**Chapter 2: Analysis**

**2.1 Introduction to analysis:**

Analysis in the process of collecting information about the web-based application and the operation it will do in order to maintain the quality of the product. It starts with a brainstorm idea which will help in the development of the system. It is very important in breaking macro project into small chunks. It provides the basic framework, concept and methods. In this process all the functional and non-functional requirement of projects are made clear.

**2.2 Analysis Methodology:**

Analysis methodology is a way of analyzing the requirement of project. It includes functional requirement, non-functional requirement, and feasibility study. There are many analysis methodology like hard approach, soft approach, combined approach and many more. Among them, I have used soft system methodology for the analysis of the project because it is more people oriented analysis comparing to other approach of analysis. It helps to maintain the proper communication between user and developer which helps to meet the requirements. It facilitates joint problem solving and open discussion of problems. Moreover, it recognizes user interaction is more important than technical consideration. It uses the various techniques during the analysis phase like rich picture, root definition and conceptual model.

**Finding out:** Here, we finds out the problem and their solutions for the development of the system. Interview, Observations, Questionnaire, etc. is done to find the problem and their solution of existing system.

**Interview:**

It is the best way of gathering information. It is a communication in which one party asks the question and another one gives the answer of that question. Here, I have asked some question regarding to the Ningu wines website to owner and had received the information as much as needed.

**Observation:**

Observation is the act of closely observing or monitoring something or someone.

**Rich pictures:**

Rich picture is a drawing that illustrates the elements and relationships between the actor and system. It contains of picture, symbol and icons which helps in graphical representation of system. It illustrates the current situation and helps in better planning of the system.

**Root definition:**

Structured description of a system is root definition. It represent the activities that have been undertaken and provides the clear statement of those activities. It help to clarify the problem statement and processes of the system. It also describes the aims and function of the system.

**Conceptual model:**

Conceptual model is a representation of a system which help users to know and understand the system the model represents. It’s a model of a system that uses concepts and ideas. It gives broad description of representative system. Well document of the system for future situation.

**Comparison between rich picture and conceptual model:**

**2.3 Feasibility study:**

A word feasible refers to state of being easy or reasonable. A feasibility study is an evaluation of project and its analysis or system that somebody has planned. It determine whether the system is technically and financially feasible or not. Simply feasibility study shows how easily and successfully we complete our project. Profitable and unprofitable will also be determine with the help of this study.

**Technical feasibility:**

Technical feasibility in terms of my project is complete study of how the input, output, process overflow. It should support the hardware and software requirement for our project. Suppose I have used **hp** notebook having ram 8 GB, processor 203GHz and graphics of 2 GB to complete my project.

**Social feasibility:**

Social feasibility refers to acceptance of our product by people after the launch of product. It consider whether the product is socially feasible or not. Sometimes the product may cause social issues so we have to take care of that situation and maintain our product regarding to all kind of culture and social issues.

**Legal feasibility:**

Legal feasibility consider the legal and ethical requirements that the product follows or not.

**Economic feasibility:**

It determines the efficiency of project. It is also cost analysis. It provides profits against investments expected from the project.

**2.4 Requirement analysis:**

**2.4.1 Functional requirements:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Title** | **Description** | **Rational** | **Dependence** |
| F001 | Registration | It is a sign up form. User uses it to register their information. | Use to login the system. | F002 |
| F002 | Login | Users uses their username and password to login into the system. | Used to verify the authenticated user before entering the system. | F001 |
| F003 | Booking | It is an act of accommodating something in advance. | Making sure of reservation. | F001, F016 |
| F004 | Add | Adding new products. | To add the new product in website. | F002 |
| F005 | Edit | Changing some information of wines. | Removing or adding some extra details about the products. | F002, F003 |
| F006 | Delete | Removing products. | Removing the products from the list. | F004 |
| F007 | Search | User can find the new products by searching. | To search the wines. | F004 |
| F008 | Checking orders | Admin can check list of orders. | Making easy to check the list. | F002, F016 |
| F009 | View details | Information about the wines is shown. | Users can get the idea about the wines to be chosen. | F002 |
| F010 | Database | Storing data of the system. | To store data of the system. | F001 |
| F011 | Map representation | Geographical representation of the shop where it is located. | To make easier to find the shop for customers. | N/A |
| F012 | Navigation | It shows the direction to shop. | Make easier to find the way to the shop. | F012 |
| F013 | Slider | Helps to changes photos automatically. | To attracts the customers. | N/A |
| F014 | Subscribe | Arrange to receive something. | To get push notification and latest update. | F002 |
| F015 | Authentication | Action of providing or showing something to be true or genuine or valid. | To stop unauthorized access. | F002, Fn001 |
| F016 | Add to cart | Adding products for future use or to buy in future. | To buy product in future. | F002 |
| F017 | Update password | User can update their password for further security. | To make the security more efficient. | F002 |
| F018 | Remove user | To delete the old users. | Free off space and get rid of unwanted information. | F002 |
| F019 | Logout | An act of logging out of any system. | To logout of current system. | F002 |

**2.4.2 Non-functional requirements:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Id** | **Title** | **Description** | **Rational** | **Dependence** |
| Fn001 | Security | Protection from any kind of internal or external threat. | For further protection to the user or system. | F001, F002 |
| Fn002 | Availability | The system should be available for the user. | Must be available anytime from anywhere. | F007, F011, F017 |
| Fn003 | Usability | Easy to use. | Should be easy to use. | F002, F004, F005, F006, F007, F017 |
| Fn004 | Reliability | Delivers reliable data in reliable way. | To make a project reliable. | F001, F002, F004, F005, F007 |
| Fn005 | Maintainability | Changes that occurs in system should be maintained. | System should be maintain properly show that it cannot cause any problem. | Fn006, Fn009 |
| Fn006 | Performance | Performance of should be effective. | Good performance will result in effective development of system. | F004, F005, F006, F007 |
| Fn007 | Interface | The layout of system should be attractive. | Easily accessible for all users. | Fn003, Fn006 |
| Fn008 | Regularity | System should be available regularly. | Regular for all users and should be available at any anytime. | F002, F007, F016 |
| Fn009 | Scalability | System should handle the adding resource. | Continuously run the project when large number of users uses it. | Fn003, Fn004, Fn005 |
| Fn010 | Accuracy | System should provide the accurate information. | To provide the accurate information to the customers. | Fn006 |

**2.4.3 MoSCoW prioritization:**

MoSCoW prioritization is a technique which helps to manage and understand the priorities. It helps developers to understand the requirements of customer and their priority. The MoSCoW prioritization categorized into four letters which are explained below:

**Must have:**

It represent the non-negotiable need for the projects. The minimum requirement of the project which the developer have promised to do must be guaranteed or delivered.

**Should have:**

Here, competitive solution for the project is given but not necessary to deliver it at a time. Without it the project will be good but not the best.

**Could have:**

This prioritization focuses in user desirable requirements that are less important i.e. less impact if left out.

**Would have:**

Here the requirements are prioritized for future use and are not delivered at the time. This will also shows the scope of the project. And the requirements will be considered for future use.

|  |  |  |
| --- | --- | --- |
| **ID** | **Title** | **MoSCoW** |
| F001 | Registration | Must have |
| F002 | Login | Must have |
| F003 | Booking | Should have |
| F004 | Add | Must have |
| F005 | Edit | Should have |
| F006 | Delete | Should have |
| F007 | Search | Should have |
| F008 | Checking orders | Should have |
| F009 | View details | Must have |
| F010 | Database | Must have |
| F011 | Map representation | Should have |
| F012 | Navigation | Won’t have |
| F013 | Slider | Should have |
| F014 | Subscribe | Should have |
| F015 | Authentication | Must have |
| F016 | Add to cart | Must have |
| F017 | Update password | Must have |
| F018 | Remove user | Should have |
| F019 | Logout | Must have |

|  |  |  |
| --- | --- | --- |
| **Id** | **Title** | **MoSCoW** |
| Fn001 | Security | Should have |
| Fn002 | Availability | Must have |
| Fn003 | Usability | Must have |
| Fn004 | Reliability | Must have |
| Fn005 | Maintainability | Must have |
| Fn006 | Performance | Must have |
| Fn007 | Interface | Must have |
| Fn008 | Regularity | Should have |
| Fn009 | Scalability | Must have |
| Fn010 | Accuracy | Must have |

**2.4.4 SRH (Software Hardware Requirements):**

**Software Requirements:**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N.** | **Software** | **Description** | **MoSCoW Priority** |
| 1. | Operating system | Windows 10 Home | Must have |
| 2. | Browser | Feasible to any browser like: Google chrome, Microsoft Edge, Mozilla Firefox, etc. | Must have |
| 3. | IDE for Front-End | Sublime Text | Should have |
| 4. |  |  |  |
| 5. | Database | MySQL | Should have |

**Hardware Requirements:**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N.** | **Hardware** | **Description** | **MoSCoW Priority** |
| 1. | Internet Connection |  | Must have |
| 2. | Device | Laptop, PC, Smartphone | Must have |
| 3. | Resolution | Any resolution is acceptable. | Should have |
| 4. | Server | Apache | Must have |

**2.5 Use-case Diagram:**

**2.6 NLA and Initial Class Diagram:**