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A MINOR PROJECT PROPOSAL REPORT ON

"Online Vegetables Supply System"

Submitted in Partial Fulfillment of the Requirements for

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under

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Abstract

Public market refers to vegetable markets, which offer fresh fruits and vegetables. Basically these markets can be permanent, semi-permanent (morning evening shift) and mobile vendors. With the realization of quality vegetable production and safety consumption, a perfect management information system through digital methods are introduced. Our project, therefore, aims to provide an online web platform for agriculture farmers where they can sell daily produced goods directly from their field location or from home itself without going elsewhere even to the market. The platform manages the details of vegetable producers, customers, orders, financial transactions and payment. The final product of the project will be a web based application using HTML, CSS, JS, PHP, MYSQL and Apache 2. The time frame of the project would be 10 weeks.

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Acronyms and Abbreviation

CSS	:	Cascading Style Sheets
DFD	:	Data Flow Diagram
ERD	:	Entity Relationship Diagram
GB	:	Giga-Bytes
GDP	:	Gross Domestic Product
HTML	:	Hypertext Markup Language
HTTP	:	Hypertext Transfer Protocol
JS	:	JavaScript
MB	:	Mega-Bytes
PHP	:	Hypertext Preprocessor
RAM	:	Random Access Memory
RDBMS	:	Relational Database Management System
SQL	:	Structured Query Language
XAMPP	:	Cross-Platform, Apache, MySQL , PHP and Pearl
XML	:	Extensible Markup Language

Chapter 1: Introduction

1.1Background

Agriculture is the main economic activity in Nepal contributing about 27.6 percent to the national GDP and about 60.4 % of people are engaged in agricultural activities. However, Nepal still faces a trade deficit of 0 to 16%. So, agricultural development has a huge impact on promoting the market supply, uplifting the living standard of people and ultimately uplifting the national economy. Among different branches of agriculture, olericulture (study of vegetables) occupies an important position. Vegetables, the essential nutrients for the people, have been produced across the country in recent years as one of the vital income generating sources. Vegetables are necessary for human health due to their vitamin A, minerals, and dietary fiber content. Vitamins A, C, and E play a vital role in human health. The nutrient and non-nutrient molecules in vegetables reduce the risk of chronic disease, diabetes, cancer, obesity, and hyperactivity [1]. Thus, vegetable production plays an important role in the national economy of our country.

The term public market has changed in meaning over time and still differs from place to place. In Nepal, public market refers to vegetable markets, which offer fresh fruits and vegetables. Basically these markets can be permanent, semi-permanent (morning evening shift) and mobile vendor [2]. In case of Nepal, "Permanent markets have fixed locations and include many vendors under one roof. Vendors are required to pay rental fees for the area they occupy. They have hoarding boards, or formal signs, that identify the name of the market. Permanent markets are typically open throughout the day. These markets sell all types of fruit and vegetables. These markets act as a wholesale market for vegetables and fruits with small vendors purchasing from these markets for their business. Generally the public purchases food at these permanent markets for larger meals prepared at feast and festival times" [2]. The supply of quality vegetable produce is directly related to the people's health, managed distribution and most importantly the reduction of price fluctuation arising through middlemen. Traditional methods of procurement have been prevailing since the beginning of human civilization where the buyers and sellers need to be present by themselves for exchange of produce and bargaining on market price. Introducing a sequence of advancements in almost every field of mankind, the traditional way of shopping is also criticized with respect to waste of time and difficulty in bargaining for prices. To realize the quality production of vegetables and safety consumption of the consumers, it is necessary to establish a perfect management information system of vegetable procurement and supply through digital methods.

The main intent of this survey is to develop a agriculture marketing system to assist in the sale and management of production for the farmer. The development of agriculture has been on under development for the few years due to dearth of proper trading system for selling the harvest to the benefit of the farmer, for the Indian farmers it has become at ragedy over the market to get good price for their produce due to the dearth of information and the involvement of broker within the Agricultural turn out Market Committee. The main aim of this paper is to provide online web platform for poultry and agriculture farmers, where they can sell daily produced goods directly from their field location or from home itself without going elsewhere even to the market. The produce that is brought from farmers will be available for customers who can buy vegetables, fruits, eggs, etc. online which will be home delivered to them.

1.2 Terminologies

- HTML : Page layout has been designed in HTML
- CSS : CSS has been used for all the designing part
- JavaScript : All the validation task and animations has been developed by Javascript
- PHP : All the business and fronted logic has been implemented in PHP
- MySQL : MySQL database has been used as database for the project
- Apache2 : Project will be run over the Apache2 server

1.3 Problem statement

With the increase in transport and communication facilities, vegetable cultivation has spread in interior areas where irrigation facilities are available. This is because growing vegetable crops is more profitable than any other seasonal crop particularly the food grain crop. The spread of vegetable cultivation in rural areas has created new problems, particularly of transport, handling, packing and storage which are still in their formative stage. There is also regional specialization in growing some vegetables. They are grown in one area but marketed in other areas for creating a wider market and also to fulfill the demand of some people, who have a liking for them. This also involves long distance transport. For this purpose, good roads in the interior villages are necessary. Fortunately there are good state and national highways, but there are no good roads in the interior. This brings us to the problem of marketing vegetables grown. The producer cannot go to wholesale markets or long distant markets and he has to depend on some intermediaries to sell his vegetables. Therefore, in the marketing of vegetables costs are involved for grading, packing, transport,

loading/unloading, fees, etc. In addition, the intermediaries also take some margins for them. These costs and margins determine the final price to be paid by the consumer. After deducting market costs and margins from the final price paid by the consumer, the farmer gets his net price, which is referred to as “Farmer’s share in consumer’s price”. This determines efficiency of marketing. And taking a glance at the current situation, farmers are not getting the profit they deserve as per their investment and hard work.

On the other hand, customers have to pay a high price for the goods. Due to which, both farmers and customers are facing the price gap problem. Also, in some stores it’s a given that customers will wait for half an hour after ordering to actually get the vegetables. The highly intensive problems faced by vegetable growers are higher cost of storage, lack of marketing channel, lack of regulated market, high import of agricultural products due to lack of management of local products.

1.4Objectives

The main objective of vegetable processing is to supply wholesome, safe, nutritious and acceptable food to consumers throughout the year. Some other objectives are listed below:

- To reduce the price gap between farmers and customers
- To promote the local products and reduce the import of agricultural goods
- To change the traditional way of purchasing vegetables
- To save time, energy and also prevent bargaining with shopkeeper

1.5Application

The main concept of this website is to create a platform for selling vegetables online and connecting farmers and customers by creating a bridge between them. So, it can also be used in vegetable markets or in vegetable stores or by farmers to interact directly with the customer through online platform.

Chapter 2. Literature Review

2.1 Case study

2.1.1 Daraz

Daraz being the first e-commerce company to become a part of the mainstream in Nepal, it has built a platform for buyers and sellers from across the country to connect online by making products accessible to more people, especially during the lockdown. It had started as a start-up in 2018 and has grown by 1,500 percent in the past three years and is contributing to the economy with growing employment opportunities, investment in logistics, and payment partnerships. With the lockdown, as well, Daraz adapted to being more efficient and serving people what they needed in times of crisis. The convenience and accessibility provided by Daraz made people start turning to this app.

This company, which used to manage sales for one seller, is now a platform for thousands of buyers and sellers based in Nepal and has created e-commerce models all around the world.

It is a sector that doesn't make a lot of profit but requires tons of investment in the long run. Daraz managed to start from scratch in terms of the infrastructure it needed to grow in Nepal. It is creating an atmosphere to show that this is a very promising market that requires patience.

Focused on young people looking for jobs, Daraz has been providing full and part-time employment to around 1,500 people in different parts of the country. We can clearly see that it has adopted an entirely new working module in a short time.

Reaching a state of trust was a journey as Daraz was eventually gaining popularity among the people. An accountable team, reassuring products, user-friendly, and promising delivery services won the hearts of many. The connection customers had with the market sparked a desire to keep coming back. Recently, Daraz Livestream was started for young influencers to represent Daraz to showcase what they do. With that, Daraz also holds yearly campaigns with extreme discount offers and vouchers that amplify the dialogue and give the customer an experience they don't want to miss out on." Thus we can say that Daraz is on the verge of becoming a household name [8].

2.1.2 Foodmandu

Foodmandu has been established as the first company in Nepal that delivers food from hundreds of popular restaurants. Foodmandu has been making life easier through online ordering and revolutionized the way they perceive it. It has emphasized the value of time and let us escape horrendous city traffic while people sit back relaxed at home. The company is one of the pioneering

food delivery companies not only in Nepal but in the world when the food delivery business was an alien concept to Nepal and much new to the world.

In this business model, customers can place their orders through their website or application or call. Foodmandu charges a commission to restaurants based on orders while users pay a delivery fee, which is then split between delivery personnel and the company. The platform has over 500 employees including 200 bikers. It outsources riders to manage customer needs on some weekends and festivals. It has listed over 500 restaurants and serves in Kathmandu, Bhaktapur, and Lalitpur with a plan to expand pan Nepal. Working professionals who need food in their offices, students who need food in their hostels, and people who do not have time or space to cook for themselves are its main audience[16].

2.1.3: Sasto Deal

Sasto Deal is the biggest online shopping store in Nepal. Before Sastodeal, there were other e-commerce portals such as thamel.com and muncha.com. But, they were catering to the audience outside Nepal. Unlike those portals, sastodeal focused on the local market and local consumers. The home-grown e-commerce platform Sastodeal did not waste time to cash in on the opportunities and focused on the delivery of essential goods, kitchen appliances, and other items taking the company's business to new heights. Sastodeal is also collaborating with the government-owned Food Management and Trading Company (FMTC) to deliver essential items whose goal is to ensure that rural customers also get the subsidized essential items that FMTC is offering. As of now, Sastodeal's market penetration is 70 percent inside the Kathmandu valley and 30 percent outside the valley. In that sense, we can say it is the first local e-commerce portal of Nepal. They invested here and helped grow the e-commerce ecosystem in the country. When sastodeal started the business, internet penetration in Nepal was just 9 percent. As internet penetration grew, it created business opportunities for platforms [17].

2.2 Status of Vegetable Cultivation in Nepal

A study finding revealed that during the fiscal year 1977/78 to 2016/17 the area under vegetable cultivation has sharply increased by 222.8% with its increased production of 728.2% [4]. Per capita vegetable consumption has increased to 105 kg from 60 kg over last two decades due to massive rise in agriculture and production area. There are 3,243,521 vegetable holdings reported in Nepal. Vegetables crops are cultivated in 232,295 hectares of cultivable land [6].

In the last fiscal year 2020-21 ended July 15, the Himalayan republic added a 30 percent year-on-year jump to its agricultural goods import bill, taking it to a staggering NRs. 325 billion. Previously, Nepal's imports of agricultural goods in fiscal 2019-20 were valued at a little over NRs 250 billion. According to the statistics released by the Department of Customs, while the country's overall imports grew by 28.66 percent to Rs1.53 trillion in the last fiscal year, agricultural goods imports increased by more than 30 percent, taking the share of agro products in the total import bill to 21 percent [3].

China is the major producer of fresh vegetable, sharing more than 50% of total production. Worldwide, the majority of vegetable production takes place in Asian countries, with Nepal being the sixth leading producer of fresh vegetables following China, India, Vietnam, Philippines, and Myanmar in 2016. The vegetable farming increasingly gaining its importance in Nepal [7].

Asan, being at major traditional route of Kathmandu, is usually vibrant and often congested due to the market activities and traffic flow in the area, as the site is one of the major junctions of the traditional urban core. This area is facing several problems; Traffic Congestion, Territoriality, Waste Generation and so on. Similarly, Kalimati market has been functioning as a major fruits and vegetable market for over 30 years. 322 stalls are being allocated for wholesale marketing, among which 26 stalls are allocated for farmer groups/ co-operatives. Minimum amount to be traded in the wholesale market is 5 kilograms, below which trading is not allowed. In order to trade in the wholesale market one has to take permission from the committee, and the rent has to be paid for the allocated space and other facilities [2].

2.3 Conclusion

With the case study of three different e-commerce sites, it is seen that these sites have built a platform for buyers and sellers from across the country to connect online by making products accessible to more people. We can see that the platform to directly connect the farmers and customers online is not much familiar and established in the context of Nepal. We are aiming for such a platform through our project.

Chapter 3: Methodology

Project Management Methodology is a strictly defined combination of logically related practices, methods and processes that determine how best to plan, develop, control and deliver a project throughout the continuous implementation process until successful completion and termination. It is a scientifically-proven, systematic and disciplined approach to project design, execution and completion. The purpose of project methodology is to allow for controlling the entire management process through effective decision making and problem solving, while ensuring the success of specific processes, approaches, techniques, methods and technologies. Typically, a project management methodology provides a skeleton for describing every step in depth, so that the project manager or program manager will know what to do in order to deliver and implement the work according to the schedule, budget and client specification.`

In the proposed methodology there are 4 different stages which are flow of project, system design, software and hardware requirement and testing and maintenance.

3.1 Flow of project

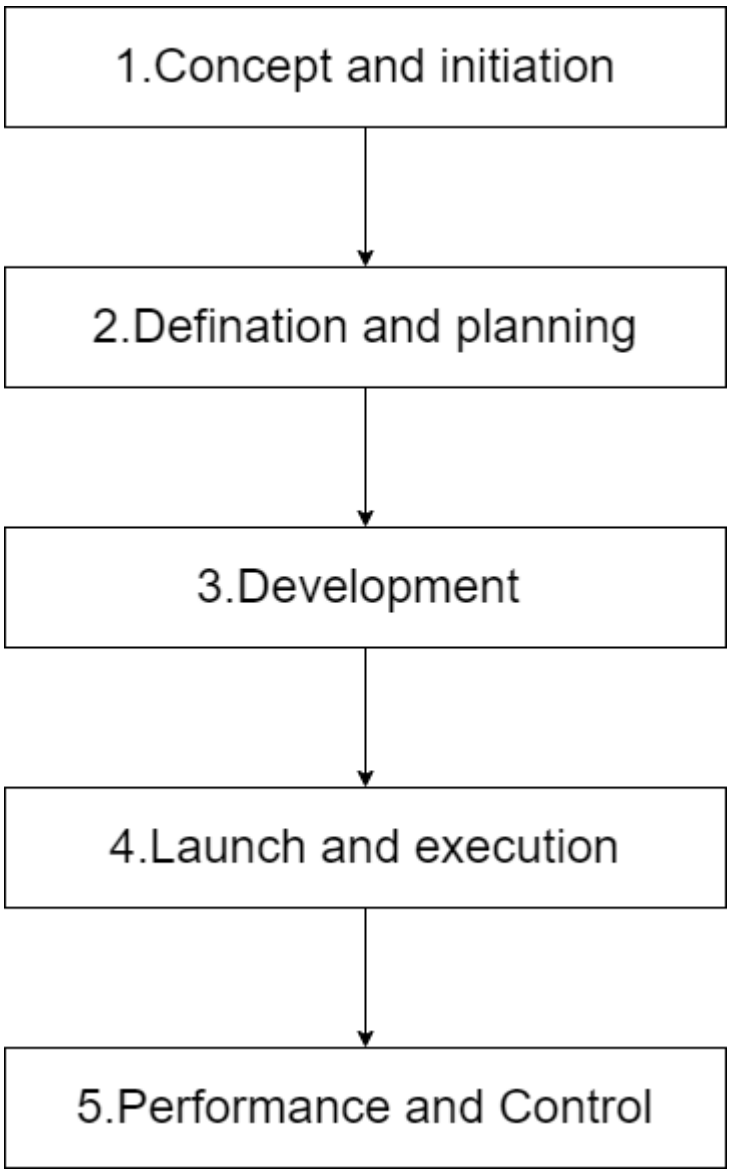

Figure 1: Flow of project, Online Vegetable Supply System

3.1.1. Concept and Initiation

Before taking up any projects, the requirements must be collected and verified for feasibility. The project can continue if the requirements are feasible. In this phase all the requirements necessary to develop and implement the project are collected by the stakeholders and are conveyed to the developer and designer of the project.

3.1.2. Definition and planning

In this project, whose final product will be a web application, the requirements are farmer service, user service, admin management, and product management.

3.1.3 Development

We are going to develop our project using:

HTML:- HTML is a markup language that provides a description of the structure/layout of our web page. We define this structure by wrapping content in HTML elements. An HTML element is formed using a tag, which serves as a descriptor for each piece of content on your page[10].

CSS:-CSS stands for "Cascading Style Sheet." Cascading style sheets are used to format the layout of Web pages. They can be used to define text styles, table sizes, and other aspects of Web pages that previously could only be defined in a page's HTML. Cascading Style Sheets are an important way to control how our web pages look. CSS controls the fonts, text, colors, backgrounds, margins, and layout[9].

JavaScript:-JavaScript is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages, whose implementations allow client-side script to interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities. Most of the functions and applications that make the Internet indispensable to modern life are coded in some form of JavaScript[11].

PHP:-PHP stands for Hypertext Preprocessor. PHP is **a** server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites. It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server. PHP is faster than other scripting languages, for example, ASP and JSP. PHP can be embedded into HTML[12].

MYSQL:-MySQL is a relational database management system (RDBMS) developed by Oracle that is based on structured query language (SQL)[13]. A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or a place to hold the vast amounts of information in a corporate network. One of the reasons MySQL is the world's most popular open source database is that it provides comprehensive support for every application development need. Within the database, support can be found for stored procedures, triggers, functions, views, cursors, ANSI-standard SQL, and more[14].

Apache2:-HTTPD - Apache2 Web Server. Apache HTTP Server is a free and open-source web server that delivers web content through the internet. The application's development is managed by the Apache Foundation. Its name is actually Apache HTTP Server. It is commonly referred to as Apache and after development, it quickly became the most popular HTTP client on the web. Apache Web Server is designed to create web servers that have the ability to host one or more HTTP-based websites. Notable features include the ability to support multiple programming languages, server-side scripting, an authentication mechanism and database support[15].

3.1.4. Launch and Execution

After the development of our web based application, it is then launched into field.

3.1.5. Performance and Control

The performance of our application should be monitored time and again and check whether it meets the target of our project.

3.2: System design

Once the requirements are collected and analyzed, they must be given a proper structure. In this phase the architecture of the project will be designed based on the requirements collected in the previous phase.

In this phase many architecture diagrams such as ER diagram, DFD (data flow diagram), Use Case are used.

3.2.1: E-R diagram

E-R Diagram stands for Entity Relationship Diagram, also known as ERD is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases. ER diagrams are created based on three basic concepts: entities, attributes and relationships.

ER Diagrams contain different symbols that use rectangles to represent entities, ovals to define attributes and diamond shapes to represent relationships.

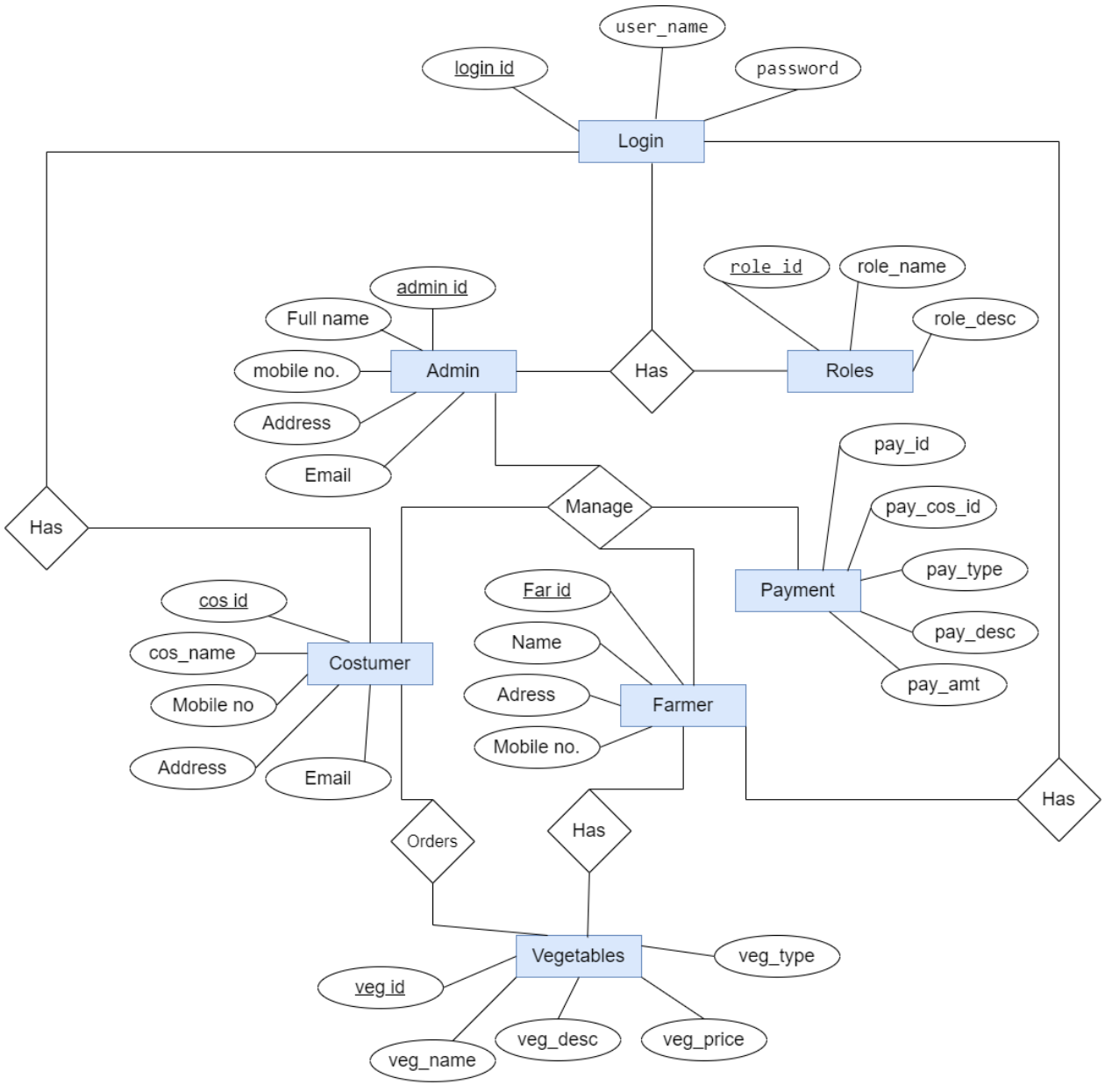

Figure 2: E-R Diagram for Online Vegetable Supply System

3.2.2 DFD (Data Flow Diagram)

A DFD is the graphical representation of the flow of data from one component to another component in any information system. Through DFD, we can give the overview of the system without going into the deep detail of the system. A data flow diagram can dive into progressively more detail by using levels and layers, zeroing in on a particular piece. DFD levels are numbered 0, 1 or 2, and occasionally go to even Level 3 or beyond.

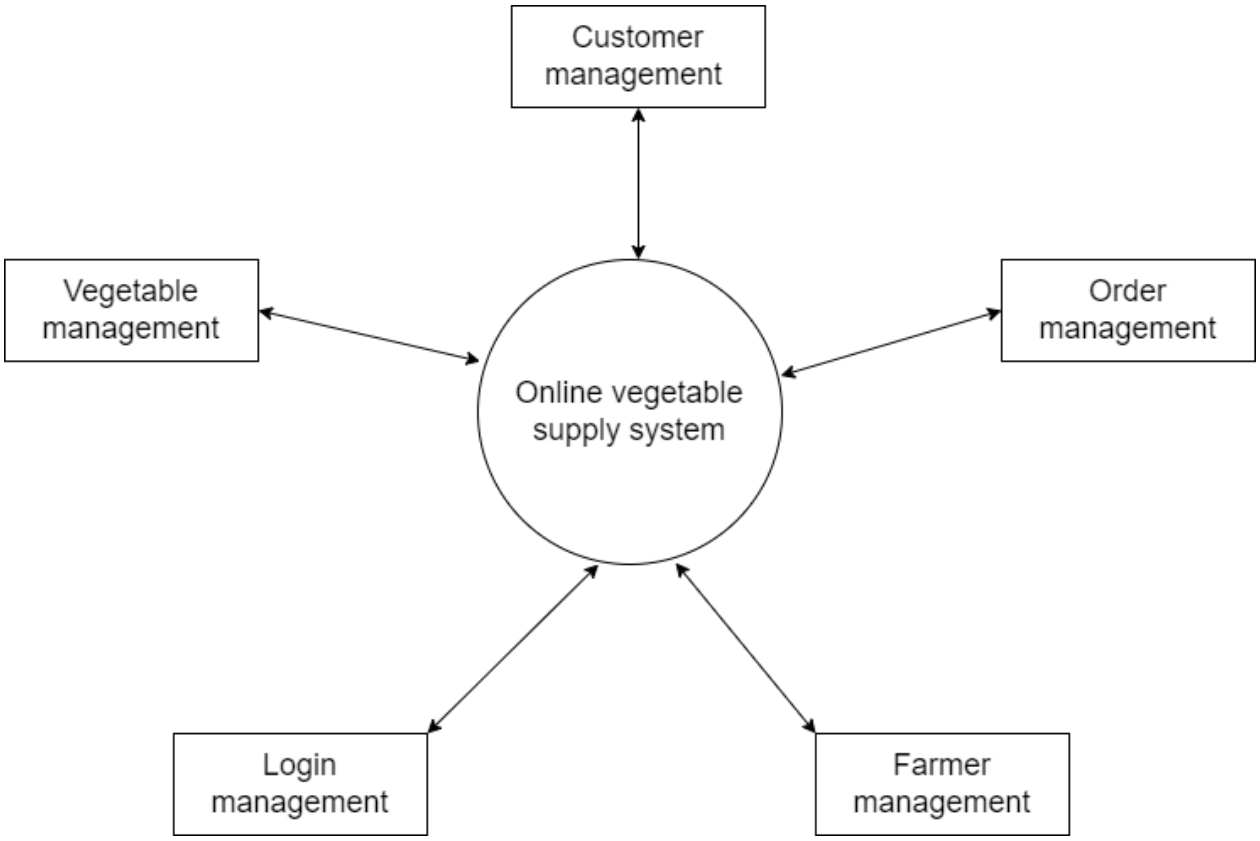

Figure 3: Level 0 Data Flow Diagram

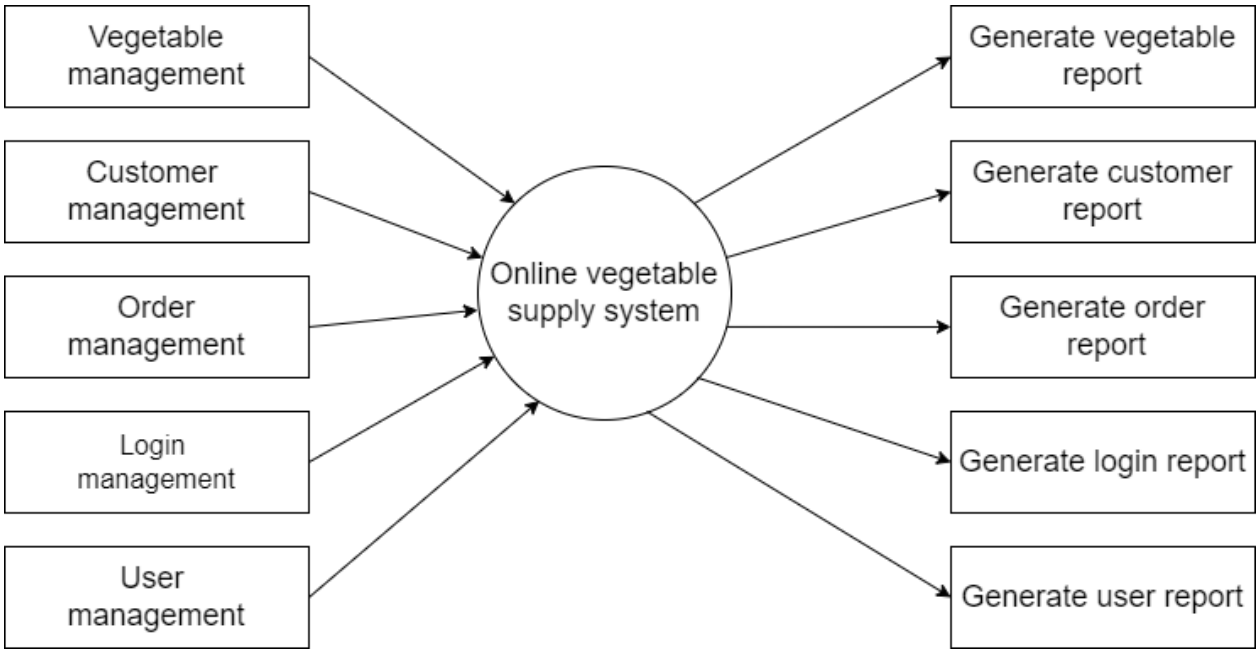

Figure 4: Level 1 Data Flow Diagram

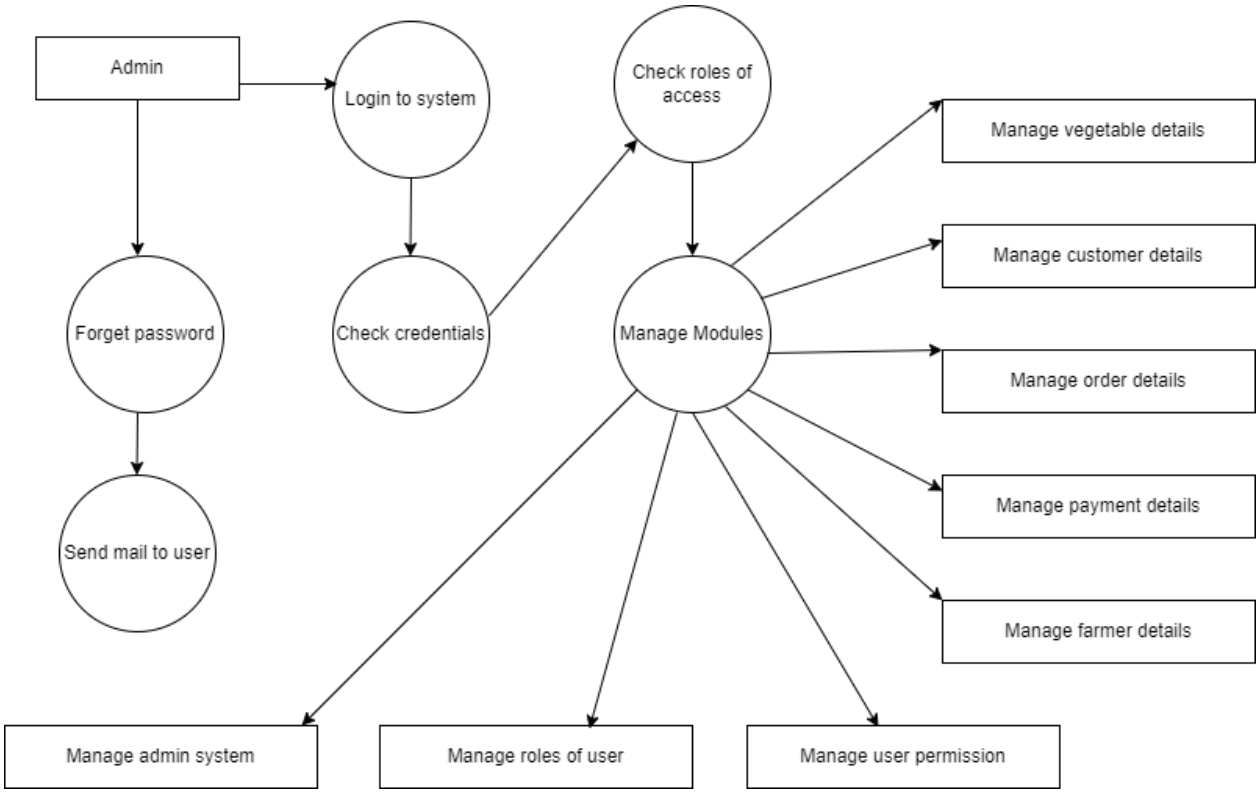

Figure 5: Level 2 Data Flow Diagram

3.2.3: Use case Diagram

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well.

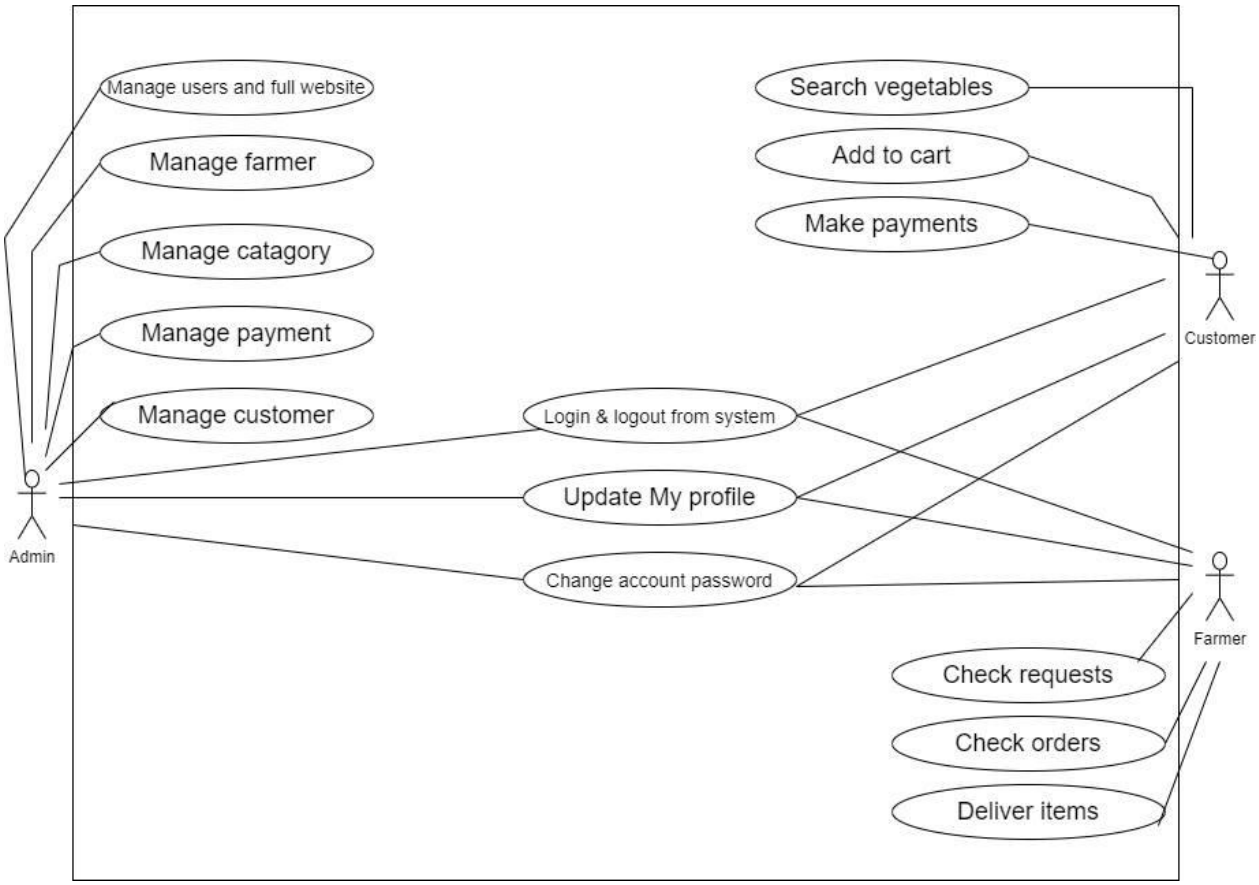

Figure 6: Use case Diagram

3.3: Software and hardware requirement

The hardware required for the development of the project is:

- Processor: Intel(R) Core(TM) i3-10110U CPU @ 2.10GHz 2.59 GHz
- Ram: 8.00 GB
- Hard Disk: 500 GB SSD

The software required for the development of the project is:

- Operating System: Windows 2000 Professional
- Environment: Visual Studio .NET 2002
- Framework: Version 1.0
- Language: Visual Basic
- NET Backend: SQL Server 2000

3.4 Testing and maintenance

Any project before being exposed to the user must be tested to ensure that it behaves as expected. In this project, the application is tested by giving various types of input to check whether they are being validated or not and whether the application behaves as expected or not.

Chapter 4: Time Estimation

Before getting started with any project, we have to prepare a working schedule consisting of several topics that we would be working on throughout the project development phase. For the same reason, the following is the Gantt chart representing our work schedule in a total span of 3 months, i.e., 10 weeks ranging from the phase after proposal defense to final report submission and defense:

Table 1: Gantt chart of the project

S. No.	Activities	Baisakh	Jestha				Ashad				Shrawan
		4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st
1.	Literature review										
2.	Preparation of proposal										
3.	Proposal Defense										
4.	Coding initiation										
5.	Mid-Term Presentation										
6.	Coding Continuation										
7.	Report preparation										
8.	Final defense of project report										

- Baisakh 4th – Jestha 2nd Week: At the very beginning of our project, we took some time for deciding the topic of our project. After deciding what topic we are going to work on, we then started reviewing the various literature (project report, articles, books, journals etc) related to our topic. We also started writing the proposal for our project.

- Jestha 3rd Week: After submitting the proposal of our project we will be defending our proposal on the third week of Jestha.

- Jestha 4th – Ashad 2nd Week: When the 4th week of Jestha is about to start, we will be focusing on coding for our web application. Meanwhile, we will face the mid-term defense on 2nd week of Ashad .

- Ashad 3rd – Ashad 4th Week: We will be continuing our coding activity up to 4th of Ashad, do some final tests and give the final touch to our website.

- Shrawan 1st Week : Finally, at the end of the 10th week, we will complete our final project report and submit it to the respective department.

Chapter 5: Expected outcome

With the completion of our project, we are expecting to have a web based application which will provide a platform to order fresh vegetables online and will be able to connect farmer and customer. With the help of our website, farmers will get their products supplied fresh and conveniently to the door of the customer.

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