Abstract

Shopping cart is a very important feature used in e-commerce to assist people making purchases online, similar to the US English term 'shopping cart'.

The business-to-consumer aspect of electronic commerce (e-commerce) is the most visible business use of the World Wide Web. The primary goal of an e-commerce site is to sell goods and services online.

E-commerce is fast gaining ground as an accepted and used business paradigm. More and more business houses are implementing web site providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming commonplace.

Shopping Cart is a very important feature used in e-commerce to assist people making purchases any products online.

This project deals with developing an e-commerce website for online different types of products. It provides the user with a catalog of different types of products available for purchase in the store. In order to facilitate online purchase a shopping cart is provided to the user. The system is implemented using a 3-tier approach, with a backend database, a middle tier of Microsoft Internet Information Services (IIS) and ASP.NET, and a web browser as the front end client.

The **Shopping Cart** project has been developed to allow business grows larger and faster. This site will let customers to view and order products online from any part of the world. The site sells different types of. Under this website many products and services can be ordered.

The **Shopping Cart** is expanded permanently through new products and services in order to offer a product portfolio corresponding to the market. Private customer and business customers can order the selected products of the **Shopping Cart** Service online quickly and comfortably.

Target groups of customer of the **Shopping Cart** are huge. The customers can have Services in order to offer a product portfolio corresponding to the market. Private customer and business customers can order the selected products of the **Shopping Cart** Service

Online quickly and comfortably.

Target groups of customer of the **Shopping Cart** are huge. The customers can have a payment option through credit card only. In order to use the load writing procedure, the customer registers itself and receives a login for its purchases name. It is an Internet application.

Users of the system: Customer is the user of the system. An administrator of the Website is the super user. When the user types in the URL of the website, a Welcome page is shown which has a menu on the left hand side, a banner at the top and any related links to other sites. This site contains an online catalog for the user. User has to login to Welcome Page before ordering anything. Login functionality should check the authenticity of the user from database.

Functional components of the project: Following is a list of functionality of the system:

- **Registration Screen:** If the user is not registered, then registration screen should be available

- **Products Order:** This screen will show all the types of different product with their values and minimum quantity that should be ordered. If possible, provide the image of each of the product. On selecting any one of the product, user is shown the columns for the quantity to be entered. Alter entering the quantity, price is automatically set by the system based on the product price data. On adding to catalog, kindly check the inventory and take appropriate action.

- **Catalog Information:** This screen contains the information about the orders for the user. It gives total value of the order together with individual items ordered. On ordering, the validation about user's credit is made. Credit information can be kept in the database for the sake of simplicity. Once the order is accepted, inventory is updated and shipment entry is made in the database. Once the shipment is done, shipment status is updated.

- **Terms and Conditions** - A Brief text on the website explaining terms and conditions and printable copy of it.

- **Contact Information** - Contact information regarding the office addresses with phones and faxes are provided on this screen.

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1. **INTRODUCTION**

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2. **SYSTEM ANALYSIS**

E-Commerce Website Questionnaire

This questionnaire is designed to collect essential information from potential users before building the e-commerce website. Your responses will help us understand your expectations, preferences, and any pain points you've encountered with other platforms.

Question	Answer / Options
1. What type of products do you usually buy online?	☐Clothes ☐Electronics ☐Groceries ☐Home Appliances ☐Others: _____
2. How often do you shop online?	☐Daily ☐Weekly ☐Monthly ☐Rarely
3. Which e-commerce platforms do you use most and why?	_____
4. Which features are important for you in an e-commerce site? (Select all that apply)	☐Easy Search ☐Clear Product Display ☐Customer Reviews ☐Multiple Options ☐Fast Delivery ☐Order Tracking ☐Others: _____
5. What device do you mainly use for online shopping?	☐Mobile ☐Laptop/Desktop ☐Tablet
6. Do you prefer a mobile app or a website? Why?	_____
7. What is your preferred payment method?	☐Cash on Delivery ☐Credit/Debit Card ☐E-Wallet ☐Bank Transfer
8. What is the fastest acceptable delivery time for you?	☐Same Day ☐Within 24 hours ☐2-3 Days ☐No Preference
9. How important is site security when entering your personal information?	☐Very Important ☐Important ☐Moderately Important ☐Not Importar
10. What makes you trust a new e-commerce website?	_____
11. What problems have you faced with other online shopping platforms?	_____
12. What features would you like to see in a new e-commerce platform?	_____
13. Any suggestions or ideas you'd like to share?	_____

1.1 INTRODUCTION TO PROJECT

E-commerce is fast gaining ground as an accepted and used business paradigm. More and more business houses are implementing web sites providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming commonplace.

The objective of this project is to develop a general purpose e-commerce store where any products can be bought from the comfort of home through the Internet.

However, for implementation purposes, this paper will deal with an online **Shopping Cart.**

The **Shopping Cart** is a virtual store on the Internet where customers can browse the catalog and select products of interest. The selected items may be collected in a shopping cart. At checkout time, the items in the shopping cart will be presented as an order. At that time, more information will be needed to complete the transaction. Usually, the customer will be asked to fill or select a billing address, a shipping address, a shipping option, and payment information such as credit card number. An e- mail notification is sent to the customer as soon as the order is placed.

The **Shopping Cart** is expanded permanently through new products and services in order to offer a product portfolio corresponding to the market. Private customer and business customers can order the selected products of the **Shopping Cart** service online quickly and comfortably.

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Electronic Commerce (e-commerce) applications support the interaction between different parties participating in a commerce transaction via the network, as well as the management of the data involved in the process.

1.2 ORGANIZATION PROFILE

SOFTWARE SOLUTIONS

This Software Solutions is a company providing IT-based solutions to the businesses and individuals in an environment where business and technology strategies converge.
We focus on the use of innovation and technology to help our clients leverage their existing IT assets for maximum return.

We specialize in:

- Software Development Services
- Engineering Services
- Systems Integration
- Customer Relationship Management
- Product Development
- E-commerce
- Consulting
- IT Outsourcing

Project Report

They combine the best people, processes and technology to achieve excellent results – consistency.
We offer customers the advantages of:

SERVICES:

Talabat is providing its services to companies which are in the field of production, quality control etc.
With their rich expertise and experience and information technology they are in best position to provide software solutions to distinct business requirements.

1.3. PURPOSE OF THE PROJECT

The **Shopping Cart** needs to sell different types of products to customers living in any part of the world.
The website will show all products in categorized manner.
Customer can browse any product for its price and other details and can order the product.
Orders need to accompany with shipping & billing details.
Customer has to pay.
Products can be managed by operators from admin panel. Operator can be created by admin. Admin can keep track of orders through admin panel.
The main purpose of the system is to enable customers to browse and order from any part of the world and hence increasing business scope.

SYSTEM ANALYSIS

2.1 INTRODUCTION

After analyzing the requirements of the task to be performed, the next step is to analyze the

problem and understand its context. The first activity in the phase is studying the existing system and other is to understand the requirements and domain of the new system. Both the activities are equally important, but the first activity serves as a basis of giving the functional specifications and then successful design of the proposed system. Understanding the properties and requirements of a new system is more difficult and requires creative thinking and understanding of existing running system is also difficult, improper understanding of present system can lead diversion from solution.

2.2 ANALYSIS MODEL

The model being followed in this project is the **Waterfall Model**, which organizes the phases in a linear sequence. First, a feasibility study is carried out. Once that is completed, requirement analysis and project planning begin.

Design begins only after the requirement analysis is complete, and coding starts after the design phase is finished. Once programming is done, the testing phase begins. In this model, the sequence of activities in a software development project includes:

- Requirement Analysis
- Project Planning
- System Design
- Detailed Design
- Coding
- Unit Testing
- System Integration and Testing

The linear order of these activities is critical. The output of one phase becomes the input for the next phase. Ensuring the completion of each phase before moving on is essential for the success of the development process.

The output of each phase is to be consists with overall requirement of the system .The approach remains consistent with the overall system requirements. Some characteristics of the **Spiral Model** have also been incorporated, such as reviewing the work completed at the end of each phase with the stakeholders involved in the project.

The **Waterfall Model** was chosen because all the requirements were already known in advance. Additionally, the primary objective of our software development is the **computerization and automation of an manual working system**.

2.3 STUDY OF THE SYSTEM

Graphical User Interfaces (GUIs)

To enhance usability and flexibility, the system's interface has been designed with a graphical concept in mind and implemented through a browser-based interface. At the top level, the GUIs are divided into two main categories:

1. **Administrative User Interface**
2. **Operational or Generic User Interface**

1. Administrative User Interface:

This interface is focused on managing consistent and crucial information that is part of the organization's day-to-day operations. Access to this interface requires proper authentication to ensure data security. It allows administrative users to perform various tasks, including:

- Inserting new data
- Deleting existing data
- Updating data

- Conducting advanced data searches

2. Operational or Generic User Interface:

This interface is designed for regular users of the system. It enables them to perform transactions using the existing data and available services. It also allows users to manage their personal information in a customized way, depending on the flexibility and features provided by the system.

NUMBER OF MODULES

The system after careful analysis has been identified to be presented with the following modules:

This project is divided into 9 modules:

1. Registration Module
2. Products Browse Module
3. Products Search Module
4. Shopping cart Module
5. Shippinq and Billinq Module
6. Payment Module
7. Admin User Management Module
8. Admin Catalog Management Module
9. Admin Order Management Module

Entities involved in the project:

1) **Customer**
2) **Product**
3) **Website Administrator**
4) **Operator**
5) **Order**

1. Customer

- **Who they are**: The end-user or visitor of the site.
- **Responsibilities**:
  - Register on the site.
  - Browse the site for products.
  - Place orders for selected products.
  - Make payments online.

2. Product

- **What it is**: The item being sold on the site.
- **Role**: Customers browse and buy products through the system.

3. Website Administrator

- **Who they are**: A person with the highest control over the system.
- **Responsibilities**:
  - Manage all users in the system.
  - Assign roles (like operator or admin).
  - Define permissions (who can do what).

4. Operator

- **Who they are**: A staff member handling daily operations.
- **Responsibilities**:
    - Manage product listings (add or edit or delete).
    - Handle orders: process, update status, manage delivery.

5. Order

- **What it is**: The transaction created when a customer purchases a product.
- **Contains**:
    - Customer info
    - Product(s) ordered
    - Order status (Pending, Shipped, Delivered, Cancelled)
    - Payment details

PROJECT INSTRUCTIONS:

Sample Questionnaire for Requirement Gathering

#	Question	Target Role
1	What types of products do you plan to sell?	Seller
2	Do you prefer login via email or social media?	Customer
3	How should order tracking work?	Customer
4	Do you require a refund policy section?	Admin
5	What kind of analytics do you expect on the dashboard?	Admin
6	Should the system allow guest checkouts?	Customer
7	What payment methods do you support?	Seller
8	Do you want delivery agents to access the system?	Admin
9	What features are most important to customers?	Admin
10	Would you like a product recommendation engine?	Customer

- Based on the given requirements, conceptualize the Solution Architecture. Choose the domain of your interest otherwise develop the application for ultimatedotnet.com. Depict the various architectural components, show interactions and connectedness and show internal and external elements. Design the web services, web methods and database infrastructure needed both and client and server.
- Provide an environment for upgradation of application for newer versions that are available in the same domain as web service target.

Project Instructions - What You Need To Do:

1. Conceptualize Solution Architecture
- Design how the system will be structured and how components will interact.
- Choose a domain
- **Show the architecture diagram**, including:

2. Show Interactions and Components
- Show **how components communicate**, for example:
    - Customer uses web UI → sends request to server → server calls database → returns respon

3. Design Web Services and Methods
- Create RESTful APIs or Web Methods that serve specific functions, like:
- Define the **request and response format** (e.g., JSON), and how the client and server exchange data.

4. Database Infrastructure
- Design the database:

5. Prepare for Upgradability
- Design the system to support **future upgrades**, such as:
    - Adding new features or modules.
    - Allowing version control for APIs.
    - Using scalable architecture like Microservices or modular monoliths.
    - Keep business logic separated from presentation logic (MVC pattern).

HARDWARE & SOFTWARE SPECIFICATIONS

HARDWARE REQUIREMENTS:

- PIV 2.8 GHz Processor and Above
- RAM 512MB and Above
- HDD 20 GB Hard Disk Space and Above

SOFTWARE REQUIREMENTS:

- WINDOWS OS (XP / 2000 / 200 Server/ 2003 Server)
- Visual Studio .Net 2005 Enterprise Edition
- Internet Information Server 5.0 (IIS)
- Visual studio .net framework
- Sql server 2000 enterprise edition

FUNCTIONAL FEATURES OF THE MODEL

As far as the project is developed the functionality is simple, the objective of the proposal is to strengthen the functioning of Audit Status Monitoring and make them effective and better. The entire scope has been classified into five streams knows as Coordinator Level, management Level, Auditor Level, User Level and State Web
Coordinator Level. The proposed software will cover the information needs with respect to each request of the user group viz. accepting the request, providing vulnerability document report and the current status of the audit.

Working of the system :

The entire scope has been classified into five streams known as: -

Coordinator Level

(Addressing the information management needs of coordinator)

Management Level

(Addressing the information management needs of management)

Auditor Level

(Addressing the information management needs of auditors)

User Level

(Addressing the information management needs of the user group)

INPUT AND OUTPUT

The main inputs, outputs and major functions of the system are as follows

INPUTS:

- Customer enters his or her user id and password.
- Operators enter his or her user id and password.
- Admin enter his or her user id and password.
- User requests the product description.
- User requests the product search.
- User orders product.
- System requests shipping & billing address.

OUTPUTS:

- Customer receives personal and order details.

- Operator receives the personal details.

- Admin receives order details.

- Users receive requested product details.

- Users receive orders.

- System processes orders.

PROCESS MODELS USED WITH JUSTIFICATION

ACCESS CONTROL FOR DATA WHICH REQUIRE USER AUTHENTICATION

The following commands specify access control identifiers and they are typically used to authorize and authenticate the user (command codes are shown in parentheses)

USER NAME (USER)

The user identification is that which is required by the server for access to its file system. This command will normally be the first command transmitted by the user after the control connections are made (some servers

may require this).

This command must be immediately preceded by the user name command, and, for some sites, completes the user's identification for access control. Since password information is quite sensitive, it is desirable in general to "mask" it or suppress type out

SOFTWARE REQUIREMENT AND SPECIFICATION

FUNCTIONAL REQUIREMENTS
- The system shall allow users to search all or specific items from the 1 Stop Centre's purchase database by type or title.
- The system shall display item lists using appropriate viewers for users to browse available items.
- The system shall generate a unique user reference (USER_ID) for each customer for account access and payment purposes.
- The user shall be able to select the preferred delivery day.
- The user shall be able to choose desired items for delivery.
- The system shall generate daily printouts of publications and grocery items for delivery to each address.
- The system shall generate reports and summaries for the owner indicating recipients and invoice details.
- The system shall automatically calculate billing amounts and include invoices with delivered items.
- The system shall manage basic geographic data and provide descriptions of the company.

NON-FUNCTIONAL REQUIREMENTS

1. Product Requirements
1.1 The user interface for 1 Stop Centre shall be implemented using basic HTML.
1.2 The items must be listed in order on the order form.
1.3 The product data must be updated and available on a daily basis.
2. Owner Requirements
1 The owner shall be able to offer additional services upon request.
2 The owner shall be able to communicate with other shop owners or individuals for unlisted but required services.
3. Organizational Requirements
1 The system development and reporting shall follow the defined organizational processes.
2 Deliveries must be made on a daily basis.
3 Each delivery shall be documented and recorded upon execution.
4. External Requirements
1 The system shall not reveal any customer personal information except name and reference number to system operators.
2 The system shall include geographical details and relevant service information.

INTRODUCTION

Purpose:

The main purpose for preparing this document is to give a general insight into the analysis and requirements of the existing system or situation and for determining the operating characteristics of the system.

Scope:

This document plays a vital role in the development life cycle (SDLC) and it describes the complete requirements of the system. It is meant for use by the developers and will be the basis during the testing phase. Any changes made to the requirements in the future will have to go through the formal change approval process.

DEVELOPERS RESPONSIBILITIES OVERVIEW:

The developer is responsible for:

- Developing the system, which meets the SRS and solves all the requirements of the system.
- Demonstrating the system and installing the system at the client's location after the acceptance testing is successful.
- Submitting the required user manual describing the system interfaces to work on it and also the documents of the system.
- Conducting any user training that might be needed for using the system.
- Maintaining the system for a period of one year after installation.

FUNCTIONAL REQUIREMENTS:

OUTPUT DESIGN

Outputs from computer systems are required primarily to communicate the results of processing to users. They are also used to provide a permanent copy of the results for later consultation. The various types of outputs in general are:

- External outputs, whose destination is outside the organization.
- Internal outputs, whose destination is within the organization.
- User's main interface with the computer.
- Operational outputs whose use is purely within the computer department.
- Interface outputs, which involve the user in communicating directly with the system.

The outputs should be defined in terms of the following points:

- Type of the output
- Content of the output
- Format of the output
- Location of the output
- Frequency of the output
- Volume of the output
- Sequence of the output

It is not always desirable to print or display data as it is held on a computer. It should be decided which form of the output is the most suitable.

Output Media:

In the next stage it is to be decided that which medium is the most appropriate for the output. The main considerations when deciding about the output media are:

- The suitability for the device to the particular application.
- The need for a hard copy.
- The response time required.
- The location of the users
- The software and hardware available.

Keeping In view the above description the project Is to have outputs mainly coming under the category of internal outputs. The main outputs desired according to the requirement specification are:

The outputs were needed to be generated as a hot copy and as well as queries to be viewed on the screen. Keeping in view these outputs, the format for the output is taken from the outputs, which are currently being obtained after manual processing. The standard printer is to be used as output media for hard copies.

Input Design

The input design is a crucial component of the system analysis phase, as it determines how data will be collected and entered into the system. For the E-commerce project, the majority of the inputs are **internal** (entered by system users such as admins and staff) and **interactive** (entered by customers through forms or user interfaces).

To ensure high accuracy and user-friendliness, the primary input method chosen is the **keyboard**, supported by forms with validation checks and dropdown menus where applicable. This minimizes the chances of errors and makes the process smooth for users.

The selected input media and mechanisms were evaluated based on the following factors:

- Type and format of input (text, numbers, email, etc.)
- Speed and ease of entry
- Accuracy and built-in validation methods
- Error messages and correction ability
- Security for sensitive information (e.g., passwords, credit cards)
- Portability and compatibility with mobile devices

The system uses:

- **Drop-down lists** for standardized entries (country, payment methods)
- **Field validation** for required fields (email, phone)
- **Error messages** for invalid entries

- **Secure input** for confidential data (masked password fields)

This input design ensures that both customers and administrators can interact with the system effectively, with minimal errors and maximum efficiency

INPUT STAGES:

The main input stages can be listed as below:

- Data recording
- Data transcription
- Data conversion
- Data verification
- Data control
- Data transmission
- Data validation
- Data correction

INPUT TYPES:

It is necessary to determine the various types of inputs. Inputs can be categorized as follows:

- External inputs, which are prime inputs for the system.
- Internal inputs, which are user communications with the system.
- Operational, which are computer department's communications to the system?
- Interactive, which are inputs entered during a dialogue.

ERROR AVOIDANCE

At this stage care Is to be taken to ensure that input data remains accurate form the stage at which it is recorded up to the stage in which the data is accepted by the system. This can be achieved only by means of careful control each time the data Is handled.

ERROR DETECTION

Even though every effort is make to avoid the occurrence of errors, still a small proportion of errors is always likely to occur, these types of errors can be discovered by using validations to check the input data.

DATA VAUDATION

Procedures are designed to detect errors in data at a lower level of detail. Data validations have been Included In the system in almost every area where there Is a possibility for the user to commit errors. The system will not accept Invalid data. Whenever an invalid data Is keyed In, the system immediately prompts the user and the user has to again key in the data and the system will accept the data only if the data is correct. Validations have been included where necessary.

The system is designed to be a user friendly one. In other words the system has been designed to communicate effectively with the user. The system has been designed with pop up menus.

USER INTERFACE DESIGN

It is essential to consult the system users and discuss their needs while designing the user Interface:

USER INTERFACE SYSTEMS CAN BE BROADLY CLASIFIED AS:

1-User initiated interface the user is in charge, controlling the progress of the user/computer dialogue. In the computer-initiated Interface, the computer selects the next stage in the interaction.

2-Computer initiated interfaces In the computer initiated interfaces the computer guides the progress of the user/computer dialogue . information is displayed and the user response for the computer tasks action or displayed further information.

USER_INITIATED INTERFACES

User initiated interfaces fall Into tow approximate classes:

1. Command driven interfaces: In this type of interface the user inputs commands or queries which are interpreted by the computer.

2. Forms oriented interface: The user calls up an image of the form to his/her screen and fills in the form. The forms oriented interface is chosen because it is the best choice.

OMPUTER-INITIATED INTERFACES

The following computer - initiated interfaces were used:

1. The menu system for the user Is presented with a list of alternatives and the user chooses one; of alternatives.
2. Questions - answer type dialog system where the computer asks question and takes action based on the basis of the users reply.

Right from the start the system is going to be menu driven, the opening menu displays the available options. Choosing one option gives another popup menu with more options. In this way every option leads the users to data entry form where the user can key In the data.

ERROR MESSAGE DESIGN:

The design of error messages Is an important part of the user interface design. As user is bound to commit some errors or other while designing a system the system should be designed to be helpful by providing the user with information regarding the error he/she has committed.

This application must be able to produce output at different modules for different Inputs.

PERFORMANCE REQUIREMENTS

Performance is measured in terms of the output provided by the application.

Requirement specification plays an important part in the analysis of a system. Only when the requirement specifications are properly given, It Is possible to design a system, which will fit into required environment. It rests largely in the part of the users of the existing system to give the requirement specifications because they are the people who finally use the system. This Is because the requirements have to be known during the Initial stages so that the system can be designed according to those requirements. It is very difficult to change the system once it has been designed and on the other hand designing a system, which does not cater to the requirements of the user, is of no use.

The requirement specification for any system can be broadly stated as given below:

• The system should be accurate

SYSTEM DESIGN

Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm and area of application. Design is the first step in the development phase for any engineered product or system. The designer's goal is to produce a model or representation of an entity that will later be built. Beginning, once system requirement have been specified and analyzed, system design is the first of the three technical activities -design, code and test that is required to build and verify software.

The importance can be stated with a single word "Quality". Design is the place where quality is fostered in software development. Design provides us with representations of software that can assess for quality. Design is the only way that we can accurately translate a customer's view into a finished software product or system. Software design serves as a foundation for all the software engineering steps that follow. Without a strong design we risk building an unstable system – one that will be difficult to test, one whose quality cannot be assessed until the last stage.

During design, progressive refinement of data structure, program structure, and procedural details are developed reviewed and documented. System design can be viewed from either technical or project management perspective. From the technical point of view, design is comprised of four activities – architectural design, data structure design, interface design and procedural design.