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CHAPETR ONE

1.1 Introduction

E-commerce is the production, distribution, marketing, sales or delivery of goods and services by electronic means (as defined by World Trade Organization, WTO). e-commerce depicts commercial transactions, involving both organizations and individuals, that are based upon the processing and transmission of digitized data, including text, sound and visuals images and that are carried out over open networks (like, the internet) or closed networks that have gateway onto an open network (Pallavi Dinodia, n.d.).

The steady shift of consumer behaviour to online shopping from retail stores hasn't been lost on electronic device manufacturers. Electronic commerce is yet another way to purchase online items from electronic storefronts or online services from automated service providers. Computer-mediated networks enable these transaction processes through electronic store searches and electronic point-of-sale capabilities. Other mobile devices include dash-top mobile devices, personal digital assistants or smartphones.

Eco-talanta is an e-commerce web portal for exhibiting and selling of arts, artefacts and knowledge from environment conservation through recycling and reuse. The application title is borrowed from the word eco (this means not harming the environment; eco-friendly) and talanta (this is a Swahili word translated for talent). As the name suggests, the application will focus on environment conservation and boost talent in recycling and reusing in a way that conserves the environment.

According to the United Nations (UN), Sustainable Development goals, environment degradation is one of the main focus. To contribute to this eco-talanta will give a competitive platform for advocating on environment conservation, recycling, reusing and knowledge transfer and sharing on matters related environment.

1.2 Overview of eco-talanta

The aim of Eco-talanta ecommerce web based portal is to provide a web and mobile based platform where consumers can access to various ways of acquiring arts and artefacts originating from recycling, reuse and information on/from environment conservation.

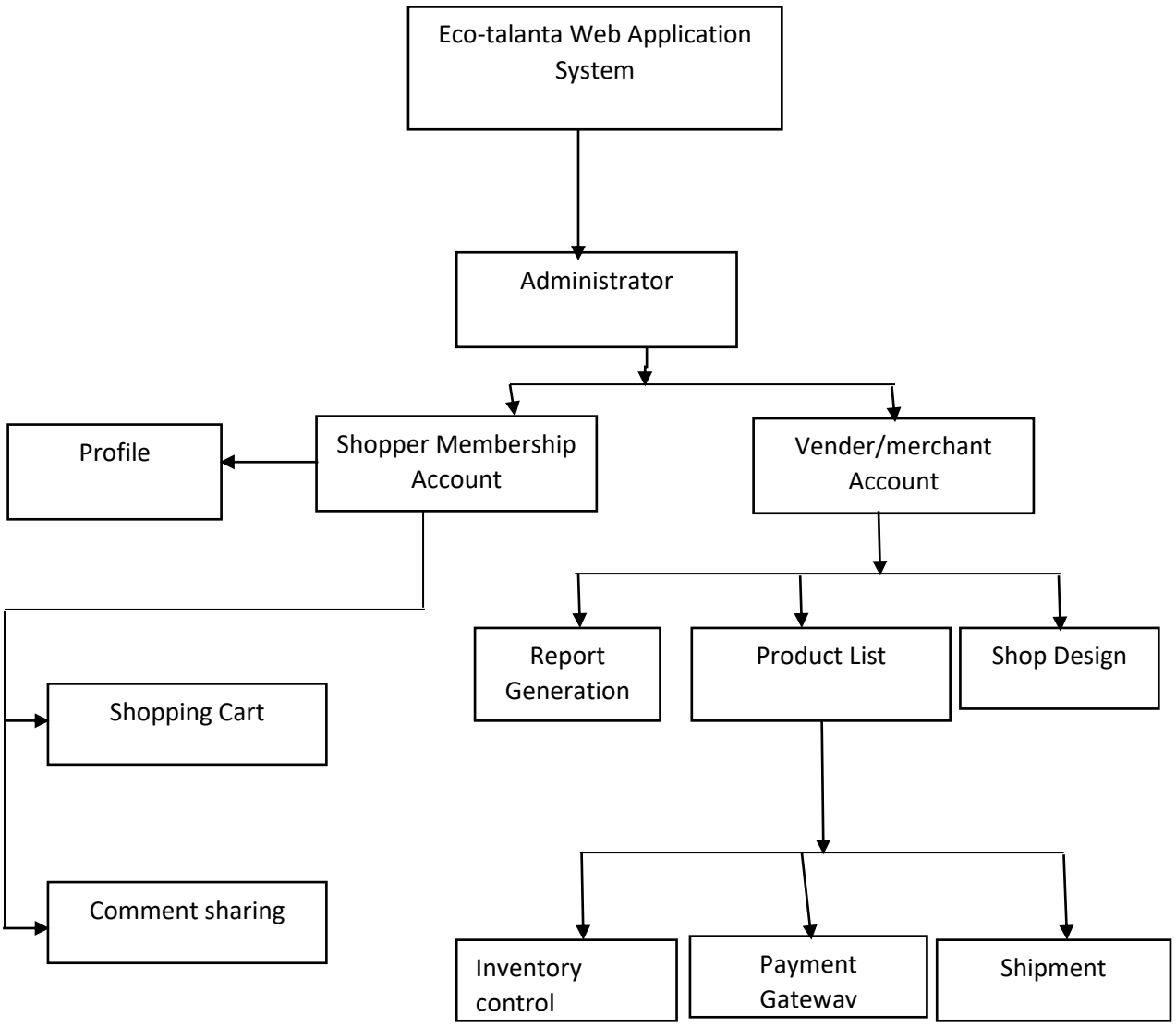
The portal application will allow users to do the following;

- Buy goods and services
- Sell recycled products and art
- Create a profile and showcase the talent on environment conservation
- Access information on environment conservation

1.3 Project aims and objectives

1. The project that am working on to develop is a web web based platform that can allow users to create and manage their profile
2. Develop a platform where the clients and consumers can buy and sell products promoting environment conservation
3. Come up with a platform for information and knowledge sharing on environment conservation
4. Provide a digital solution or environment conservation and management

1.4 Project scope



CHAPTER TWO

2.1 Overview

This chapter still covers external interface requirements, non-functional requirement and functional requirement.

2.2 Functional requirements

The Functional Requirements Specification documents the operations and activities that a system must be able to perform.

Allow users to create and manage their profile

Allow consumers to view and buy products using a shopping cart

Perform an analysis of the problem using object-oriented techniques

An external view of the model of the eco-talanta App including shopping cart and shopper profile, vendor/merchant account module, will be developed. This System Requirement Specifications document forms part of the documentation for the project.

Some desired features of the new system include:

- the ability to search/view processes as desired
- Provide report generation platform

Populating data

Available Data will be reformatted to be compatible with the eco-talanta App data schema and modelling requirements. Data to be used in modelling that does not conform to model requirements will be processed in for inclusion in the eco-talanta App databases

Generate tabular reports of selected data

Provide access to eco-talanta App -related reports, tables, and project documents.

Maintain metadata database: Develop and maintain a metadata database that provides query access to form descriptions of the database elements. Provide tools for database Contributors to create metadata compatible with the eco-talanta App Metadata database.

Query of metadata by desired parameters

Develop search tools that query eco-talanta App, metadata across the eco-talanta App database. Metadata query tools will support query by desired parameter

2.3 Non-functional requirements

Non-functional requirement explains on the constraints of the system. It specifies the criteria that a basic operation of the system should have, it may relate to system properties such as reliability, response time and store occupancy(Cysneiros & Leite, 2004). This non-Functional requirement will show the quality of the system in some way.

2.3.1 Performance Requirements

Response time: The data system shall show no visible deterioration in response time as the number of users increases. Response times seen by end users for querying metadata should be on the order of a few seconds or less.

Loading speed: The data system shall load as quickly as comparable productivity tools on whatever environment it is running in.

Throughput: Throughput refers to transactions per second (tps). As it is difficult to calculate the throughput in terms of transactions per sec, it is expected that the System should be able to support maximum throughput for the post and search processes.

Reliability and Availability Requirements: The reliability of the system is directly linked to the level of update of the documents to which it is correlated, such as the user detail database. The system and the must be updated constantly according to the necessities of the users. Both the database will have to be available on demand.

Robustness or Fault-Tolerance Requirements: When the system is disconnected or frozen due to over access at the same time, it should save all the process of the users have made up to the point of abnormal happenings

Capacity Requirements: The system should be able to manage all the information incoming from the database and the catalogue.

2.3.2 Security Requirements

Eco-talanta App will have reasonable controls consistent with best practices; eco-talanta App security requirements will have four primary components. They are authentication, confidentiality, integrity, and availability.

Authentication: eco-talanta App will follow industry best practices for authentication, using single-sign-on Systems like. Authentication addresses security requirements to ensure those using system are who they say they are. This is of greatest concern when data are being changed or updated. This is primarily done through passwords.

Confidentiality: Confidentiality security requirements describe the need to protect the data appropriately. Eco-talanta App will use the user classes to define boundaries of information sharing to ensure confidentiality as appropriate. Any data that should be viewed by a restricted audience must be protected with appropriate security features.

Data Integrity: The integrity of eco-talanta App data will be critical to its success as a product. Scientific Research and publications will be based on the data obtained through the system. Therefore, extensive data validation and review will be performed both before data are added to the system and as part of the adding process. The system will need policy and procedures protecting the data from intentional or unintentional modifications, and to ensure accurate data are made available.

Availability: The system must be available to the intended audience on demand, with, 99% availability and a tolerance of -5% (not less than 50% of working hours in any week). For this system, availability will be concerned with the reliability of the software and network components. Intentional "denial of service attacks" is not foreseen as a significant concern.

2.3.3 Software Quality Attributes

Portability

This database will be built for a particular system and may not be portable but results to queries will be portable between many environments.

Adaptability

Implementation of the application software/code and design of database structure should be flexible enough for the necessary change in the later phase.

Availability

Availability is defined here to mean the ability to use the system during its intended period of operation

Reliability

- Appropriate validations and intimation to user on any abnormal inputs/situations.
- Consistency of data to be maintained
- Conformation should be taken from the user before deleting any record.

Maintainability

- Administrator Manual and User manual to be provided.

- The system should be maintainable over a period of time. This implies that proper coding standards & naming conventions are followed; design should be According to proper standards.

Usability

Usability includes looking at, capturing, and stating requirements based around user interface issues - things such as accessibility, interface aesthetics, and consistency within the user interface.

Ease of use – The user should be able to perform operations desired quickly without having to navigate through multiple forms– NO operation should require more than 3 to 4 clicks.

Efficient – The system should be efficient. This is measured by the time taken to do an operation fully through the system.

Familiarity – The system's interfaces and navigations should be based on other systems that the users are familiar with and like.

2.4 Hardware tools

Eco-talanta being a web based application does not require heavy hardware to develop and implement. Some of the hardware to be used include;

Computer

A computer is needed as the primary hardware where the development software will be hosted and testing of the application.

Backup external disk

This will provide an alternative storage of the copy of the application as a backup incase the computer fails

Internet

This will facilitate in connecting to the application for the users and the consumers

2.5 Software tools

Development software

This include the integrated development environment for writing the code. Sublime text, notepad++ and Kate will be used for code writing.

Database management system (DBMS)

The application will use MySQL database and will run on Window/Linux apache stack

Application access

The application will be accessed via a web browser such as Mozilla firefox, chrome or Microsoft edge.

Operating system

The system will be compatible with windows, Linux or mac operating system

CHAPTER THREE

3.1 Methodology

3.2 Outline of approach/development methodology used

The methodology is Object Oriented Analysis and Design (OOAD), is an iterative software development process that is used to develop the systems. OOAD is based on the content elements describing what to be produced and a step- by- step explanations describing how specific development goals are achieved (Roebuck, 2011).

3.3 The Rapid Prototyping Model

Technology is advancing so fast that the long lead time between setting requirements and delivering a final tested version of a product seems impractical. Rapid Prototyping Model is an iterative and requires creation of one or more prototypes as part of the software development process. Software is developed as a series of prototypes, with specifications of the individual prototypes changing in response to feedback from users (Jones & Richey, 2014).

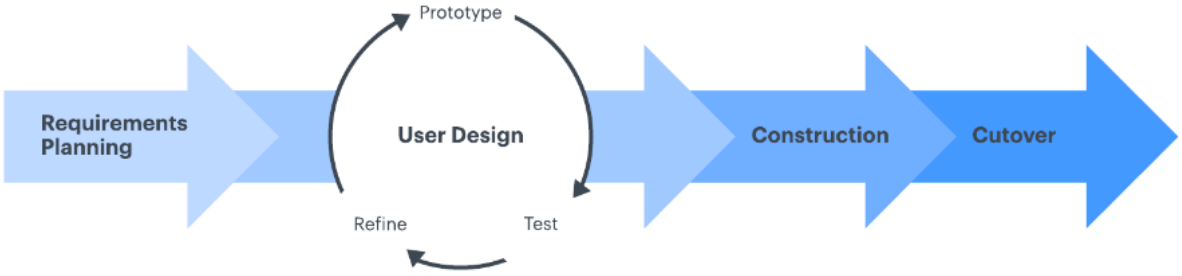


Figure 1 Rapid Application Development.

The process of prototyping involves the following steps

3.3.1 System Analysis

This is a stage that will give a detailed specification of the projects functional requirements and user requirements

It composes of the fact finding techniques that will be used for the development of the system i.e. questionnaires, interviews, observation and inspection

3.3.2 System design

This stage depicts the structure of the final system and explains how components will be structured and how they will operate and interact, where it is imposed in producing the system design specification that will satisfy the requirements specified during the analysis. It will compose of then following processes

1. Interface design
2. Logical design
3. Physical design

3.3.3 Coding

After the design phase, the design will be translated into a set of program units which are accomplished by taking the components specification, studying it and creating a program unit to match the specification

3.3.4 Testing and integration

The customers, including end-users, examine the prototype and provide feedback on additions or changes .The testing techniques to be used are

i. white box testing
ii. black box testing

3.3.5 Implementation

This is when the proposed system will be taken to users so that they can use it

3.4 Justification of the methodology

This methodology is useful because;

1. Risks are usually discovered or addressed during integration. With the iterative approach, you can mitigate risks earlier.
2. Increased quality; in terms of the development process and thus the quality of the developed system is assured.
3. Less time is required for integration as the process goes on throughout the software development.
4. It is flexible and adaptable to use in any environment. A good quality system is delivered at the end of the project.

Schedule /plan activities and durations

Idea presentation and proposal										
Requirement analysis and design										
Development and implementation										
User manual documentation										
Final documentation &implementation										
WEEK (s)	1	2	3	4	5	6	7	8	9	10

References

Cysneiros, L. M., & Leite, J. C. S. do P. (2004). Nonfunctional Requirements: From Elicitation to Conceptual Models. *IEEE Trans. Softw. Eng.*, *30*(5), 328–350. https://doi.org/10.1109/TSE.2004.10

Jones, T. S., & Richey, R. C. (2014). Rapid Prototyping Methodology in Action : A Developmental Study, (May). https://doi.org/10.1007/BF02313401

Pallavi Dinodia, A. T. (n.d.). E-commerce – International approach, 1–13.

Roebuck, K. (2011). *Object-oriented Analysis and Design (OOAD): High-impact Strategies - What You Need to Know Definitions, Adoptions, Impact, Benefits, Maturity, Vendors*. Tebbo.