



An Undergraduate Project on AStar

By

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September 07, 2021

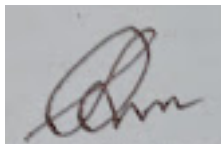
Dissertation submitted in partial fulfillment for the degree of Bachelor of
Science in Computer Science

Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

This is to authenticate that the report titled "A Star" based on e-commerce for two tea products and dealership was completed by Badhon Rahman (1820014) presented in partial completion of the requirements for a Bachelor's degree In Computer Science and Engineering from Independent University Bangladesh (IUB). It was completed under the supervision of Md. Asif Bin Khaled (Internship Supervisor). I also verify that all of my work is genuine and has never previously been presented to this university or any other university. All and every data sources utilized in the project report have been properly acknowledged.



September 07, 2021

Signature

Date

Badhon Rahman

Name

Acknowledgement

I am utilizing this opportunity to convey my gratitude and appreciation to everybody who assisted and aided me throughout the internship period. I am grateful for their invaluable constructive criticism, kind counsel, and beneficial guidance during the internship. I am sincerely indebted to all of them for sharing their honest and enlightening perspectives on a variety of topics connected to the course.

I am grateful to **Independent University, Bangladesh (IUB)** for offering me this course and I would want to convey my appreciation to my faculty and internship supervisor, **Md. Asif Bin Khaled**. I want to offer my extraordinary thanks and gratitude to the **Beatnik Technology** development team for giving me such consideration and time and directing through the internship.

I want to stretch out my earnest gratitude to him. I am profoundly obligated to **Independent University, Bangladesh (IUB)** for their direction and consistent supervision just as for giving important data with respect to the course.

I also want to thank my parents for who have not only supported me financially but have always believed in me and always motivated me to accomplish the things that I achieved.

Letter of Transmittal

07 September,2021

Md. Asif Bin Khaled

School of Computer Science and Engineering

Independent University, Bangladesh.

Subject: Submission of Internship Report.

Dear Sir,

It gives me tremendous joy to present my internship report on **Beatnik Technology Limited's** Internship. In this report, I aimed to narrate my project's efforts, accomplishments, and experiences. All of my works that introduced here have been completed with the utmost sincerity and honesty.

During my internship, I worked for three months at **Beatnik Technology Limited**, where I not only got real-world experience but also developed a better understanding of the department's processes and numerous elements. This report contains a comprehensive overview of the office as well as the duties of the department. I performed all of the project tasks which I completed during my internship period, including their requirements, features, and technological requirements, as a record of my efforts throughout the internship.

I pray and hope that you will find this report fascinating and that it will meet your expectations. I have given my all to prevent any flaws, and I am hoping that my report will live up to your expectations. I would also want to convey my sincere appreciation for allowing me to submit this report.

Sincerely,

Badhon Rahman

ID - 1820014

Evaluation Committee

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Signature

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Name

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Supervisor

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Internal Examiner

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External Examiner

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Convener

Abstract

I started my internship at **Beatnik Technology Limited** on 5th July, 2021 as a Business Development Executive. My internship was to develop an e-commerce website AStar for two tea products and dealership for customers.

First and foremost the UI/UX, the major goal of this was brainstorming to come up with designs for the entire system. Secondly, the front-end, to design the site first together with it's functionalities such as account creation and login system , messenger integration , Google map integration. As per requirement, the web application is anticipated to communicate with the web server. The design of the web application was done using Figma and also from hand drawn designs.

Lastly the back-end, as per requirement all the data should be stored on the database. The data collection method of the web application is completed by **php** and **MySQL** functions in the **HTML** page. The data collection and data processing is handled through **SQL** queries which helps to send data from phpMyadmin database to the web browser.

My main task AStar project and report was to make the whole web application dynamic. Everything was done to aid users so that they can avail the facilities easily.

Keywords— HTML, MySQL, JavaScript

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Chapter 1

Introduction

1.1 Background of the Work

I started my internship program under the guidance of Beatnik Technology on 5Th July, 2021 as a Junior Business Development Executive. As the name suggests, Beatnik is a company that delivers a range of technological services.

- UX/UI Design
- Mobile App Development
- Website Development
- Ecommerce Website Design and Development
- Software Development
- Search Engine Optimization
- Augmented Reality and Virtual Reality (AR-VR)
- Domain and Hosting registration

In this program, Mr. Anayet Ullah Siddique is my supervisor. He is the Chief Technology Officer of Beatnik Technology. He helps me to understand my different work and assigns me work daily. Everyday there is a meeting with the IT members regarding the different projects. I am getting a whole overview how to handle a project professionally. In that mean time, I will also learn Web designing and developing, Digital marketing, Search engine optimization , Website maintenance and reporting etc.

1.2 Objectives

During my internship period, Beatnik Technology gave me a project to solve. A star is the name of the project they asked me to solve. It is an existing project of Beatnik. A star is an e-Commerce website. Tea products and dealerships are sold on this website. A star has their own factory situated in Ammtoli Plantation Limited, Bahubal, Habiganj and their main office on 11, Road:20, Sector:4, Uttara, Dhaka. In A star there are two kinds of tea products. One is A star Silver tea and another one is A star Gold tea. All of them were made are hundred percent natural and pure because their products are made from their own Ammtoli Tea Garden in Habiganj. People can also buy dealerships from their website. If anyone wants to buy dealership from A star then they have to fill up the form on their website. After applying for dealership management of A star will select and contact them according to their information given in the form.

But now client renewed the contract and wants us to make a new model of their existing website with some extra features added to it. They are:

1. Account creation and login system
2. Connecting messenger
3. Google map Integration

Now I have to make a demo from the scratch of that model all these features included to it.

On their website, people can not create any account now. Old and new both customers are treated like same and have to go through the same procedure. That is why client was asking for account creation and login system on their website. A star started their business on Facebook. A lots of customers of A star comes from Facebook. Unfortunately, their Facebook messenger is not connected with their website. They want to link their Facebook page with their website so that they don't lose any client. Moreover, the map was not integrated on their website. Just a picture of the google map is available on their website. At this moment they want to integrate google maps on their website to navigate their customers properly.

1.3 Scopes

During the pandemic of COVID-19, everything is going online. The whole world faced a lockdown. Educational institutes, banks, offices etc all were closed for a long time. Therefore, everyone tried to digitize their business so that everyone can do their daily need and work from staying at home. Everyone trying to go online to keep their business alive and also make sure they do not become outdated. This is where the work from home started. At present students are doing their class online and people are doing their work from home online. A huge amount of people in the World moved online to keep up with everything so did the Bangladeshi people.

At present it is the perfect time for digitization as a result A star will be very benefited and in the long run, they will be able to create more revenue.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

The Name of my project I am doing during my internship is A star. This project is an e-Commerce website for tea products and dealerships. This is an existing project, I have to make a new model of this project with some new extra features added to it. Since it is an existing project and making new one as the client's requirements, I am using Agile project management methodology for this web development.

I am a computer science student with Computer Science and Engineering major and Management Information System minor. Since i am doing a web development project, it is related with my undergraduate studies in different ways. First of all, I have learned how to do Six System Analysis, Problem Analysis and draw Rich Picture of a project from my course Database Management(CSE303). Secondly, acquired how to generate Functional and non-Functional requirements of a project and draw UML diagram from System Analysis and Design(CSE307). After that, the main backend work which I have learned from Web Applications and Internet(CSE309). Topics such as HTML,JavaScript,MongoDB were covered in this course. Lastly, from my minor course E-commerce Web App.(MIS465) I came to know about Digital Marketing and Introduction to Management Science(MGT340) taught me about Feasibility Analysis with Effect and Constraints Analysis.

2.2 Related works

Finlay Tea and Tetley Tea are also available in the market. Both of them also sell tea products in Bangladesh. But they don't have any e-commerce website so that their customers can place order or get dealership for any of their products. Their website only shows the products that are available in the market for sell nothing else.

A project called Light Castle BD is available in Bangladesh that retails dealerships. They

mainly focusing on automotive industry of Bangladesh. Number of registered motor vehicle is increasing day by day. Bangladesh also imports motor vehicles from various country such as Japan, India, South Korea, China etc. Due to the sharp rise in the registered motorized vehicles in recent years automobile business is blooming. Eighty percent of the total number are motorcycles. After that private car passengers has five percent. Each and every automotive parts include engine, alternator, radiator etc which are also imported from Thailand, China, Taiwan, Indonesia. For that reason, Light Castle BD tried to enter business with dealerships in the industry of automotive in Bangladesh.

Another dealership project available of BSRM group in Bangladesh. They mainly manufacture steel and one of the leading company in Bangladesh. They solely produce steel products for buildings national landmarks and infrastructures. Three corners Strength, Safety and Sustainability are the center of attention for this company. Their logo also symbolize unbreakable strength and infinite sustainability. They brought evolution in steel products and brought the first EMF tested rod in the UK passed a 5 million cycle loading fatigue test. The steel and group of BSRM were also used to construct the Padma Bridge, Rooppur Nuclear Power Plant, Hatirjheel Project, and other structures. Now BSRM offers dealership facility for their products and services.

Ammtoli Plantation Limited is one of the oldest company in tea industry in Bangladesh. Everyone associated in this industry are producing and selling tea in the old fashioned way. So Ammtoli Plantation Limited thought how they can deliver the same service but in a different way so that they can serve their customers better. In the year of 2019 when the online purchasing business was blooming, they also decided to launch their very own website so that their customers can directly order their products and apply dealerships easily. This is how AStar started it's online journey. But they launched their website but it was only a one page static website. Now they want to make their website more functional and dynamic in 2021.

In tea market, Telley Tea and Finlay Tea could be a competitor for A Star. Since, both of these tea companies doesn't have any e-commerce website for their products or to get their dealership. In dealership market, Light Castle BD and BSRM group is available in the market to compete with us. But their products are different. Light Castle BD imports different automobile parts and BSRM group mainly focus on components of building such as rod and steel. Since our product is different than them, there will no such competition in the market with them.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

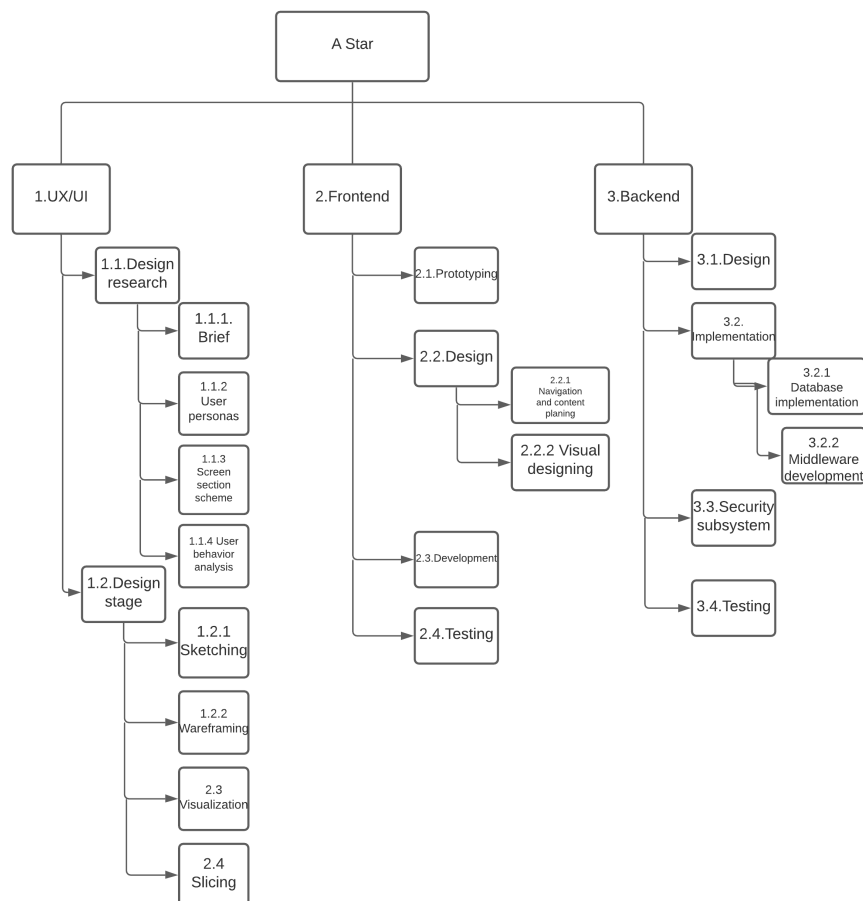


Figure 3.1: Work Breakdown Structure of A star

Work breakdown structure is a kind of project management and systems engineering. Work breakdown structure helps to breakdown the deliverable items into smaller components so that everyone can understand the project clearly. Since this structure creates small sections it helps

to organize team's work.

In my project called A Star, we also have a work breakdown structure to manage my work simply. There are three sections of A Star in the structure. Three of them are UX/UI, Front-end, and Back-end. These three sections are briefly explained below.

UI/UX is the first section of A Star and has two subsections on it. First of all, on UI/UX we started with design research. This subsection also has some segments such as briefing, user personas, screen section scheme, and user behavior analysis. My supervisor Mr. Anayet Ullah Siddique gave me a proper explanation about the project and provided me ideas that I need to work on. After that, he gave me a scheme of user personas of this project. I noted down those goals and characteristics to develop the project accordingly. Environment, behavior pattern, attitudes etc were involved in this section. Later, to design different screens we developed schemes for each and every page. On the last segment of design research I did user behavior analysis for the security. I tried to measure security incidents of this project.

Design stage is the second subsection of UX/UI. Sketching, wire-framing, visualization, and slicing are the segments of this subsection. While designing I hand drawn designs of each and every page and communicated with our clients to check if they are happy or not. With our sketch we proposed them and explore all the areas to refine the project. In wire-framing part we tried to bring out the overviews of product interactions. With those overviews, I initiated the structure which contains solutions of design flow. Visualization is the segment where we focused on how to increase the user experience. It is one of the most vital factors. We visualized the data sets so that users can easily interpret the information and content available. There was complex information and we broke it down to configure a simple and easy interface for the user. Lastly, in the slicing segment we cut up and divide one single user interface into multiple image files. All these smaller images helped us to increase the user experience.

On the second section, we have Front-end in the work breakdown structure. Four sections are there in Front-end and they are prototyping, design, development, and testing. Starting with prototyping, we tried to simulate the final look of the project. Before going into main work making a simulation sample will help me to find flaws and functions before investing time into it. In the subsection of design there are two segments. One is navigation and content planning another one is visual designing.

Navigation structure plays an essential role of a website development. I made a sitemap of the website to assemble various features to guide visitors. Moreover, in our project we scheme to use two types of content, front-end and back-end. Visual designing is the segment where I tried to enhance products design, layout, color with suitable images.

In the development phase, I will emerge into the project for the graphical user interface. I

will complete this phase with the help of HTML, CSS, JavaScript, php etc. Last subsection is testing, where I will trial and check everything was built. Functionality and usability will be assessed according to the forms, button, menu available in the project.

The last and final section of A Star is Back-end. Here four sections are present. Design, implementation, security subsystem and testing. At first, I will do the designing of the back-end portion. I will HTML, Php, jQuery, SQL to solve this subsection. In implementation we have to develop the database for this website. Products, user details and dealership information will be stored on the database. Middle-ware development accelerates application's development by facilitating connection between content and data resources. Since all the information of users will be stored security and authentication will be done for everyone. After implementing all I will do the testing of the whole project. While testing I will overlook the required functionalities and data sets to crosscheck everything.

3.2 Activity wise Time Distribution

The activity time distribution chart of AStar is given below:

Project Title	A Star	
ACTIVITY	IMMEDIATE PREDECESSOR	DURATION(WEEKS)
A. UX/UI Design Research		2
B. UX/UI Designing Stage	B	1
C. Frontend Prototyping	B	1
D. Frontend Design	B,C	1
E. Frontend Development and Testing	D	2
F. Backend Design		2
G. Backend Implementation and Testing	F	3

Figure 3.2: Activity Time Distribution Chart

Project Title	A Star	
ACTIVITY	IMMEDIATE PREDECESSOR	DURATION(WEEKS)
A. UX/UI Design Research		2
B. UX/UI Designing Stage	B	1
C. Frontend Prototyping	B	1
D. Frontend Design	B,C	1
E. Frontend Development and Testing	D	2
F. Backend Design		2
G. Backend Implementation and Testing	F	3

Table 3.1: Activity Time Distribution Char

3.3 Gantt Chart

Since I have three sections of A Star project in Work Breakdown Structure, I have made the chart accordingly. For UX/UI three weeks in total are allocated. First two weeks for the designing research and another one week for designing stage. After that four weeks will be needed for the front-end section. Prototyping and designing both will take one week each. Last two weeks of front-end is assigned for development and testing. Lastly, the back-end section will need five weeks in total to develop. Designing will be allotted two weeks and the last three weeks of the project will be granted for implementation and testing of the project.

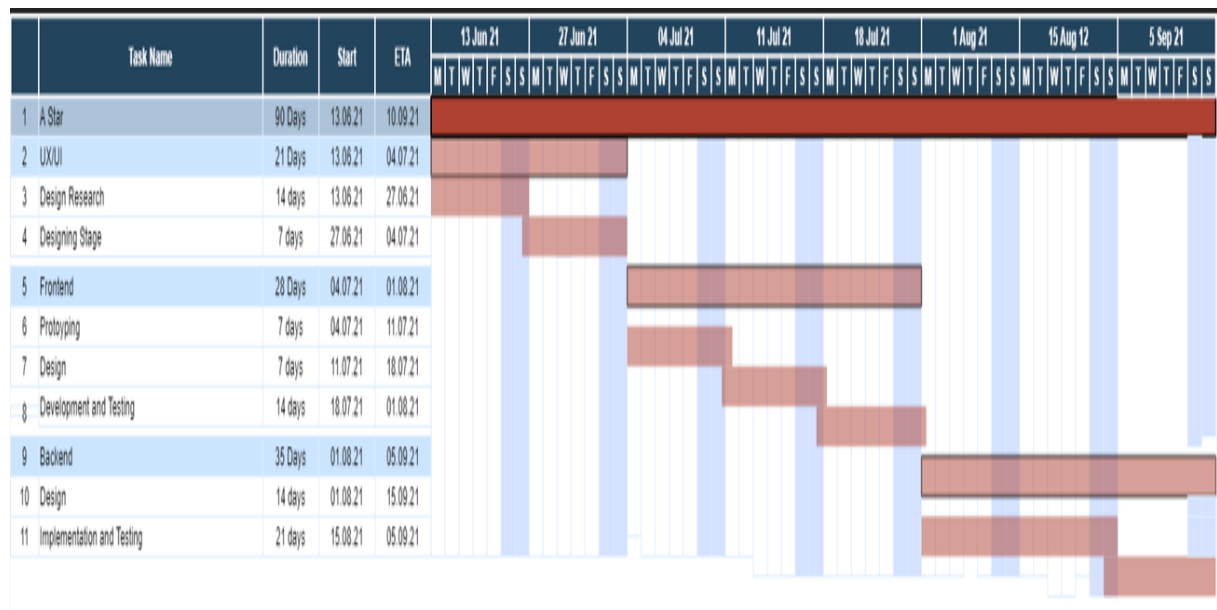


Figure 3.3: Gantt Chart of A Star

3.4 Activity wise Resource Allocation

Among three sections resource allocation wise hundred percent will be provided for both subsections design research and designing stage in UX/UI section. In the Front-end section eighty percent of the resources will be allocated for the first subsection prototyping. Designing process will be issued hundred percent of the allocated resource and the last activity will receive seventy percent. At last in the Back-end section, both of the processes will be supplied seventy percent of the resource.

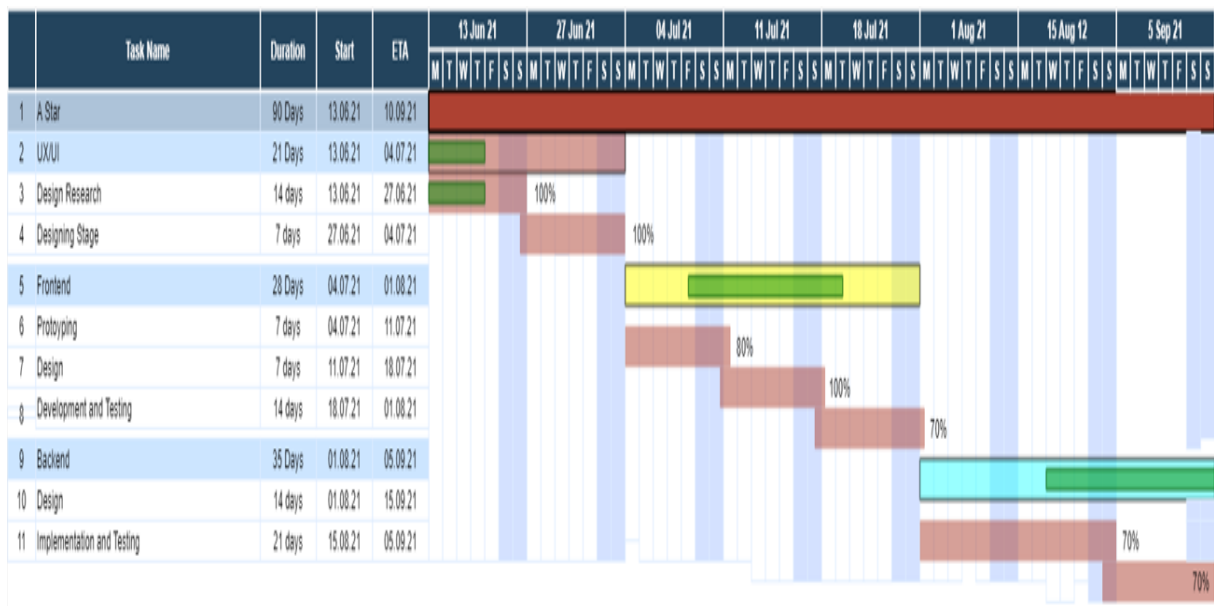


Figure 3.4: Gantt Chart of A Star Resource Allocation wise

3.5 Estimated Costing

This is a project of Ammtoli Plantation Limited called A Star. Costing of this full project is broken into three sections. UX/UI, Front-end Design and, Back-end. Costing of UX/UI is thirty thousand. Costing for Frond-end design and Back-end is forty thousand and seventy thousand respectively.

Beatnik Technology Limited
 House No106, Park Road, DOHS Mohakhali
 Dhaka, Bangladesh 1206
 Office Phone: +88 09696446547, 01316100183
 Finance Department: +8801717037037



Date	14 June 2021
Client Name	Ammtoli Production Limited
Project Title	A Star
Quotation No	
Valid Till	10 September 2021

Cost of Full Project

Sl. No.	Description	Amount (BDT)
1	UX/UI	30,000.00
2	Frontend Design	40,000.00
3	Backend	70,000.00
	Total	140,000.00
	Grand Total + VAT (5%)	147,000.00
In Words: Taka One Lac Forty Seven Thousand only		

THANK YOU!

Figure 3.5: Estimated Costing Chart of A Star

Table 3.2: Estimated Costing Chart of A Star

Beatnik Technology Limited House No106, Park Road, DOHS Mohakhali Dhaka, Bangladesh 1206 Office Phone: +88 09696446547, 01316100183 Finance Department: +8801717037037		
Date	14 June 2021	
Client Name	Ammtoli Plantation Limited	
Project Title	A Star	
Quotation No		
Valid Till	10 September 2021	
Cost of Full Project		
Sl. No.	Description	Amount (BDT)
1	UX/UI	30,000.00
2	Frontend Design	40,000.00
3	Backend	70,000.00
	Total	140,000.00
	Grand Total + VAT (5%)	147,000.00
In Words: Taka One Lac Forty Seven Thousand only		
Thank you!		

Chapter 4

Methodology

Agile is a method that is openness to change and an iterative approach towards development. Anytime my client's requirement can change so I have to accordingly to keep them satisfied. Agile has a set of values and principles circled a rapid and continuous delivery for a short period time. That also enables continuous development process and values customers feedback. It is a better choice for ongoing projects for my project is existing one, from my point of view Agile will be the best option for me.[1]

Agile has 4 values and 12 principles that make that project management methodology so beneficial and customer satisfaction focused. The core values of the agile method are given below.

1. Processes and tools are dependable on individual and team interactions
2. Working software on top of comprehensive documentation
3. Contract negotiation with customer collaboration
4. Responsiveness to change over change or edit in the following plan

Twelve principles of agile method are given below.

- Satisfying the customer is our highest priority through continuous and early delivery of the valuable software.
- Welcome and accommodate the evolving requirements, also in late development. Agile process give customer's competitive advantage to change their requirements.
- With a shorter timescale deliver functioning software routinely like within a couple of weeks or a couple of months.
- Business stakeholders and developers should work together daily while the development of the project.
- Build projects with motivated individuals around.Trust them and provide the needed environment and support.

- Face-to-face conversation is a must to get information efficiently and effectively during development for the team.
- Progress is primary measured by working software.
- Agile techniques enable for long-term growth. That is why sponsors, developers, and customers should all be able to keep up with each other.
- Continuous observation to technical features and satisfactory design amplify agility.
- Simplicity must be kept while developing to reach its sole purpose.
- The greatest architectures, needs, and designs come from self-organizing teams.
- The team should review regularly on how to become more effective.

[2]

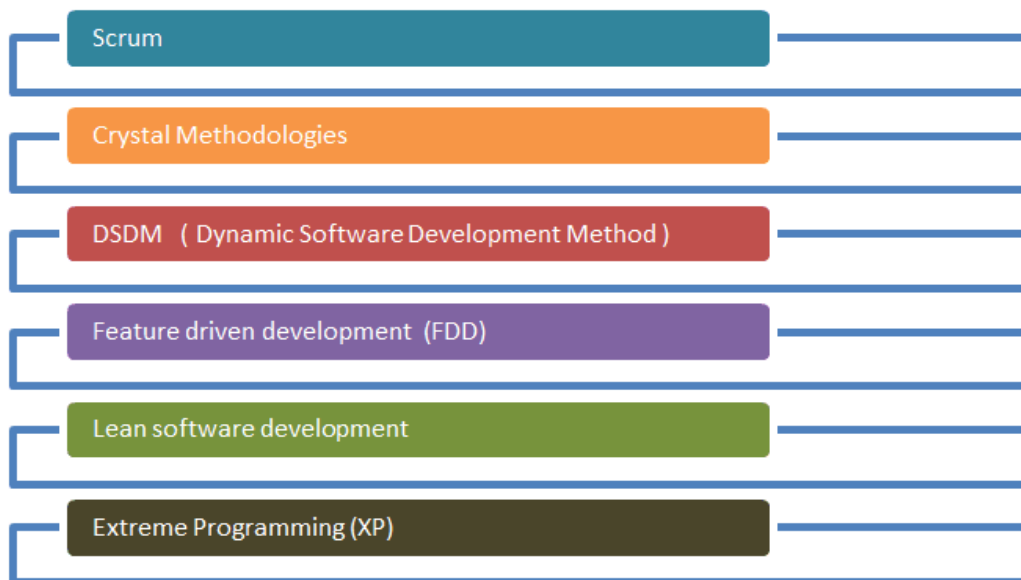


Figure 4.1: Agile Process Model

The world is changing at a fast rate so is the marketplace. Feedback from client also changes to keep up with the revolutionary digital era. Frequent increment allows the development team to gather information and change and integrate it according to clients. In agile methodology, human interactions and collaborating with clients is more important. Each and every development team share their unique vision and bring the best for the working project with their own quality, usability, and completeness. Teams can find this agile process problematic at the beginning. But the leader knows the convenience they will receive from agile to meet management's expectations.

Lastly, the agile project management methodology will also give me the opportunity to think and interact gradually. Responsive to change, cyclic phases, continuous delivery, and consistent review these facilities will assist me to build the project according to my client's requirements

and achieve user satisfaction.

Agile methodology is followed to complete my project AStar. To maintain the chaining requirements of the client agile is the best option available for us. Beatnik always keeps communication with their clients. So I also followed the same method. A whats-app group was opened to inform the client about any updates. In this group, I informed them part by part after completing a task and asked them about their feedback. I worked on their feedback, tried to solve and implement them later in the project accordingly.

Chapter 5

Body of the Project

5.1 Work Description

A Star is the name of the project Beatnik want me to solve during my internship. A star is an e-Commerce website. Tea products and dealerships are sold on this website. There will be 3 pages on my project. One is the home page, where all the necessary information is shown. Product page for their listed products that are on sale. In A star there are two kinds of tea products. One is A star Silver tea and another one is A star Gold tea. All of them were made are hundred percent natural and pure because their products are made from their own Ammtoli Tea Garden in Habigang. The last page is dealership application page. People can also buy dealerships from their website. If anyone wants to buy a dealership from A star then they have to fill up the form on their website. After applying for dealership management of A star will select and contact them according to their information given in the form.

Now, I have to make a new model of their existing website with some extra features added to it. They are:

1. Account creation and login system
2. Connecting messenger
3. Google map Integration

Now I have to make a demo from the scratch of that model with all these features included in it. On their website, people can not create an account now. Old and new both customers are treated like same and have to go through the same procedure. That is why the client was asking for account creation and login system on their website. A star started their business on Facebook. A lot of customers of A star come from Facebook. Unfortunately, their Facebook messenger is not connected with their website. They want to link their Facebook page with their website so that they don't lose any client. Moreover, the map was not integrated on their website. Just a picture of the google map is available on their website. At this moment they want to integrate google maps on their website to navigate their customers properly. Lastly, I am planning to use HTML, CSS, JavaScript, jQuery, php, SQL, etc to complete my project.

5.1.1 Six System Analysis

5.1.2 Six System AS IS

Six System Analysis as is:

Table 5.1: Six System Analysis as is of AStar

Process	System Roles					
	Human	Non-Computing Hardware	Computing Hardware	Software	Database	Network & Communication
Dealership Data Entry	Business owners: 1. Fill up the application form in online system. 2. Send dealership request to A Star.	Pen & Papers	Computer	A Star 1. A Star will receive the information. 2. A Star will save the updated data.	A Star is integrated with MS SQL Server.	All related data are searched through the internet and email service.
Data Verify/Validate	A Star Application Maker: 1. They will view the data 2. Prepare the application from data receive.	N/A	Computer	Microsoft Word	N/A	All related data are searched through the internet and email service.
Dealership Application Analysis	A Star Application Maker: 1. Select a template. 2. Select report contents and generate report. Admin: 1. Review application 2. Confirm new dealership.	Pen and Papers	Computer	Microsoft Excel	N/A	N/A

5.1.3 Six System to be of AStar

Six System Analysis to be:

Table 5.2: Six System Analysis to be of AStar

Process	System Roles					
	Human	Non-Computing Hardware	Computing Hardware	Software	Database	Network & Communication
Basic Data Entry	A Star user: 1. Sign up A Star admin: 1. Login 2. Update products. Business owners: 1. Login 2. Fill up the application form in online system and send request.	Pen & Papers	Computer	A Star 1. A Star will receive the information. 2. A Star will store the uploaded data.	A Star is integrated with MS SQL Server.	All related data are received from internet.
Data Verify/Validate	A Star User: 1. Login 2. They can view the orders. 2. Submit or view the application from.	N/A	Computer	A Star 1. A Star will do the authentication of a user. 2. Will show orders or application according to user.	A Star is integrated with MS SQL Server.	All related data are viewed from internet and database.
Generate and confirm Dealership	A Star Admin: 1. Select application form and generate them. 2. Review applications 3. Confirm new dealership.	Pen and Papers	Computer	Microsoft Excel, PDF.	A Star is integrated with MS SQL Server.	All related data are viewed from internet, email service and database.

5.1.4 Feasibility Analysis

A feasibility study seeks to objectively and logically identify the strengths and weaknesses of a current firm or planned enterprise, as well as the possibilities and dangers that exist in the project's atmosphere, the resources required to complete it, and the chance of success. The two most fundamental variables for assessing feasibility are the required cost and the expected value. Feasibility is the process of analyzing and evaluating a proposed project to see if it is:

- Technically viable
- Cost-effective
- Lucrative

Technical feasibility is determined by examining an outline design of system requirements to see if the firm has the technical capability to complete the project. The following points should be considered while drafting a feasibility study.

The goal of the technical feasibility evaluation is to learn about the organization's current technological resources and how well they fit the proposed system's requirements. It's a test of the hardware and software to see how well it fits the requirements of the planned system. Location, layout, equipment, process etc in depth parameters are followed.

5.1.5 Problem Solution Analysis

Usually, funded initiatives are suggested to address and solve recognized issues. As a result, problem analysis entails identifying the overarching issue and determining the sources and repercussions of that issue. This study will make sure that the "underlying causes" of the problem, not simply the symptoms, are recognized and addressed in the project design. Projects that simply treat the symptoms of a problem rather than the underlying causes are unlikely to yield long-term results. The "issue tree" is a useful tool for identifying your project's overarching problem and its fundamental causes. Following these instructions, I built the tree.

1. Determine the major issues and make a list of them.
2. Determine the major issue.
3. Determine the source and impact
4. Examine the rationale

Process Name	Stakeholders	Concerns (Problems)	Analysis(Reason of the Problem)	Proposed Solution
Basic Data Entry	A Star User	There is no account system for users to maintain personal id and orders.	There is no account creation and login option.	Signup and login options for users. Everything is connected and stored in the server database.
Verify / Validate User, Order and dealership application	A Star User	Functions are limited with no login and place order option and interface is not user-friendly for applying dealership.	Manual validation for dealership is hard work and its time consuming. No track of any user.	User logging in system for everyone. Data can be validated using proper forms.
Store, generate and confirm Dealership	A Star Admin	Manual dealership application and confirmation.	There is no option to store dealership application and give confirmation within the site. New crucial information can be taken from user for decision making.	Adding a whole new page of form for applying dealership which is connected with the server database.

Table 5.3: Problem Analysis of AStar

5.2 System Design

5.2.1 Rich Picture

Rich Picture of A Star as is:



Figure 5.1: Rich Picture of A Star as is

Rich Picture of A Star to be:

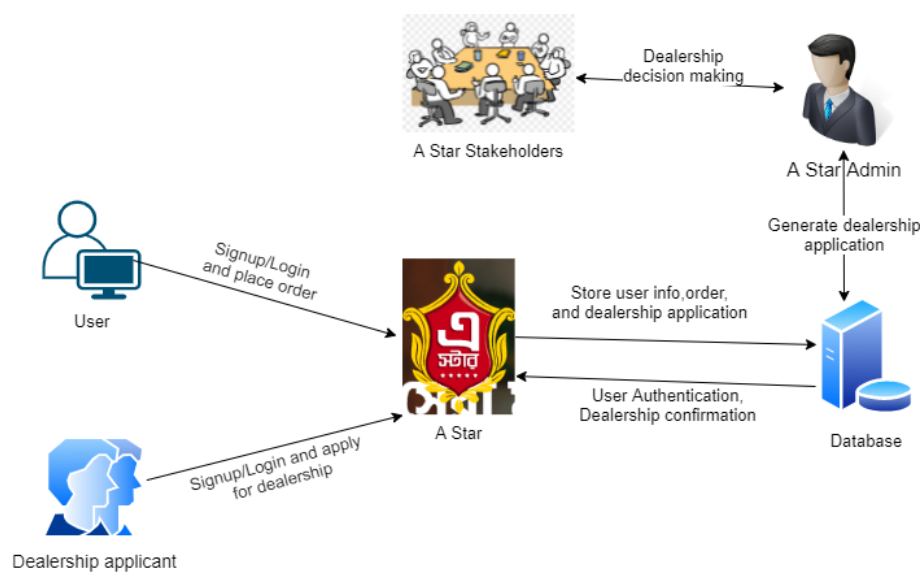


Figure 5.2: Rich Picture of A Star to be

5.2.2 UML Diagrams

Activity diagram of A Star:

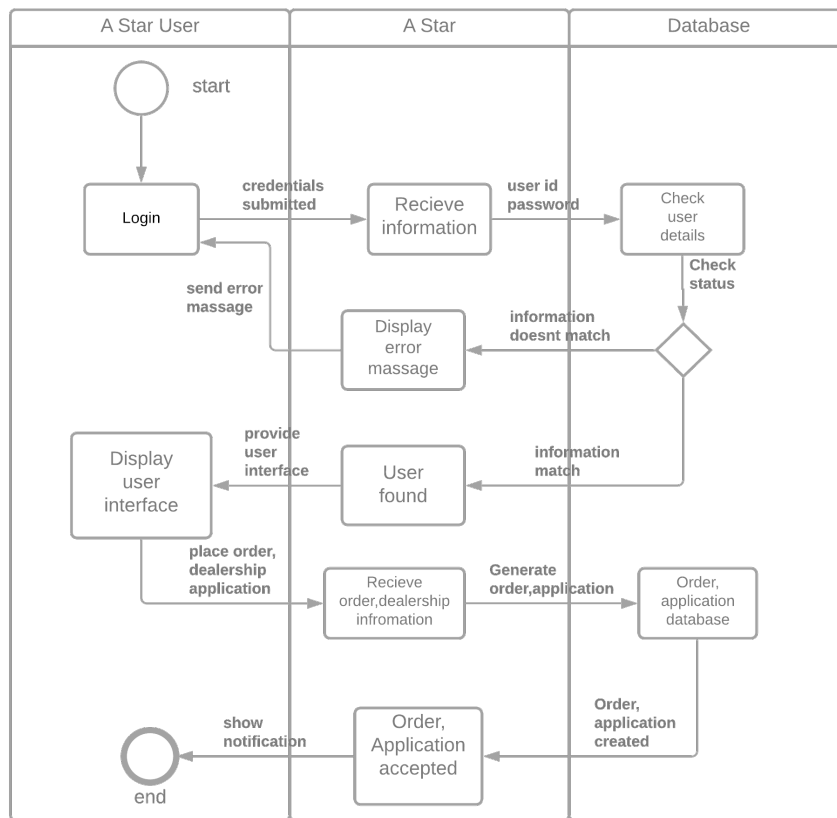


Figure 5.3: Activity Diagram

State chart diagram of A Star:

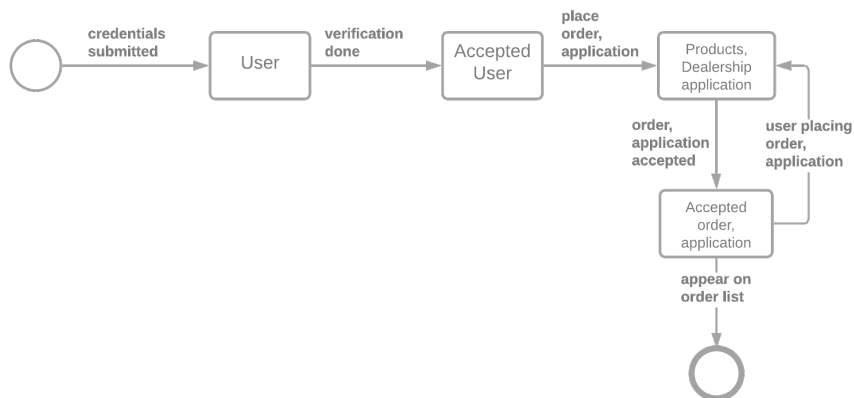


Figure 5.4: State Chart Diagram of A Star

Communication diagram of A Star:

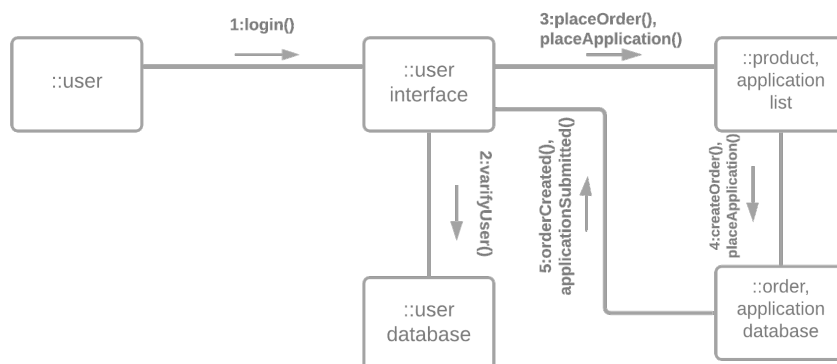


Figure 5.5: Communication Diagram of A Star

5.2.3 Functional and Non-Functional Requirements

5.2.4 Functional Requirements

1. Every user will have their personalized profile.
2. Users can sign and login.
3. Every user will have their own interface
4. User can place order after logging in to their profile
5. User can see their orders from the website
6. User can apply for dealership
7. User can login from multiple device
8. User can edit their profile anytime
9. User credentials will be stored in database
10. Every dealership application will be stored in database
11. System can be accessed with any OS and working browser
12. User can directly send messages to their page for any information.
13. Integrated google map for better navigation.

5.2.5 Non-Functional Requirements

1. System have friendly and intuitive user interface
2. Allow users to edit their profile
3. Fast accessible content
4. System needs to be powerful enough so that users can rely on and has a good performance
5. System should provide privacy and security
6. System should be easily maintainable,updated and modified
7. System should be robust enough to evade security threat
8. System should be monitored daily
9. 24x7 accessibility
10. Fast accessible input and output

5.3 Product Features

5.3.1 Input

My project A Star is an E-commerce website for tea products and dealerships of this company. There will be two kinds of users of this web application. One is user who want to purchase any tea products or dealerships from A Star and another one is admin(web developers) of A Star those who will maintain the website. Users while sign in they will give their information as input such as name, gender, date of birth, email, phone, and password.

The image shows a login interface for the AStar website. At the top, there is a photograph of two men: one in a white shirt and red checkered scarf pouring tea from a silver kettle, and another in a light blue shirt holding a green packet of AStar tea. Below the photo is a green login form. It contains two input fields: 'নাম' (Name) with the placeholder 'Enter Username' and 'পাসওয়ার্ড' (Password) with the placeholder 'Enter Password'. Below these fields is a 'Login' button with a right-pointing arrow icon, followed by a checked checkbox and the text 'সেভ করে রাখুন' (Save for later). At the bottom, there is a 'Cancel' button, a link 'অ্যাকাউন্ট করতে এখানে' (Click here to create account), and a 'ক্লিক করুন' (Click) button.

Figure 5.6: Login input of AStar

When they are purchasing any items for billing they have to input name, phone number, email, address, and additional information if necessary. Lastly, for dealership application, they have to fill-up the form as input name, date of birth, phone number, present, and permanent address and their experience about the dealership. Moreover, for admins, they will just have to edit or update about the products and dealership as their inputs.

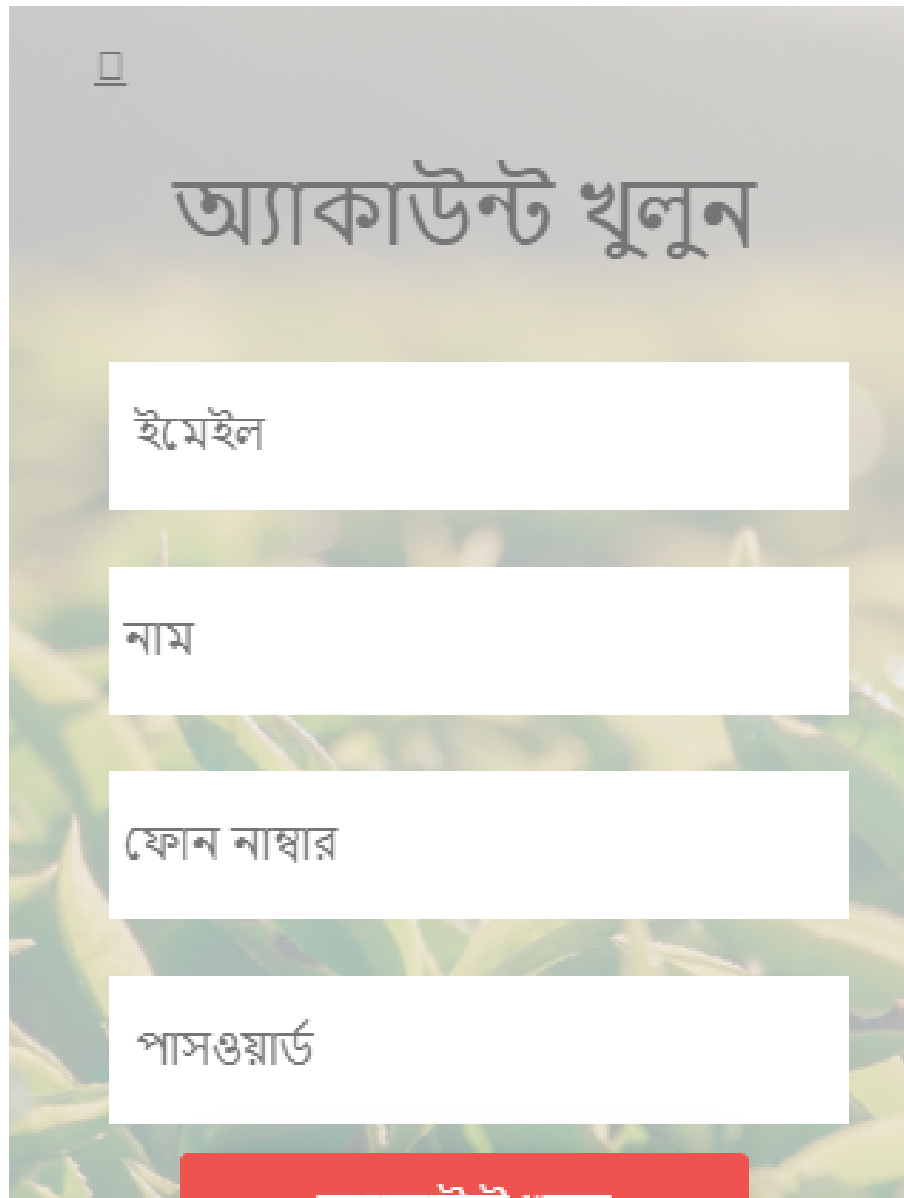
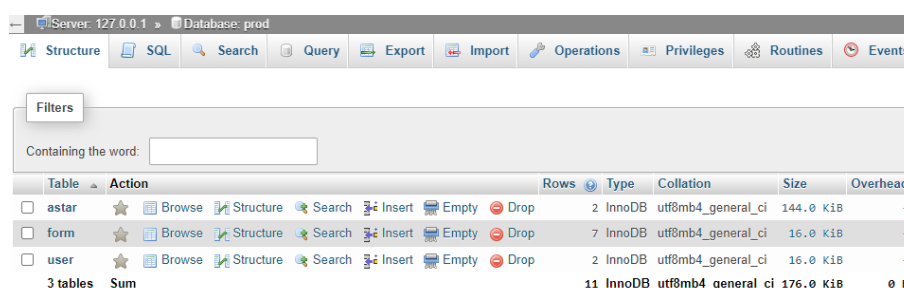
A screenshot of a web application's sign-up form. The background is a blurred image of green leaves. At the top left, there is a small icon of a document. The title 'অ্যাকাউন্ট খুলুন' (Open Account) is centered in a large, dark font. Below the title are four white input fields with black text labels: 'ইমেইল' (Email), 'নাম' (Name), 'ফোন নাম্বার' (Phone Number), and 'পাসওয়ার্ড' (Password). At the bottom, there is a red button with white text that is partially obscured.

Figure 5.7: Sign up input of AStar

5.3.2 Output

AStar is connected with the database. There are four databases available for AStar. The database *astar* is for their products, *form* is to store the applicant's form and *users* is the database to store information about their users. When someone creates an account it stores data on the website. While doing login it will be authenticated from the database after matching the data of the stored data. Moreover, their products AStar gold and AStar green is also stored in the database. AStar loads their products from the database. The database called *query* is available for comments or any kind of information users want to know. Lastly, the dealership is also functioning with the database. After putting the data for the form, stakeholders will review the stored form in the database.



The screenshot shows the MySQL Database Structure for a server at 127.0.0.1, database 'prod'. It lists three tables: 'astar', 'form', and 'user'. Each table has a 'Rows' column, 'Type', 'Collation', 'Size', and 'Overhead'.

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> astar		2	InnoDB	utf8mb4_general_ci	144.0 KiB	-
<input type="checkbox"/> form		7	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> user		2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
3 tables	Sum	11	InnoDB	utf8mb4_general_ci	176.0 KiB	0 B

Figure 5.8: Database of AStar

As my project, A Star has two types of users in its system. Output for customers or clients will be their own personalized interface after logging in to their account. After logging into their account they can also do order placement and get order confirmations as their output.



The screenshot shows a form titled 'আবেদনকারীর বিস্তারিত' (Applicant's Details). It contains several input fields for personal information:

- নাম (Name): প্রথম নাম (First Name) and শেষ নাম (Last Name)
- ফোন (Phone):
- জন্ম তারিখ (Date of Birth): mm/dd/yyyy
- ইমেইল (Email):
- ঠিকানা (Address):
 - রাস্তার (Road):
 - শহর (City):
 - পোস্টাল কোড (Postal Code):
 - জেলা (District):
 - দেশ (Country): Bangladesh

Figure 5.9: Form 1 input of AStar

Those who want to buy a dealership have to fill the application form of the dealership. Afterward they will get application submitted confirmation, chosen as dealership confirmation as to their output. And admins after updating or editing any products and dealership form their outputs will be available on the actual website from the clients side.

Figure 5.10: Form 2 input of AStar

Every user has their own cart. Their cart will be updated every time they add something to their cart. They also can remove items from their cart. From my cart page, they can confirm their purchase.

সিরিয়াল নং.	পণ্যের নাম	মাম	সংখ্যা	
1	এ স্টার পোস্তা টি	250	1	সরিষে ফেলুন
2	এ স্টার সিলভার টি	200	1	সরিষে ফেলুন

Total: 450

কমতামূল্য করুন

Figure 5.11: User cart of AStar

5.3.3 Architecture

AStar has a three-tier architecture in its system. The first tier of AStar has users who claim their services. Next is the admin or developers of AStar who will maintain the system. Lastly, stakeholders are on the last tier and will overview and give the instructions on different functionalities and decisions. The basic structures of a software system, as well as the discipline of designing such structures and systems, are referred to as software architecture. It acts as a framework for the system and the ongoing project, outlining out the tasks that the design teams must complete. In the architecture of our software, there are three fundamental structures. Three of them are UX/UI design, Front-end designing, and back-end. First of all, UI/UX has some properties given from the client-side. Such as coloring, design, and a simple user-friendly interface. Secondly, in Front-end design functionalities like sign in and login options for their users. They also can contact directly with the Facebook page of A Star for any kind of information. Lastly, for the back-end structure, every function of the web application will be connected with the database. For example, user credentials, order placements, applications everything will be stored in the database for authentication and verification.

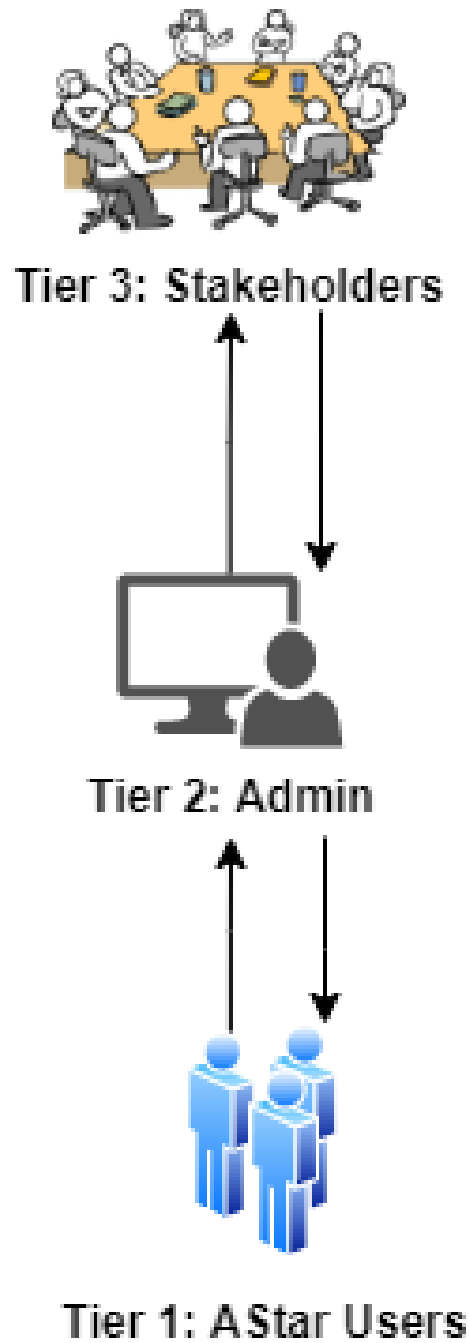


Figure 5.12: Three tier Architecture of AStar

Chapter 6

Results & Analysis

Almost all studies begin by attempting to summarize and characterize raw data in useful ways. Project result analysis was a continuous process in my project because I followed agile methodology. To achieve my desired results within the time limit analysis is mandatory. So I did an analysis of my work and the data I have gathered throughout the development period. After getting a result I always tried to make sure the analysis is correct, relevant, and understandable for the client. Moreover, the results of the analysis should be implemented on the next update or delivery. After I have described my data, the next step is to use it to answer the questions I have raised about my project and to see what further I can learn about it. These procedures usually entail contrasting how two or more variables vary from each other or how they are connected.

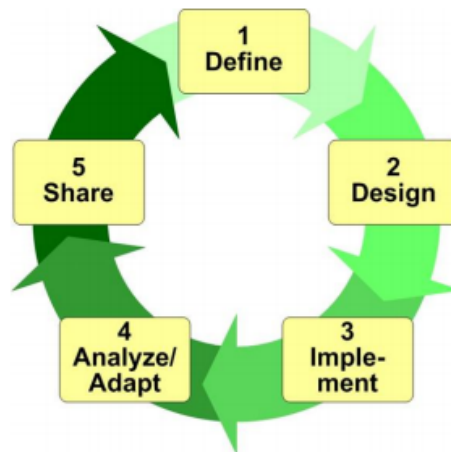


Figure 6.1: Analysis Process

It allowed me to evaluate my works if I am on right track or not to achieve my goals and objectives in a systematic way. As results, I always attempt to match my completed work with the client's demand. Such as user interface is simple or not for any users. The main three functions client wanted to introduce on their new version. Account creation and login system were implemented on the web application which was working perfectly with the database.

Later, they wanted to connect messenger with their web application so that their customers can get information about any type of query from their Facebook page. Lastly, the google Maps integration to navigate their customers properly. On their older version, just a picture of their address on google map was present on the website. Now users can navigate easily to their address directly from the google Maps. I also implemented the messenger option on this web application. But I could not utilize this feature properly because Ammtoli Plantation Limited did not provide me access to their Facebook page.

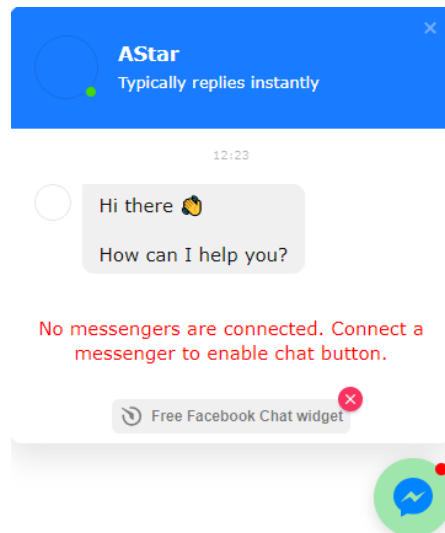


Figure 6.2: Facebook messenger implementation

My project A Star is a web application that can be accessed by everyone. But if anyone wants to purchase something or planning to get a dealership from A Star they need to sign up first and login afterward to do what they have intended. When all the work is done on this project, then comes analysis part. From the beginning, I have followed a cycled process for the analysis of this project. There are five segments of this process. First of all, I measured and studied the task. I gathered information about my project and the requirements from the clients. After that, I designed the work according to my client's demands and conditions. There are a couple of benefits of analysis. They are mentioned below:

- Enables the focus on main important requirements.
- Makes it easy to achieve the goals and objectives
- Helps to find any issue or problem and solution towards it.
- Gather knowledge and experience and utilized them throughout the process.

Next, I tried to implement the design in vs-code according to my design. Following this, I analyze the implemented work with the requirements of the client and design that I have created. Subsequently, if there is any kind of mistake or gap it becomes clear on this part. Since I have been following agile methodology for my project, lastly, I shared the completed task with

the client for their feedback about the project and worked according to it.[3]

The goal of the analysis is to turn the raw data acquired by my project into meaningful knowledge. Analysis entails analyzing all of these data points and attempting to make sense of them in order to adapt and enhance my work. It's all about asking and responding to questions. The monitoring design that I've been working on, as well as the data that I have collected, have a big influence on the kind of analysis.

AStar has a couple of functionalities. But the main requirements Ammtoli Plantation Limited asked me to implement is signup and login option, Facebook messenger implementation, and google map integration.

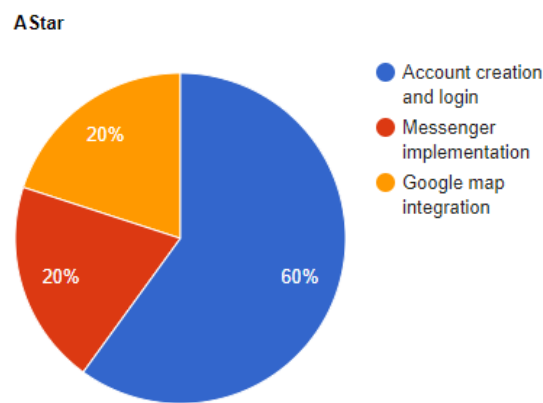


Figure 6.3: Requirements pie chart of AStar

I implemented all of the functionalities they asked for. But in the case of Facebook messenger, I could not implement it fully. The reason is I did not have their Facebook page access. So the feature success rate is over 80% of my project AStar.

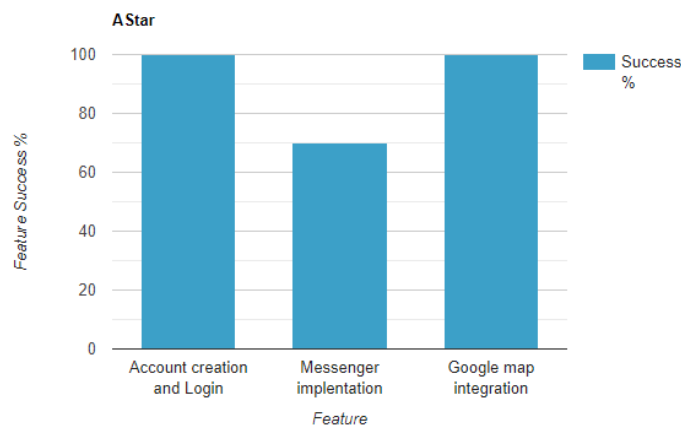


Figure 6.4: Feature success percentage bar chart of AStar

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project

In the project, sustainability is a business approach that balances the environmental, social, and economic components of project-based work to meet present stakeholder needs without jeopardizing or overburdening future generations. Our world is changing rapidly. So does the preference of people. That is why the sustainability of a project is now a very crucial topic. For instance, due to this COVID-19 situation people trying to maintain the social distancing by staying at home. They want to do everything from staying home. The whole world faced a lockdown. Educational institutes, banks, offices etc all were closed for a long time. Therefore, everyone tried to digitize their business so that everyone can survive this situation. Even book stores of Nilkhet are made online to keep their business alive.

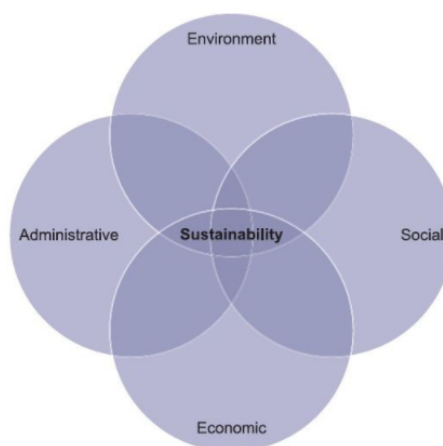


Figure 7.1: Sustainability of a project

A Star is mainly focusing on two of their tea products and dealership about their products. This is an E-commerce site. In Bangladesh, there are no dealerships selling websites till now. If Ammtoli Plantation Limited can launch their web app appropriately with proper initiatives,

there is a possibility of becoming the leader in this industry. Since Bangladesh is now moving towards online, now those who will start their business online will lead in the future. A Star is launching their website online, so there is no risk about climate change, biodiversity etc. This project administration is ensuring the population's long-term well-being, health, safety, and resources. Project long-term viability such as human rights, equity and equality of the society will also be covered. The economic factor is another important issue before launching. Affordability, risk management, and profit elements are analyzed by the organization before.[4]

7.2 Social and Environmental Effects and Analysis

As mentioned earlier, A Star is a web application so the environmental effects will be minimal. Environmental sustainability is important. This notion explains how a biological system can remain healthy and self-sustaining over time without the extinction of species. In the same way, one distinguishes between energy sources that are sustainable and energy sources that are nearly depleted. This concept can also be used to human society anytime a political or economic structure can ensure the population's long-term well-being. Project long-term viability. When the outputs of a project may be used indefinitely after it is completed, it is referred to as sustainable.

The environmental pillar, sometimes known as ecological concerns, is apprehension with the environment in which individuals live and its conservation, as well as the measure to which mankind has harmed it via their actions and failed to maintain it up to this point. The destruction of the environment has been caused by the pursuit of purely economic aims. As a result, it should be remembered that a nation's social well-being and economic progress cannot be attained without taking into account all three pillars and how they interact.[5]

The social perspective is the foundations concept of "project sustainability," and it aims to explain and regulate key stakeholders whose desires and expectations may function as a catalyst for project performance. Employees, trade unions, customers, and suppliers, as well as essential internal and external stakeholders, are considered valuable assets in the literature. Unfortunately, how well a company cares for its workers without abusing them is often overlooked. As previously said, including social and environmental considerations into profit maximization is at least as vital as economic concerns.[5]

7.3 Addressing Ethics and Ethical Issues

The sector of philosophy acknowledged as ethics, moral philosophy, "involves systematizing, defending, and endorsing conceptions of good and bad action." Ethics, like aesthetics, is concerned with considerations of worth; together, these fields make up the area of philosophy known as axiology. Besides A Star web application there is also a head office available in Uttara. The plus point is, no physical shop available from their side. From ethical point of view, A

Star will not do anything which will lead to negative impact on the society. There is no chance of corruption since everything will be automated online. Ammtoli Plantation Limited aims to lead their business without Discrimination, Harassment, Unethical Accounting etc. Since their head office is available, employees will work there. They also ensures the Health and Safety of their workers. Moreover, they will not tolerate any nepotism and get rid of abusive employee. Lastly, Corporate Espionage will be handled strictly on their every section.[6]

Chapter 8

Lesson Learned

Since I just joined Beatnik from 5Th July, 2021 a very small period of time has passed. Everyday I am learning new task and work from Beatnik Technology. Daily meeting about different projects giving me professional overview how to handle any project or clients because Beatnik has 50+ customers in home and abroad. How to increase customer satisfaction and deal with clients. IT project manager Mr. Saik Yasar Utsho also monitors me and scouts me on in various work.

Till now, I have done a few tasks for Beatnik Technology and still learning new . Lessons that I have learned from Beatnik Technology are mentioned below:

- Interface Designing

I focused on the clients requirements. According clients need I tried to implement them in a way so that they are easy to access, understand, and facilitate. I mainly used Figma for making user interfaces for desktop. Different task like how to setup every page, then connect them and button functionalities were covered here.

- Website maintenance and reporting

I currently maintain 3 Marico projects website. Coconut for Life, Just for Baby, StudioX. All of these projects are done by Beatnik technology. I have to generate reports twice in a week and monthly about its performance. Upload and manage them with HR of that company.

- Search Engine Optimization

Search engine optimization is the organic process to increase traffic of a website. I wrote meta tags and meta description for different project to increase visitor. To improve the quality and quantity of website traffic changed the color of their homepage and made it more user friendly.

- Digital Marketing

To increase the customer and sales I did two types of online marketing. One is Email marketing and another is Linked-in marketing. For email marketing I studied and gathered information about potential customers. After that I use Email advertising about our

company, services and portfolio's. And for Linked-in I used sales navigator. By using sales navigator I listed down names of CTO from technological companies and let them know about our services.

- Blog and Project summary creation

A wide range of blogs and contents had been written by me. Various topics like best hosting provider, best website builder etc we covered for our website to maintain the blog section updated. I have completed project summary of three projects Karon bangladesh amr, Politics matters and Siloti. I learned how to research and study about any topic.

- HTML

Beatnik started to train me as a developer with HTML. All the tags is connected with HTML to build a proper website is covered. Such as heading, aref, button, tables etc. Also absorbed how to make the structure of an web page and how to construct the elements to display them in the web browser.

- CSS

Cascading Style Sheets are mainly focused to do styling in the page. I learned how to control the width and height of the elements that are displayed. Moreover, margin and padding in the border can be handled with CSS. Font and floating, background changing, hovering effect etc lessons are also covered here.

- PHP

Lessons about how to produce dynamic content, CRUD file creation , database implementation, control user-access with data encryption are covered here. I started to know about functions and class in PHP. Lessons about SQL for phpyadmin and database are also learned. Beatnik is aiming to teach Laravel which is a framework for Php that is why php basics are must.

- JavaScript

JavaScript programming language is a popular high level programming language. We used JS on our project so that our web page can load swiftly on client side which is also easy to implement. Resources will load according to client side demand which also reduced the pressure on website server.

- SQL

Structural Query Language high demand and famous language communicate with database for different task. It is one of the reliable and efficient way of query processing which is interactive and very user friendly.

- phpMyAdmin

phpMyAdmin has a very user friendly interface and query editing facility. To establish the connection with the database and website server we used phpMyAdmin. phpMyAdmin can also track alterations, create pdf, CSV etc from results.

- jQuery

jQuery is a open source and free JavaScript library used by 73% of the most popular websites for DOM tree traversal and manipulation, event handling etc. Different functions like hide, show, toggle and adding animation effects is covered here. Its simple easy to learn and which is also SEO friendly.

- Laravel

Laravel is a php framework which is free and open source. Basic topics about artisan console, model view controller architecture, authentication and authorization is being taught here in this section.

Chapter 9

Future Work & Conclusion

9.1 Future Works

A Star planning to introduce a blog section on their web application about different topics such as benefits of tea, recipes of tea, story of tea etc. In addition, they also have the intentions to launch their mobile app version if everything goes right according to their plan. With their mobile app their customers will be able to access their contents from their mobile and place order from anywhere anytime. Finally, initiatives about tracking facility will be implemented for their clients. Customers placed order can be tracked through out the delivery process and current status of the delivery will informed.

9.2 Conclusion

An e-commerce site for Ammtoli Plantation Limited named A Star for tea products and dealership has been tested and implemented which is efficient and robust. Everyone with internet and a browser can access this web application. In this system, everyone after logging in can place an order or submit dealership application for their desired product. A Star is built to digitalize their facilities so that customers be benefited and can cope up with the current situation. This system can help people to maintain social distancing in the time of pandemic and enlarge their business facility with A Star.

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