Analysis

Introduction to analysis

In simple terms, analysis is the process determining any given situation. In software development, it is the process of determining the requirements, user expectations, predicting risks and collecting data of all possible factors related to a new or an already launched product. It helps in breaking down the project in manageable chunks or parts which helps to understand the problem aspects. It helps in the estimation of time and budget needed for the project which is an essential part of a project success.

<https://www.quora.com/What-is-the-importance-of-analysis-and-design-in-software-engineering>

The importance of performing analysis on my project are:

* It helps in gathering information about the different aspects of tea farmers and manufacturers business. I.e. their way of business operation, rules and regulations.
* It helps to gather information to check the feasibility of the project.
* It helps to understand the problem being faced by the local people easily.
* <https://www.synapseindia.com/6-stages-of-software-development-process/141>
* It enables to understand the requirement of the local people of the area and develop a project that suits both their requirement and knowledge.
* It also facilitates in clarifying the local people on what they think they want from what they actually need.
* This process will also help my project to understand the market areas that are currently involved in the products related to my project.

**Analysis methodology**

The type of analysis technique undertaken for project development is known as analysis methodology. There are several approaches to software development namely soft system approach, hard system approach, combined approach etc. Among these methodologies, I am going to undertake soft system methodologies.

**Soft System Approach**

This methodology is an approach to system modelling for solving general project problems and developing feasible as well as desirable changes based on a differentiated group of people and other factors of social, cultural, ethical kinds etc. It shows that user interaction in any project is of the same importance as the technical considerations. Unlike other methodologies that analyses “how a system should operate”, this methodology provides a soft analysis on ‘what the system should do ‘and ‘how the system should do it.

Susan Gasson, OR/S Group, Warwick Business School October 1994

<http://cci.drexel.edu/faculty/sgasson/Vita/UseOfSSM.pdf>

The process of soft system approach is carried out in several steps.

**Stage 1**

**Finding out problem**

This step includes activities like interviews and observations to try to understand the problem that the project will be solving as deep and as wide as possible.

As a residence of Ilam myself, contacting the local people of my place was an easy tasks and through them the major problems related to the local products of the place were found to be:

* The local products of the place not getting a proper national market.
* Mediators benefitting from the hard work of the local farmers and manufacturers.

**Stage2**

**Expressing the problem situation**

This step of SSM includes tasks of communication of the problem statement and to validate the analyst’s understanding of the situation and representing them using tools like Rich Pictures.

Rich pictures are used for giving an idea of the different factors that the problem influences and relate those factors. The rich picture of the situation is given in the picture below.

**Stage 3**

**Deriving Root Definitions**

Root definition is the process of naming a system, which are short statements that describe the aims and functions of the system to be developed. They are of two types namely

* Primary Task Root Definitions focusing on the process
* Issue-based Root Definitions focusing on the problems.
* **Input-Output Diagrams**

This step of root definitions involves creating possible transformation processes using a single transformation process as much as possible.

Some of the input-output diagrams are shown below.

Farmers selling Farmers selling tea leaves to tea leaves mediators directly to buyer

Success=Farmers get the direct profit from their selling.

Manufacturer manually Manufacturers trading trading products products. Online

Success=manufacturers gets an online and efficient market.

Buyers can’t get Buyers can order ilameli products Ilameli products

Success= People can get Ilameli products

* **Root Definitions**

A root definition has been derived from the list of input-out diagrams given above.

Farmers/manufacturer Buyers can buy post products online products online

Success= Farmers/manufacturers can directly trade with buyers.

**Performing the CATWOE Analysis:**

The type of analysis that focuses on the different elements of a project like **C**ustomer, **A**ctors, **T**ransformation, **W**orldview, **O**wner and **E**nvironment factors is known as **CATWOE.** The following elements were drawn out by undertaking this analysis on the project.

**C**ustomer = Product Buyers

**A**ctors = Farmers and Manufacturers

**T**ransformation= Allow direct trading between buyers and sellers.

**W**orldview=Farmers and manufacturers is benefitted over mediators.

**O**wners=Project Investors

**E**nvironmental constraints=

**Root Definition**

A system owned by……………………………., where tea farmers/ local products manufacturer can directly sell their products to interested buyers without any mediators. With a feature of ordering and booking products between the two parties, the system will allow the sellers to get high benefit and buyers get to enjoy the local products of Ilam.

**Stage 4**

**Deriving Conceptual Models**

A conceptual model can be defined as a set of concepts combined to represent a system so as to make the viewer easily understand the different models of the system. It represents the different activities that the actors need to perform for achieving the designated transformations. By listing different activities and graphically relating them using monitor and feedback activities, a conceptual model is designed. The conceptual model for project is given below.

**Stage 5: Comparing the concept of the system with the actual system**

# Feasibility Study

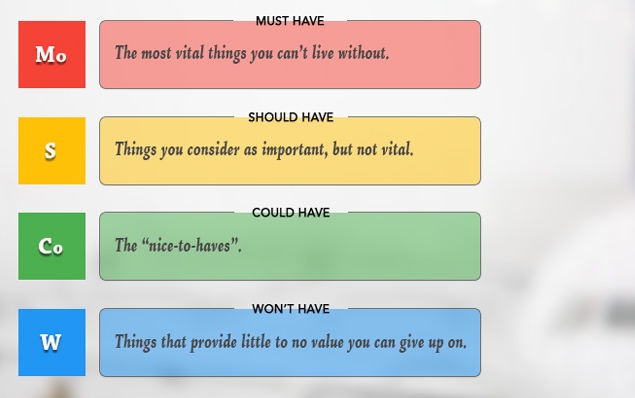
The study undertaken to find out whether or not a project is practically possible in the real world scenario, its probability to success and its ability to do what a project aims for is known as feasibility study. These factors can be determined by understanding the cost, times and benefits related to the project. For a project to be successful, the project should have the ability to achieve its purpose with the benefit always greater than the cost required for the project.

The different feasibility study that I performed in my project are given in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| S.No | Feasibility Study | What does this study finds out? | How it is related to my project. |
| 1 | Schedule Feasibility | Is there enough time to work on the project?  Can the project be completed in given time? | I have created WBS, Gantt charts and milestones for this project. The tasks are performed based on those timelines till now and will also be followed further. |
| 2 | Economic Feasibility or cost-benefit analysis | Is the allocated budget enough to complete the project?  Does the project benefit outweighs the project cost? | The project will have the feature of current location in the future so as to track the buyers address which required GPS tracker and it costs some money. For now it is economically feasible and the benefits that the local people will get from this project will be higher than the costs . |
| 3 | Technical/Resources feasibility | Is the technical requirement for the project available?  Is the knowledge skill required for the project sufficient? | My current technical equipment (i.e. Lenovo Laptop) is sufficient for this project. I too have a good internet connection available. My skills required for the project is good enough and is getting better with time. |
| 4 | Marketing Feasibility | What is the market that is project is targeting for?  Will people want the project after it is developed? | The project will be a beneficial system for the tea farmers and local products manufacturers of Ilam.  By following a good marketing strategy, the project market will cover the whole of Ilam district. |
| 5 | Cultural Feasibility | Will the project result in negative/positive impact to the culture and traditions of its users? | The project is a marketing web based applications that focuses to market the product that the local people grows and manufacture.  It involves those products that people have been consuming for a long time without any barrier from the culture and tradition. |
| 6 | Operational Feasibility | How well the project be able to solve the problems of the targeted people presented? | Since an online information system and market for the local products of Ilam is currently lacking, the project will be highly advantageous to them. |
| 7 | Ethical Feasibility | Is the project ethically acceptable by the users? | The focus of the project is to help the farmers and local manufacturers by eliminating the mediators between them. It is ethically acceptable by the targeted people and maybe unacceptable by the mediators. |
| 8 | Comprehensive Feasibility | How does the project impact on different factors like, cultural, ethical, marketing etc.? | Feasibility tests for these factors are performed above. |

**MoSCoW Prioritization**

Commonly referred as MoSCoW method, it is the technique for prioritizing requirements of a system. The level of priority for a system are Must Have, Should Have, Could Have and Won’t Have. This method determines what requirements are compulsory, optional and what a system will not have. This method is also applicable in our life represented by the figure below.



The different level of priorities suggests the following meanings.

* **M**ust Have: Any requirements that needs to be in the system and plays to vital role for achieving the aims of the project.
* **S**hould Have: Any requirements that also has high priority if included. These requirements are likely to be added within the time frame of the project.
* **C**ould Have: Any requirements which doesn’t need to be included but if possible can be added to make the system nicer.
* **W**on’t Have: Any requirements that is not added in the current version of the system but can be considered in future versions.

This analysis is conducted in my project because of the following reasons.

* It helps to identify key requirements of my project.
* It helps to discard any aspects that my project doesn’t require right now.
* It helps to predict future aspects of my project.

The table below shows the prioritization of different functional requirements of my project.

|  |  |  |  |
| --- | --- | --- | --- |
| S.No | Functional Requirements | Priority | Reasons based on project. |
| 1 | Registration | **M**ust Have | Since the project is based on online marketing and revolves around customer and seller details, these aspects are required to gather those details. |
|  | Login |
|  | Edit Profile | **M**ust Have | Personal details can change from time to time and does not remain constant. |
|  | Delete account | **S**hould Have | If users feels like deleting their account to use a new account but can also do that by registering for a new account. |
|  | Online Payment | **S**hould Have | The project is based on online product marketing and should have this feature but does not to be a key requirement since cash on delivery disregards this requirement. |
|  | Messaging | **S**hould Have | This could make trading more reliable |
|  | Online Location Tracker | **C**ould Have | This feature makes deliveries more efficient, but the project can also perform without this. |
|  | Community Forum | **S**hould Have | The users community has to have a place to share their opinions. |
|  | Adding New Products | **M**ust Have | Sellers and buyers need to perform trading in the project, that can only be performed by keeping products for sale and buying it. |
|  | Order Now |
|  | Removing Products | **S**hould Have | Some added products might not be available since the project deals with products that doesn’t have longer sustainability. |
|  | Posting Query | **S**hould Have | Users will have efficiency in buying products. |
|  | Product Rating |
|  | Online Booking | **S**hould Have | This can allow ordering products which are not yet currently in the system. |
|  | Logout | **M**ust Have | Users has to be secure of their accounts at any cost in an online marketing platform. |

The table below shows the prioritization of different non-functional requirements of my project.

|  |  |  |  |
| --- | --- | --- | --- |
| S.no | Non-Functional Requirements | Priority | Reasons based on project |
|  | Security | **M**ust Have | The project deals with user transactions which needs to be secured. |
|  | Performance | **M’**ust Have | Project performance need to be at peak to provide service to more users. |
|  | Legal Clearance | **M**ust Have | The project must be legally accepted by the rules and regulations of the country and its people. |
|  | Documentation | **S**hould Have | It can be helpful but does not have to be compulsory. |
|  | Maintainability | **S**hould Have | Every project will always have bugs, errors and non-functioning features. |
|  | Expandability | **W**on’t Have | The project is based on Ilam for now but can also be expanded in the future. |
|  | Capacity | **M**ust Have | The project deals with large number of data. |

**System Requirement Specification**

A system Requirement Specification is a set of documents details the features and functionality of a system to be developed.

**Use Case Diagram**

A use case diagram is a diagrammatic representation of the different entities of a system. It clarifies the role of different external parties on the functionality of the system commonly called actors. It is made to show the relationship of the external entities with the different aspects of the system shown in different use cases.

The advantage of creating this diagram on my project are as follows.

* It is an easy and understandable method of representing a system to the local people since it doesn’t have any technicality.
* Use cases evolve with each iteration and change in requirements can be traced easily.
* It helps to identify the role of different entities like farmers and manufacturers, customers and admin in a clear way.
* It shows the relationship of these entities with different functionalities.

The use case diagram of my project is given below.