are, what time it is. CGI worked quite well in the early days. However it has an inherent resources usage problem. Each time the CGI application is executed , a new process has to be created on

the server , which can be quite resource intensive for the server especially when several users signing on to the internet every month , CGI is not very efficient solution for web server applications because it is not scalable.

3.3.2 Advantages of ASP

- **ASP code resides in text files**

Text files are easy to modify, even after deployment. It is a tremendous advantage to be able to fix a problem remotely using a text editor. Web applications that depend on compiled code or registered ActiveX objects are much more difficult to maintain and upgrade. It is also easy to edit the code that is written today with the text editor that is developed tomorrow. That is not the case with most other code development environments because they constantly improve and frequently change.

- **ASP code does not require registration**

The IIS install program, install the ASP run time DLLs, Microsoft ActiveX data objects (ADO) DLLs, and the Microsoft scripting runtime DLL and that is the only code needed to run ASP applications. Most other development tools required additional server side installs and registry operations.

- **ASP applications are usually small**

Because all the DLLs are already installed on the server, only code files, images and support files are needed to make an ASP applications run and those files are usually small and highly compressible.

- **ASP applications can be operated without stopping IIS**

Although it may not sound lay, this is a major advantage when only one application is running on the server, but when there are dozens of applications running on the same server, no one wants to stop or shut down the server to make changes in the application. These changes must be scheduled in advance. The problem is that no one can predict what the effect of stopping the server will have on all the applications running on the server.

- **ASP code times out**

IIS stops executing ASP pages after 90 seconds by default. This can be adjusted to a shorter value. Therefore, if an endless loop is written accidently, or a million records are requested by someone, the server is not tied up beyond the timeout interval.

- **ASP code is server safe**

ASP code runs in a limited space. For example binary files cannot be read or written with ASP. It is very difficult, if not impossible, to completely crash an IIS server with native ASP server.

- **Scripting Capabilities**

As a server side technology, ASP addresses the area of information display by replacing static file with decision making capabilities. ASP provides a way for the server to recognize an individual, differentiate that individual from others accessing the servers and respond with content specifically designed for that individual. ASP has several built in objects that let the user:

- Obtain information from the browser(the request object)
- Respond to that specific browser (the response object)
- Associate a specific request with a specific browser (the session object)
- Store and retrieve information global to an application (the application object)
- Obtain information about hosting server (the server object)
- Integrate ASP with other objects (the object context objects)
- Manage errors and error reporting (the ASP error object)

- **Recognizing individuals**

A web server typically provides content to any browser that requests it, without knowing who the user requesting it. In other words, the most web requests occur anonymously. If personalized content is required, there must be a way to differentiate one browser from another. ASP accomplishes this though the session object and a concept called cookies. Cookie is an item of information that the web

server instructs the browser to store. The browser then sends the cookies back to the web server with each subsequent request to the server.

- **Access to database**

ASP provides an excellent method for connecting to databases and retrieving or updating their information. That method is known as Active data objects (ADO) .ADO is a high level method for accessing information in a wide range of data stores from SQL server or Oracle, to workgroup and personal database such as Microsoft Access and Excel. ADO works through a provider, which is the driver that translates the high level ADO commands that , as a developer , only a single set of data access commands is needed to be learned. As long as the data store has an ADO provider, all the data storage devices are accessed in almost exactly the same way.

- **State maintenance**

It is the process of keeping track of a user's progress. ASP uses the ASP session ID cookie to map individual browsers to data associated with an individual session.

- **ASP Extensibility**

ASP's extensibility can be extended through external components; Microsoft provides a set of components with ASP to extend its capabilities. The Microsoft scripting run time provides access to the file system and the browser capabilities components provides a method to differentiate between browsers.

Global.asa File

The Global.asa file is an optional file in which one can specify event scripts and declare objects that have session or application scope. It is not a content file displayed to the users; instead it stores event information and objects used globally by the application. An application can only have one Global.asa file.

Global.asa files can contain only the following:

- **Application events**
- **Session events**
- **<OBJECT> Declarations**
- **TypeLibrary Declarations**

After all of the current user requests have been processed, the server deletes all active sessions, calling the **Session_OnEnd** event for each session it deletes, closes the application, and calls the **Application_OnEnd** event. The Global.asa file is then recompiled. Subsequent user requests will start the application and create new sessions, and trigger the **Application_OnStart** and **Session_OnStart** events.

However, saving changes to a file that is included by the Global.asa file does not cause the server to recompile Global.asa. In order for the server to recognize changes in the included file, one must once again save the Global.asa file.

Procedures declared in the Global.asa file can only be called from one or more of the scripts associated with the **Application_OnStart**, **Application_OnEnd**, **Session_OnStart**, and **Session_OnEnd** events. They are not available to the ASP pages in the ASP-based application.

Working with HTML Forms

Using the ASP **Request** object one can create simple, yet powerful scripts for collecting and processing data gathered with HTML forms.

About HTML Forms

HTML forms, the most common method for gathering Web information, are arrangements of special HTML tags that render user interface controls on a Web page. Text boxes, buttons, and check boxes are examples of controls that enable users to interact with a Web page and submit information to a Web server.

Processing Form Inputs with ASP

When a form submits information to the Web server, the user's Web browser requests the .asp file specified by the HTML <FORM > tag's ACTION attribute The .asp file contains scripts that carry out form value processing, such as displaying a table of results or querying information from a database.

One can use .asp files to collect HTML form values in three ways:

- A static .htm file can contain a form that posts its values to an .asp file.
- An .asp file can create a form that posts information to another .asp file.
- An .asp file can create a form that posts information to it, that is, to the .asp file that contains the form.

The first two methods operate in the same way as forms that interact with other gateway programs, except that, with ASP, one can include commands that read and respond to user choices.

Getting Form Input

The ASP **Request** object provides two collections that greatly simplify the task of retrieving form information appended to a URL request.

Query String Collection

The **Query String** collection retrieves form values passed to his Web server as text following a question mark in the request URL. The form values can be appended to the request URL by using either the HTTP GET method or by manually adding the form values to the URL.

Verifying Form Input

A good form processing script validates the information entered into a form before processing data. A validation script can check whether the user has entered the correct type of information into a form.

Active Server page Objects:

An object is something that has methods, properties and collections. An object's methods define the things that one can do with the object. An object's properties can be read or set to specify the state of the object. An object's collections constitute different set of key and value pair related to the object. Active Server pages include several built-in objects such as:

- Application Object
- Object Context Object
- Request Object
- Response Object
- Server Object
- Session Object

Application Object

One can use the **Application** object to share information among all users of a given application. An ASP-based application is defined as all the .asp files in a virtual directory and its subdirectories. Because more than one user can share the Application object, there are **Lock** and **Unlock** methods to ensure that multiple users do not try to alter a property simultaneously.

Syntax

Application. *method*

Object Context Object:

One can use the **Object Context** object to either commit or abort a transaction, managed by Microsoft Transaction Server (MTS) that has been initiated by a script contained in an ASP page.

Request Object

The **Request** object retrieves the values that the client browser passed to the server during an HTTP request.

Syntax

Request [*.collection|property|method*](*variable*)

Variable parameters are strings that specify the item to be retrieved from a collection or to be used as input for a method or property. For more information about the *variable* parameter, see the individual collection descriptions.

All variables can be accessed directly by calling **Request** (*variable*) without the collection name. In this case, the Web server searches the collections in the following order.

1. **QueryString**
2. **Form**
3. **Cookies**
4. **ClientCertificate**
5. **ServerVariables**

Response Object

One can use the **Response** object to send output to the client.

Syntax

Response.*collection|property|method*

Server Object:

The **Server** object provides access to methods and properties on the server. Most of these methods and properties serve as utility functions.

Syntax

Server.*property|method*

Session Object

One can use the **Session** object to store information needed for a particular user-session. Variables stored in the **Session** object are not discarded when the user jumps between pages in the application; instead, these variables persist for the entire user-session.

The Web server automatically creates a **Session** object when a Web page from the application is requested by a user who does not already have a session. The server destroys the **Session** object when the session expires or is abandoned.

One common use for the **Session** object is to store user preferences. For example, if a user indicates that they prefer not to view graphics, one could store that information in the **Session** object. For more information on using the **Session** object.

Syntax

Session.*collection|property|method*

3.3.3 Tools for developing ASP applications

To develop applications with ASP , a plain text editor can be used .Notepad is an example. The other tools are Microsoft Front page and Interdev

3.4 Backend (Database)

The main module of the project gets the data from the database at the backend. The primary and basic fundamental of any project involving the database is the collection of data and information. This project also requires the collection of information from the various sources. The main source of the data is the Package of practices published by the university every year. A list of university publication is also available.

Microsoft access has been used for backend of the project. Tables are the primary means of storing data in Microsoft Access. A single data file is called a table and a collection of tables and other associated files is called a database. A table can have fields like Text, Memo, etc.

3.4.1 Employing the Entity Relationship (ER) – Model

The ER- Model is a general data model that underlines SQL. It provides another way of thinking about and organizing data. The ER–model is used to drive an abstract model of the data that is then implemented with a set of tables that confirm to relational principles. However , the ER–model itself exists at a higher level of abstraction than tables do and could be implemented differently.

Most important concepts of ER-model are:

3.4.1.1 Entities

These are the items that have a definable existence in the world. For example: student, subject etc. These are logical categories of items. Hence 'subject' would be an entity and 'CSE 532' would be an instance of that entity. Entities can be further characterized as strong or weak. A strong entity is well defined without reference to any other entity in the model, whereas a weak one requires reference to something else in order for its individual instances to be meaningful or to be identifiable. For example

'student' could be a strong entity and 'address' a weak one, if 'address 'is significant only in relation to 'student'.

3.4.1.2 Relationship

Entities have relationships to one another. These relationships can have characteristics that are independent of the characteristics of the entities themselves. Relationships have a feature called degree of relationship. This refers to the number of entities that participate in the relationship. These are :

One to One: For each A, there is no more than one B.

One to Many: For each A, there are zero or more B's and for each b, there is only one A.

Many to Many: For each A, there are zero or more B's and for each B, there are zero or more A's. Students and subjects could be an example. Student can take several subjects and there can be many students in each subject.

3.4.1.3 Attributes

An attribute is a track able charecteristic of an entity. An attribute can be single valued (e.g. Registration Number of a student) or multivalued (e.g. subjects of a student). An entity can participate in other relationships where as an attribute belong to only one entity.

3.4.2 Design and Development of Tables

3.4.2.1 Normalization

Normalization of data can be looked on as a process during which unsatisfactory relation schemas are decomposed by breaking up their attributes into smaller relation schema that process desirable properties. Normally three stage normalization is applied to database.

First Normal Form: It states that the domains of attributes must include only atomic values and that the value of any attribute in a tuple must be a single value from the domain of that attribute.

Second Normal Form: This is based on the concept of full functional dependency. A functional dependency X-> Y is a full functional dependency if removal of any attribute A from X means that the dependency does not hold any more A relation Schema 'R' is in second normal form if every non-prime attribute ' A ' in ' R ' is fully functionally dependent on the primary key of ' R'.

Third Normal Form: This is based on the concept of transitive dependency. A functional dependency X-> Y in a relation schema ' R' is a transitive dependency if there is a set of attributes ' Z ' that is not a subset of any key of 'R' , and both X->Z and Z->Y hold.

3.4.2.2 Denormalization

Database need not to be normalized to the highest possible normal forms for performance reasons. For example if an important query retrieves information from two tables, then it is better to keep them in one table. Consider a parameter query that is retrieving information from two tables and used very frequently. Now as the query has to retrieve information from two tables instead of one, so this slows down the processing. To overcome this type of situation we have to de-normalize the database i.e. to merge two tabies.

3.5 Structured Query Language

The backend and the front end are connected by means of Active Data Objects (ADO) .ADO comes with ASP and allow the pages to be easily connected to the database. ADO works with any OLEDB sources. The ADO model contains six objects. The connection and the record set objects have been used in the project. The connection object connects the front end with the data source. The record set object makes it possible to work with the data in the tables. It can be used to read through the rows of a table, modify the rows or collect new data to be added to the table.

The error object represents an error generated by the data source. The field object represents a single column in the table. The command object provides a way to create a record set object by combining the record set and the connection object. The parameters collection contains any parameters needed by the command. The parameters are stored in the parameter object. The Front end and the backend are connected by using structured Query language (SQL) queries. When a particular data is requested by the user that data is retrieved from the database using SQL.

3.6 Tables

Following are the tables used in the database:

Products:

This table contains the information about the products. (Table 3.2)

In this table the information about products is filled by the Store manager through the forms designed for adding new products and updating new products on front end.

Table 3.2: Table Structure- Details for product

Field Name	Data Type	Width
Product_id	Autonumber	Long Integer
Product_name (primary key)	Text	30
Product_price	Currency	30
Product_briefdesc	Text	40
Product_fulldesc	Text	60
Product_status	Number	30
Product_featured	Number	30
Product_category	Text	30
Product_picture	OLE	1024 Bytes

Users:

This table contains the information about a user (Table 3.3)

This table gets the data when the user fills the Login Form designed on the front end.

Table 3.3: Table Structure- Details for a user.

Field Name	Data Type	Width
User_id (primary key)	Autonumber	Long Integer
User_username	Text	30
User_password	Text	30
User_email	Text	30
User_street	Text	30
User_state	Text	30
User_pin	Number	10
User_ccnumber (User credit card number)	Number	20
User_cctype	Text	30
User_ccexpires	Date/Time	20
User_ccname	Text	20

Cart:

This table contains information about shopping cart (Table 3.4)

Entries are picked internally from other related tables such as Products table.

Table 3.4 : Table Structure- Details for a cart.

Field Name	Data Type	Width
Cart_id (primary key)	Autonumber	Long Integer
Cart_userID	Number	Long Integer
Cart_productID	Number	Long Integer
Cart_quantity	Number	Long Integer

Store manager:

This table contains information about store manager (Table 3.4)

The entries in this table are filled by store manager. The entries filled by user In Store manager Login Form are crosschecked with this table.

Table 3.4 : Table Structure- Details for a Store manager.

Field Name	Data Type	Width
User_id	Autonumber	Long Integer
User_username	Text	30
User_password	Text	30

Orders:

This table contains information about orders (Table 3.5)

Table 3.5: Table Structure-Details for orders

Field Name	Data Type	Width
Order_id	Number	Long Integer
Order_productID	Number	Long Integer
Order_quantity	Number	Long Integer
Order_userID	Number	Long Integer
Order_entrydate	Date/Time	20
Order_status	Number	Long Integer
Order_shipdate	Date/Time	20

- The linkages for programming files are given in appendix

CHAPTER-IV

TESTING OF THE SOFTWARE

Software designed for online shopping site is highly user friendly. But to train the end user, users manual and training are must. From this manual one can see how to operate it. It is also recommended to keep a backup of software on a compact disk for installing it on various locations. To install any product, there are some hardware and software requirements. These requirements are as follows:

4.1 Hardware Requirements:

Two types of hardware are required.

- **Server Machine**: Minimum requirements
    1. Intel or compatible, Pentium-III , 1 GHZ or higher processor
    2. 128 MB RAM, preferably 256
    3. CD-ROM Drive
    4. 200 MB of free hard disk space
    5. 10/100 MBPS network card
- **Client machine:**
    1. Intel or compatible, Pentium 677 MHZ or higher processor.
    2. 64 MB RAM
    3. CD-ROM Drive
    4. 100 MB of free hard disk space.
    5. 10/100 MBPS network card.

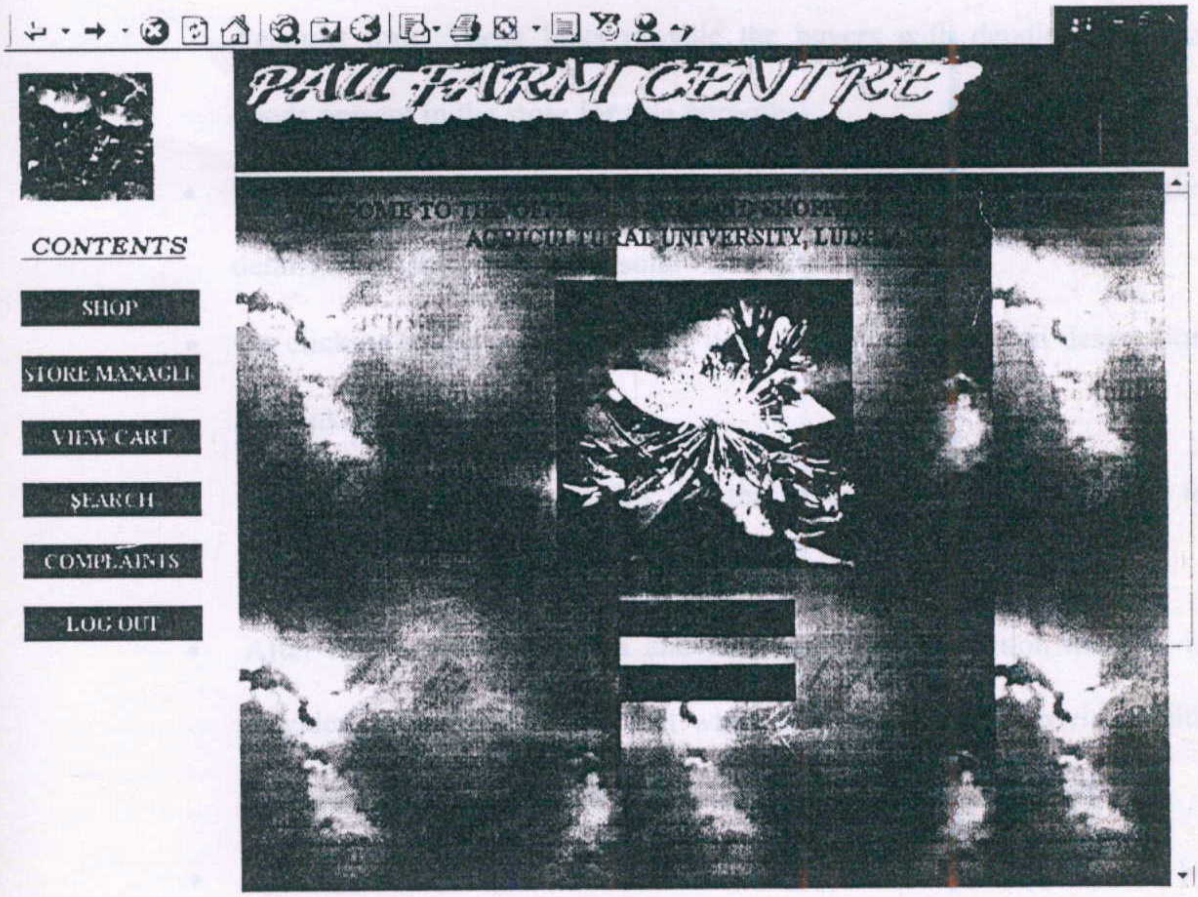
4.2 Software requirements:

Operating System: Windows NT on Server Machine

4.3 Program Executing Steps:

1. In Internet Explorer open using the domain name or the IP address (default IP address: http://localhost/shop/front.html).

2. On opening you will be provided with two frames, left frame and right frame.



- **Left frame**: In left frame you will be provided with six links (buttons) that are: **Shop, Store manager, View cart, Search, Complaints, Logout.**
- **Right frame**: In right frame you will be provided with two links (buttons) that are: **Shop, Store manager.**

3. Shop

- On clicking the shop default. asp page will be opened and we are provided with four links viz. **Categories, Search, Shopping Cart, Account link.** These links provide the buyers with details about the goods present in the store for sale purposes.
- **Categories**: On clicking categories the buyers will be provided with the details about the goods to be sold.
- On clicking a link on a particular item, it shows its detailed description and link **Add to Cart.**
- **Add to Cart**: On clicking this link the buyer can select desired item to buy. The user is then provided with **login form.**
- After filling the **login form** and clicking the Login button the user is provided with his shopping cart where the user is again provided with three options**: Update cart, Checkout, Continue shopping.**
- **Update cart**: Buyer can make modifications in his shopping cart by changing quantity, deleting item or adding new item.

• **Continue shopping**: Buyer can again go to shop to buy more items.

• **Checkout:** This button is clicked when the shopping process is completed and the buyer is provided with **confirm order** form in which he has to review his personal details so that the order can be shipped to right place and provided with button **confirm order.**

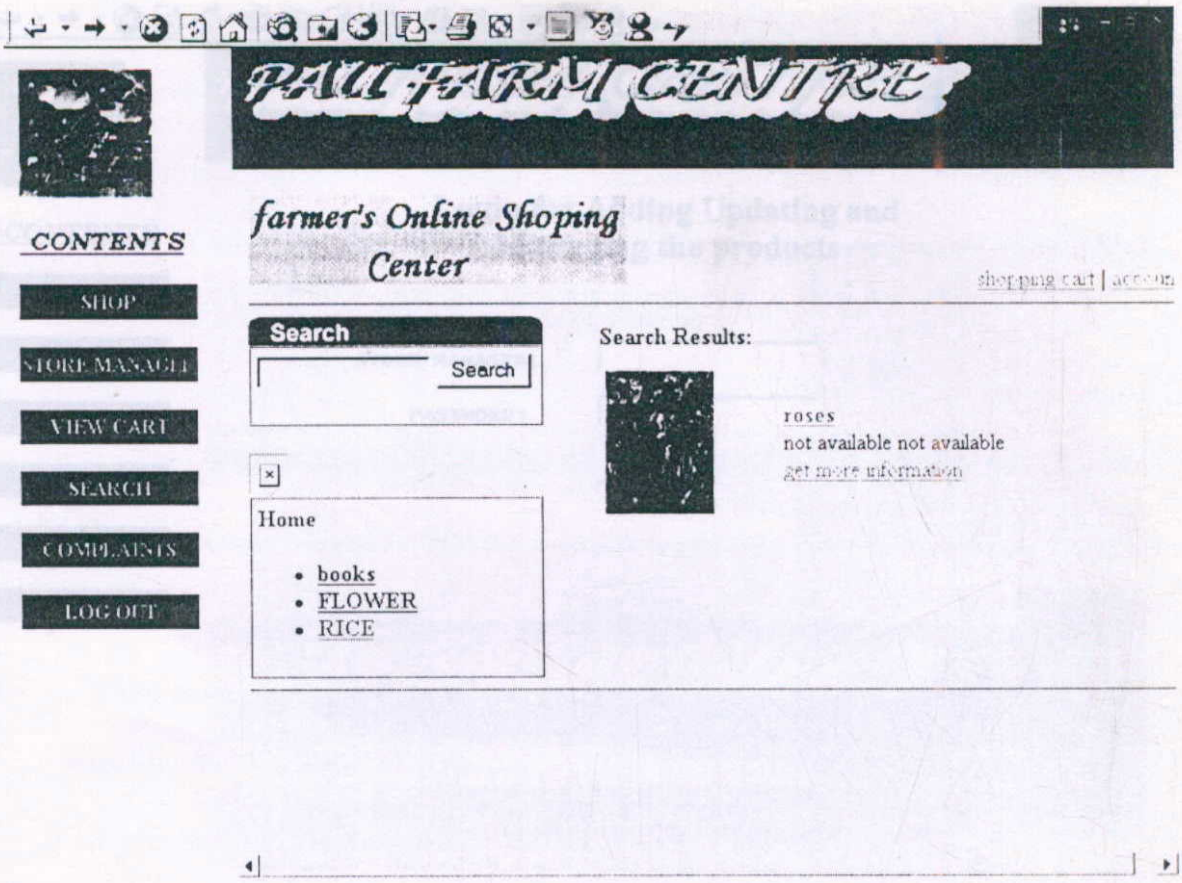
• **Confirm order:** After clicking this button buyer is provided with confirmation form having links **account** and **continue shopping**.

• **Account:** Clicking this button buyer can track out the status of his order.

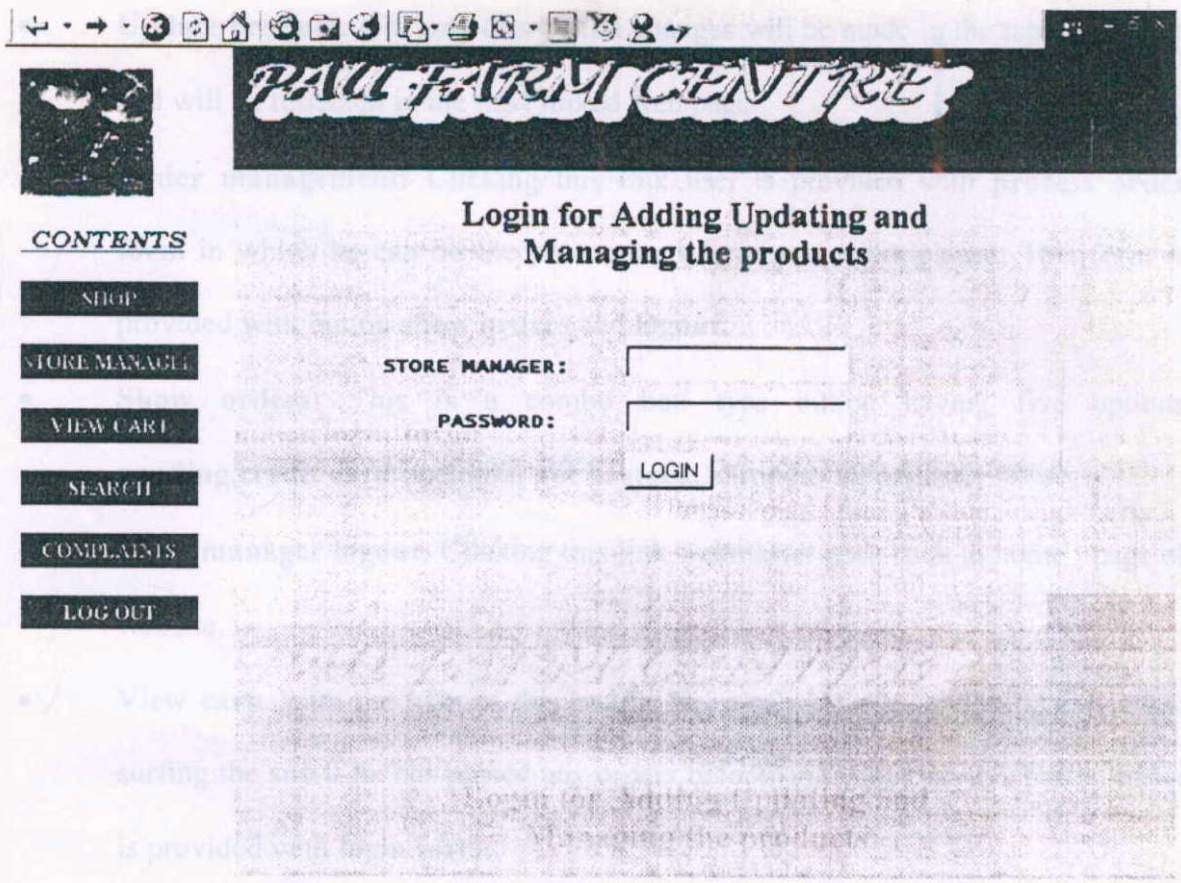
• **Continue shopping:** Clicking this button buyer can again go back to shop.

• **Search (Right Frame):** By filling suitable keywords and clicking the **search** button buyer can find out item of his choice. Provision has been made to make it case insensitive. The keyword need not to be exact. As an example search for a keyword "Cook" (in category Books) yielded following results from the database.

1. Khosla , The snack-time Cook-Book (IBH) 1989 , Rs 23
2. Vijay : Cooking the healthy way (sterling) 1989 , Rs 56



- **Shopping cart:** With the help of this button buyer can view his shopping cart while surfing the site if he has placed any orders beforehand.
- **Store manager:** Store manager is authorized person who will manage the database. On clicking this button login form. asp page is displayed which contains store manager login form.
- **Store manager login form:** After filling proper name and password and clicking login button the person get access to database e.g. table Products and he can perform two functions with links **product management** and **order management.**



- **Product management:** Clicking this link webmaster is provided with **Add product form.**
- **Add product form:** User can add new items to the table products by filling various details required in the form and is having **add product** button.
- **Addproduct:** Clicking this button new product is added to the table Products and user is provided with **manage products** form.
- **Manage products form:** User can update any item already present in table Products by clicking on that item and user will be provided with **update form.**
- **Update form:** In this form user can make changes in any of the field of the present item and provided with button **update product.**

- **Update product:** Clicking this button changes will be made in the table Products and will be reflected in the next linked web page.
- **Order management:** Clicking this link user is provided with **process order form** in which he can do the processing of various orders placed. This form is provided with button **show orders** and **logout.**
- **Show orders:** This is a combo box type button having five options **pending,credit card declined, not in stock, shipped, all orders.**
- **Store manager logout:** Clicking this link webmaster goes back to home page of website.
- **View cart:** With the help of this button buyer can view his shopping cart while surfing the site if he has placed any orders beforehand. Clicking this button buyer is provided with **login form.**
- **Login form:** Filling the login form and clicking **login** button the buyer can see his shopping cart.
- **Search (Left Frame):** With the help of Search button user can search goods of their choice.
- **Complaints:** Clicking this button buyer is provided with e-mail address of the site where he can send his suggestions and complaints.
- **Logout:** Clicking this button buyer can leave the site.

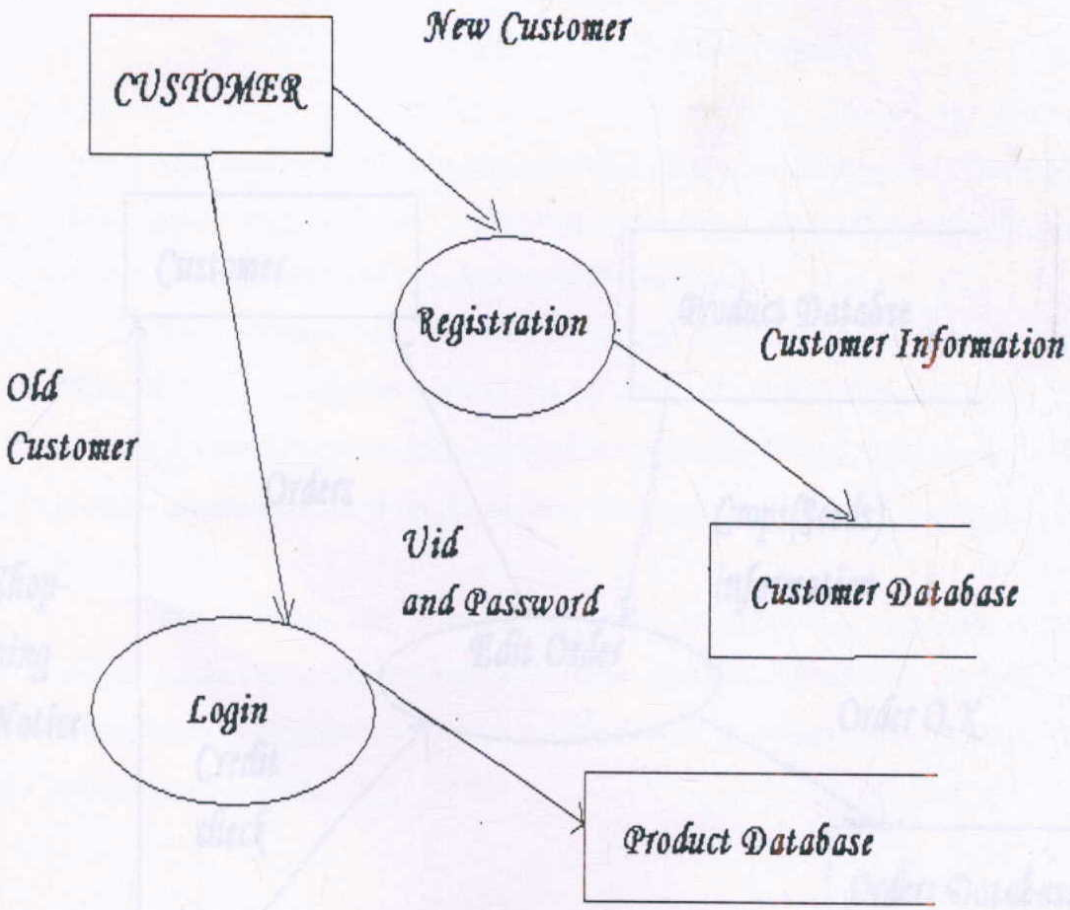
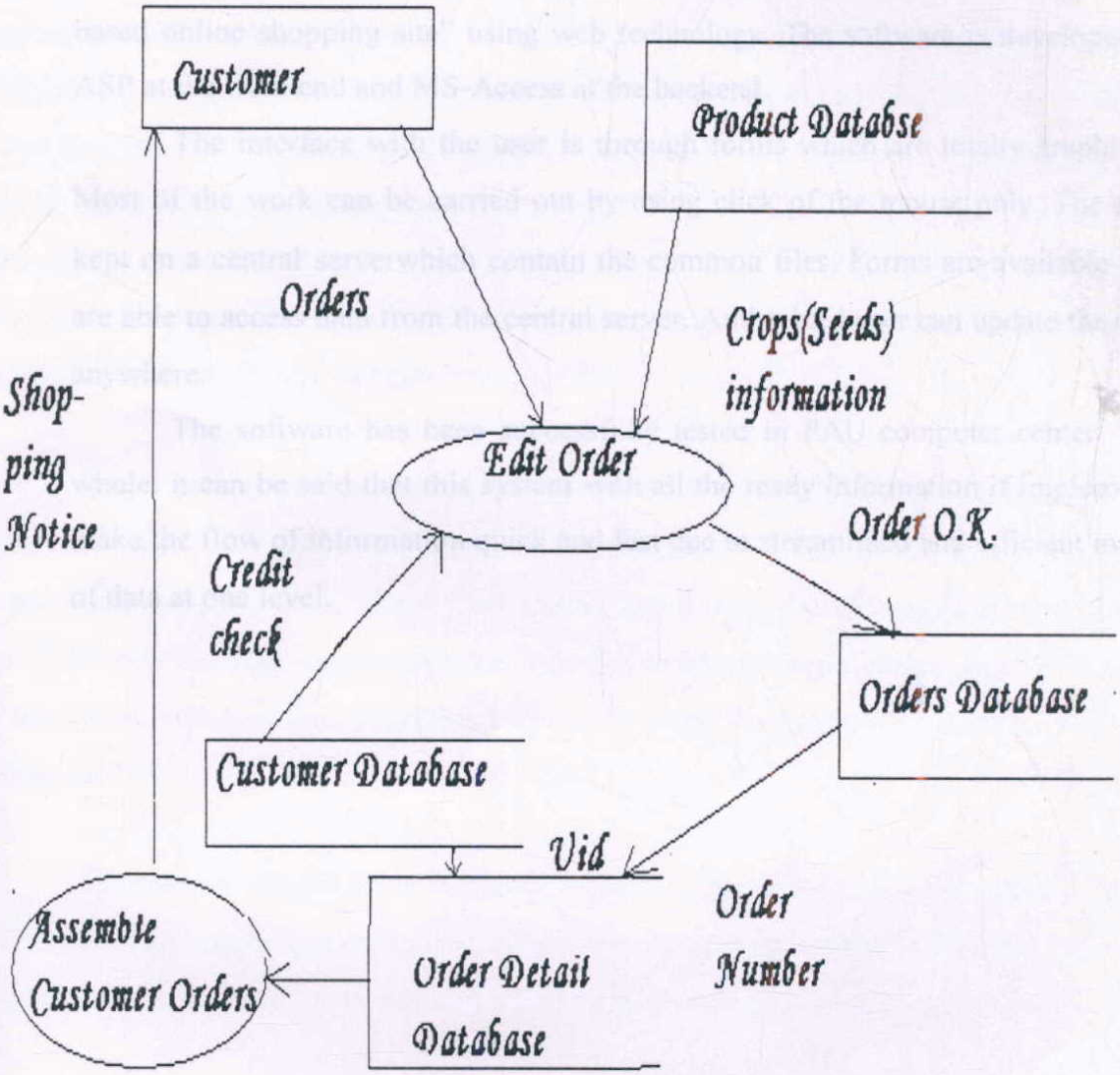


Fig. 4.1 Data Flow Diagram Showing Registration of New Customer And Login



4.2 DATAFLOW DIAGRAM SHOWING ORDER PROCESSING

CHAPTER -V

RESULT AND DISCUSSION

The main aim of this project was to develop software for "Development of Web based online shopping site" using web technology. The software is developed by using ASP at the front end and MS-Access at the backend.

The interface with the user is through forms which are totally graphic oriented. Most of the work can be carried out by using click of the mouse only. The database is kept on a central serverwhich contain the common files. Forms are available online and are able to access data from the central server. Authorized user can update the data sitting anywhere.

The software has been successfully tested in PAU computer center. So, on the whole, it can be said that this system with all the ready information if implemented, will make the flow of information quick and fast due to streamlined and efficient management of data at one level.

CHAPTER -VI

SUMMARY

The Objective of research," Development of web based online shopping site" was to develop software for online shopping site. The Software can help the farmers to buy new improved varieties of seeds of various crops developed by Punjab Agriculture University, sitting at a remote location. Other items like books can also be included. Objective has been achieved successfully. Whole work has been done using MS Access on the server end and screens designed using HTML. The advantage of ASP technology over some others like HTML , DYNAMIC HTML , CGI AND PEARL are that ASP is simple to learn and faster than CGI and PEARL. HTML does not allow the creation of dynamic pages while ASP enables precisely that.

It is a server- side technology as opposed to dynamic HTML, which is a client side. With ASP, it is easy to build application that run on a web server. The source code is not made available to the client. This can be useful when there is competitive formulae etc. involved. The web server processes the ASP script and sends back a pure HTML file to the client, which is then interpreted by the browser. This makes the source code very secure in ASP.

Farmers are located at remote areas so most of the times they are not able to come to Punjab Agriculture University for buying new improved varieties of seeds. But with the help of this software, they can buy anything they want by just opening the site.

The site has been made user friendly so that there is no difficulty in accessing the required information. The screen has been designed such that the user has to enter minimum data and rest of the data is picked from the tables where data is already available. User has to make just few clicks on the screen and rest of work is done by

program itself. So by doing so the chances of errors in data entry are reduced to the bare minimum.

Further this research may be extended to include the information about any category of item we want.

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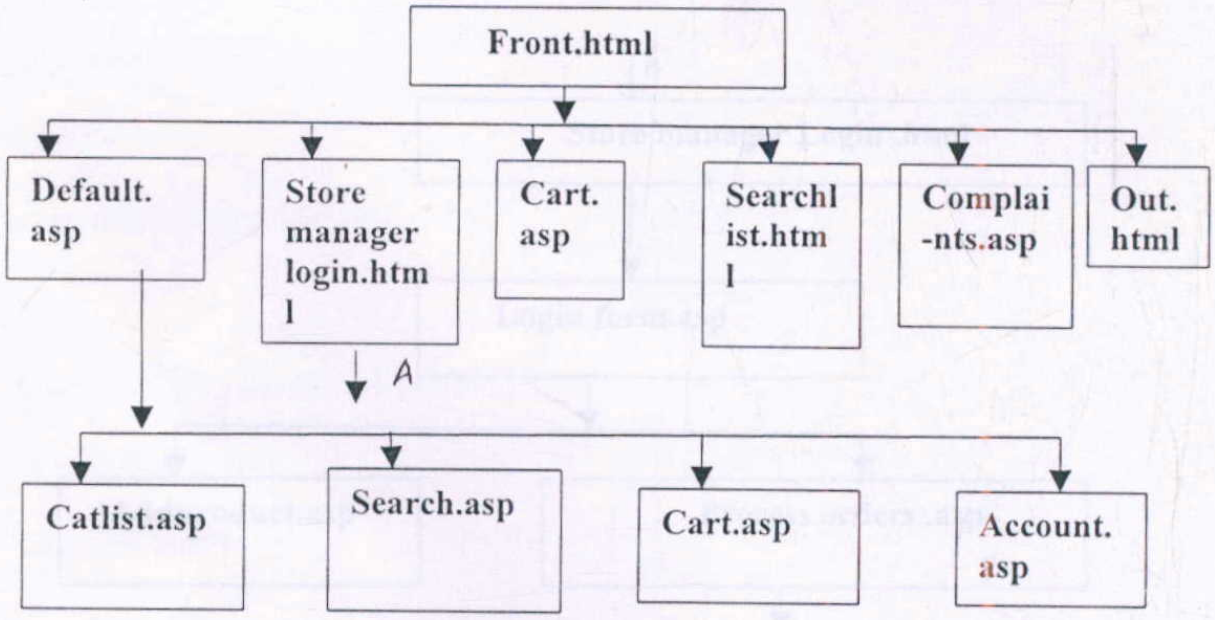
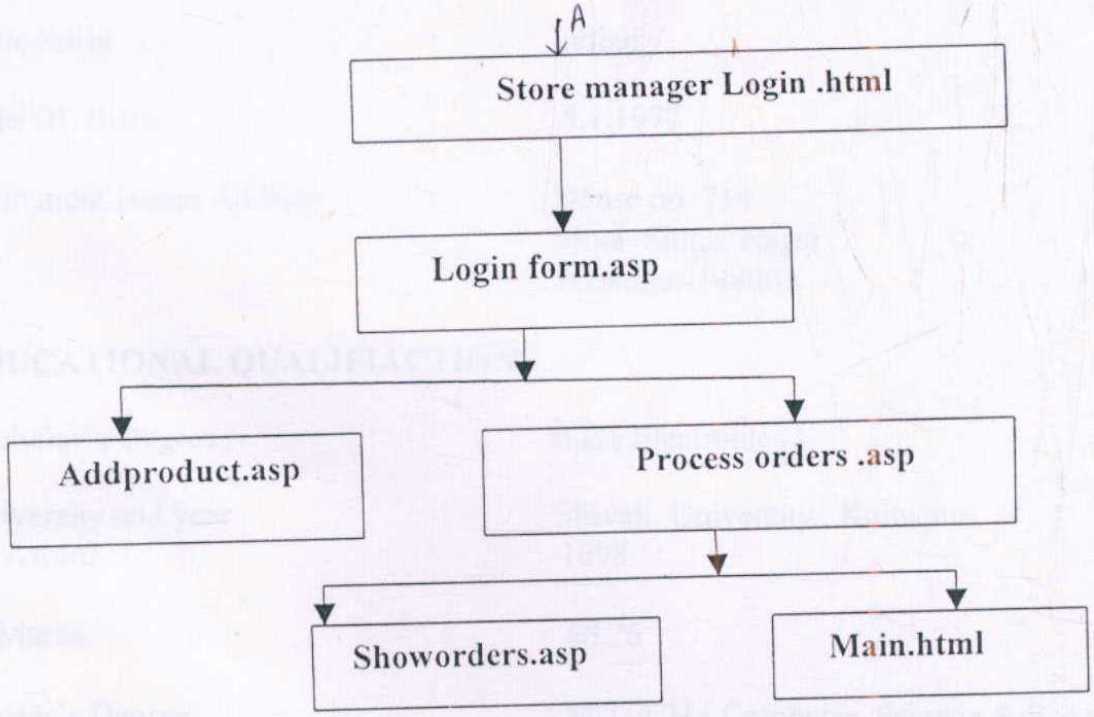
APPENDIX



Linking of Front.html with other files



Linking of Storemanager Login. Html file with other files

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