Final Year Internship Project Report

On

"LIC Nepal: Development and Deployment of Interactive and Responsive Web Application"

At

"Pagoda Labs Pvt. Ltd."

[CSC-452]

For the partial fulfillment of the requirement for the degree of Bachelor of Computer Science and Information Technology awarded by Tribhuvan University

Submitted by

Prashamsa Pandey (T.U. Exam Roll No. 5294/071)

March 2019

LIC Nepal: Development and Deployment of Interactive and Responsive Web Application

(CSC-452 Internship)

An internship report submitted in partial fulfillment of the requirement for the degree of Bachelor of Computer Science and Information Technology.

Submitted by

Prashamsa Pandey

TU Roll No: 5294/071

Under the Supervision of

Er. Ganga Subba

Department of Computer Science

Sagarmatha College of Science and Technology

Sanepa, Lalitpur, Nepal

Submitted to

Department of Computer Science and Information Technology

Sagarmatha College of Science and Technology

Sanepa, Lalitpur, Nepal

March 2019

SUPERVISOR'S RECOMMENDATION

I hereby recommend that this internship report prepared under my supervision by **Prashamsa Pandey** entitled **"LIC Nepal: Development and Deployment of Interactive and Responsive Web Application"** is accepted as in partial fulfillment of the requirements for the degree of Bachelors of Science in Computer Science and Information Technology to be processed for the evaluation.

…….

Er. Ganga Subba

Supervisor

Department of CSIT

Sagarmatha College of Science and Technology

Date: ……...

CERTIFICATE OF APRROVAL

The undersigned certify that they have read and recommended to the Department of Computer Science for acceptance of internship report entitled "**LIC Nepal: Development and Deployment of Interactive and Responsive Web Application**" submitted by **Prashamsa Pandey (5294/071)** in partial fulfillment for degree of Bachelor of Science and Computer Science and Information Technology awarded by Tribhuvan University.

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STUDENT'S DECLARATION

I, Prashamsa Pandey student of Sagarmatha College of Science and Technology, Sanepa, Lalitpur hereby declare that the internship report entitled "**LIC Nepal: Development and Deployment of Interactive and Responsive Web Application**" submitted to the CDCSIT is a record of an original work done by me under the supervision of Er. Ganga Subba.

The matter embodied in this report has not been submitted to any other University or Institution for the award of degree. This project is my original work and it has not been presented earlier in this manner. This information is purely of academic interest.

……..

Prashamsa Pandey

(5294/071)

ACKNOWLWDGEMENT

This internship project has provided me with immense opportunity to learn about professionalism, work environment and skill development. The success of this project is an accumulation of many people's endeavor.

First and foremost, I would like to express my earnest gratitude to **Mrs. Ganga Subba** Head of Department for creating an exemplary academic environment in the Computer Science department, under which students have been taught and molded into explorers capable of endeavoring extraordinary tasks. Also, her whole-hearted supervision, direction and constructive criticism has proved to be invaluable support for completion of this report. Furthermore, I would like to convey my innermost thanks to **Mr. Keshav Dhami**, for providing me with the necessary guidance and feedback. His useful suggestions for this whole work and co-operative behavior are sincerely acknowledged.

I am also grateful to the entire Computer Science Department of Sagarmatha College of Science & Technology for providing encouragement and support along the way. I am pleased to be under the tutelage of the department.

Similarly. I want to express my deepest sense of appreciation and sincere thanks to my esteemed supervisor **Mr. Sushant Gauchan** at Pagoda Labs Pvt. Ltd. for appointing me as an intern and providing untiring guidance, encouragement and support during the period. I am deeply indebted for his valuable suggestion, instruction and mentorship that helped me learn web development and designing platform with such an ease. I would like to extend my appreciation to entire Pagoda Labs family for creating suitable learning environment.

My thanks and appreciations also goes to my colleagues who helped me directly or indirectly during the project.

Prashamsa Pandey [5294/071]

ABSTRACT

The field of insurance has taken a giant leap at the threshold of twentieth century. Insurance have become an integral part of life of man all over the globe. There is today a pressing demand for cutting edge services of insurance business management and enriched customer experiences at a significantly lower cost.

"LIC Nepal: Development and Deployment of Interactive and Responsive Web Application" is web-based project that provides information about the insurance company and the various products provided by them. Presently this project follows Internet mode, that is the details can be easily viewed by the users when there is access of internet. Also, the information can be updated by the officials of the company from the admin panel. In the project, a user can view the details of various policies, products, agents, download claim form, view presence in the map, search branches and FAQs, contact and send feedback to the Insurance Company.

This web application is developed using HTML, SCSS, JS, jQuery as front-end tool and WordPress as back-end tool to develop the admin panel for updating all the contents in the site and view feedbacks. The project was completed using the structured approach and prototyping as a development methodology.

Keywords: *LIC Nepal, Frontend, Admin panel, Structured Approach, Prototyping*

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LIST OF ABBREVIATIONS

B.Sc. CSIT	Bachelor of Computer Science and Information Technology
HTML	Hypertext Markup Language
CSS	Cascading Style Sheet
SCSS	Sassy Cascading Style Sheet
LIC	Life Insurance Corporation
HTTPS	Hypertext Transfer Protocol
HOD	Head of Department
JQ	jQuery
JS	JavaScript
PSD	Photoshop Design
Pvt. Ltd.	Private Limited
XAMPP	Cross-Platform (X), Apache (A), MySQL (M), PHP (P) and Perl (P).
WP	WordPress
FAQs	Frequently Asked Questions
CMS	Content Management System
URL	Uniform Resource Locator

CHAPTER 1: INTRODUCTION

1.1. Introduction

1.1.1. Introduction to Project

Life Insurance Corporation Nepal Limited (shortly called as L.I.C. Nepal) is one of the largest capitalized insurance companies of Nepal. The journey of L.I.C. Nepal had its genesis in 2000 when global insurance behemoth, Life Insurance Corporation of India, joined hands with Vishal Group, a dominant player of Nepal. 55% of ownership of the Company is held by L.I.C. of India, 25% by Vishal Group and 20% by general public in the form of equity. This way the essence of L.I.C. Nepal can best be described by the word "Glocal" i.e. a unique combination of global experience with local expertise. (LIC Nepal, 2018)

“LIC Nepal” is a project which can be broadly defined as the application of Internet and related information technologies (IT) to the production and distribution of information regarding the company and the services provided by the company. The insurance company needs to keep track of details of its target companies, agents, policyholders, their premium payments and the various products that are available with it. Hence, it is under tremendous pressure maintaining their day to day activities.

The project is based on web development for an insurance company. LIC Nepal is a WordPress based web application that allows a platform for an insurance company to tender their products regarding insurance types that is their products. The project provides customers to view the products detail according to their requirements. They are also capable of viewing various reports, notices, press release, agent details, glossary, branches, contacts and so on.

LIC Nepal is a responsive WordPress theme application. The objective behind the project, LIC Nepal is to make the access of information regarding insurance company and their products a lot easier.

1.1.2. Scope of the Project

This project is a web-based application for LIC Nepal. With the development of the project, the users should be able to access all the insurance related product details, policies, agents, branch, premium calculation etc. in an easy and effective manner as it is computerized and the manual labor for accessing that information is not necessary. The application should provide quick access to the information maintained in the site so that the important decision about a certain insurance selection could be taken easily.

1.1.3. Limitation of the project

Limitations exist in every project. This project also has some limitations as a result of which there were various fluctuations in the development process during the tenure. Some of the major short comings that the author did face were:

- Login system was not integrated in the website for the users.
- Lack of audio and video information.
- Users cannot pay and claim for the insurance online.
- Users cannot create insurance online.

However, the system is developed as per the specification given by the client, there were not much limitation since the author was given a lot of support by the supervisor and the mentor.

1.1.4. Brief Introduction of Organization

Company Name: Pagoda Labs Pvt. Ltd.

Location: Sanepa, Lalitpur

Website: www.pagodalabs.com

Senior Supervisor: Mr. Sushant Gauchan

Pagoda Labs is a digital creative agency with its agency based in Kathmandu, Nepal. Pagoda Labs help their clients build a digital presence. The company has been in the digital field since 2007 and is good at providing bespoke solutions to challenging or eccentric requirements. The company also has its operations in Sydney and Bangkok. The company strives to deliver world class design and code from Nepal to the world.

Figure 1. 1: Pagoda Labs Logo

Some services provided by the company are as follows:

- Web Development
- Software Development Services
- Design Services iOS and Android Application Development
- Multimedia Solutions
- Internet Marketing and Search Engine Optimization
- Social Media Marketing

The key rationale that Pagoda Labs Pvt. Ltd. follows is that the company encourages well-defined project structures and methodologies to design and develop each product and service offering that meets the client's requirements. The company also keeps its team of technical staff side by side with the latest technology trends. These trends are generally the ones that shape the dynamics of IT and IT enabled solutions market. (Pagoda Labs, 2010)

Pagoda Labs Pvt. Ltd. also follows another rationale of applying customer centric approach in the products development and service delivery. Pagoda Labs struggle to create applications that provide an unforgettable experience throughout the application’s lifetime. Expert designers and developers mold applications to perfection so that the applications can lure users and improve client’s businesses.

The organization's structure has evolved to perform better, as an organization and to provide excellent services to the users. The company has departments to facilitate the business process, which also has good coordination amongst each other. The organizational hierarchy has also maintained according to its various lines of work.

Depending upon the roles, authorities and responsibilities for software professionals the company hierarchy is described below:

Table 1. 1: Hierarchy of the organization

Senior Level Professional	**Mid-Level Professional**	**Entry-Level Professional**
Chief Executive Officer	Project Manager	Software Developer
Chief Operational Officer	Senior Quality Analyst	Junior Developer
Chief Finance Officer	Human Resource Manager	Software Engineer
	Project Leader	Software Testing Officer
	Senior Testing Officer	Quality Testing Officer

Table 1.1 Hierarchy of the Organization provides the information about various levels of professionals involved in the organization's workflow.

Table 1. 2: Contact Details

Organization:	Pagoda Labs Pvt. Ltd.
Organization Type:	Private Limited
Address:	Sanepa, Lalitpur
URL:	www.pagodalabs.com

Table 1.2 Contact Details provides the details of the organization in which the author did her internship.

1.1.5. Duration of Internship

The author has completed Internship program in partial fulfillment of the requirement for the Bachelor of Science in Computer Science and Information Technology (BSc. CSIT) 8th semester of Tribhuvan University, Nepal, on Front End Web Development from Pagoda Labs Pvt. Ltd. The students require at least six credit hours (minimum if ten weeks or 180 hours long) internship for attaining a successful completion of the degree. As per the requirement, the students have to do internship under sectors involving IT for at least 3 months. The information on duration, timing, and position is provided below:

Table 1. 3: Duration of Internship

Department	Software Development Team
Supervisor	Mr. Sushant Gauchan
Start Date	3rd October 2018
End Date	3rd January 2019
Office Hour	9 AM – 6 PM
Working Days	Monday – Friday (5 Days a week)
Total Duration	3 months
Position	Trainee Intern

Table 1.3 Duration of Internship provides various information regarding the internship like tenure, post, etc.

1.2. Problem Statement

A study was done of the existing site to understand about the flaws and functionalities of the system. The main goal of the project was to enhance and develop a new website for LIC Nepal that features and rectify the problems faced in the existing website. So, understanding and analyzing the issues carefully was very important. In this case, the existing website of the company was hardly user friendly and interactive. All the task from searching till getting the complete details include manual labor.

More specific problems are listed as follows:

- Less availability of all the information in the existing website.
- UI/ UX design is outdated and less user friendly.
- Website is not fully functional.

After understanding the problems, it led to the conclusion that a new web application which is easily accessible and convenient to use should be developed.

1.3. Objectives

The objectives of the application that has been developed are listed below:

- To develop a website which will represent LIC Nepal in internet.
- To develop an interactive and responsive web application which contains information about insurance company and their products.
- To allow users to access that information via the application.
- To provide safety assurance of the information the organization has.
- To make easy navigation of the features.
- To provide user-friendly interface.

1.4. Responsibilities Assigned

The three months internship at Pagoda Labs Pvt. Ltd. involved various activities and tasks as per the requirement of both the organization and the project. The responsibility assigned to author by the organization was the development of complete website for "Life Insurance Corporation (Nepal) Ltd". Author had to develop a complete website with frontend in HTML, SCSS, JavaScript and backend in WordPress.

So, as to meet that objective, this internship required the extensive preliminary studies about the frontend and backend tools before analyzing the actual requirement of the system. The study was required not only to understand the subject under study but also to realize the solutions to the existing problems and implementing the findings from the study was another bigger challenge.

Following are some of the responsibilities that were assigned to the author:

- To develop a website and make it responsive as a frontend developer.
- To learn and use JavaScript and jQuery for web design and development.
- To develop web application according to the client's requirements.
- To use the search-ask-learn paradigm while learning various technologies for project development.
- To complete the task assigned by the supervisor within specified time.
- To notify the supervisor if any problem occurs during designing or coding.
- To learn the working environment skills of an organization like communication and team collaboration.

1.5. Motivation

The selection of organization is twofold. The first is the student's area of interest and second is the willingness of the host company to take the student as an intern. Students are required to prepare a competent resume and perform well in the 'interview' and/or 'assessment' to be eligible for the host company to take him/ her as an intern.

As author has interest in the domains of frontend designing and development, the author wanted to utilize internship program to explore and learn about this dynamic field. The author was in search of an IT company with a vibrant team and enviable workplace environment looking for fresh talent and energy to join them.

After exploring available options, author had the opportunity to intern at Pagoda Labs under the guidance of Mr. Sushant Gauchan. This was a perfect opportunity for the author to learn experience and develop skills in frontend development. Also, the location is very near from the place author has been living. Hence, it was an easy option to be in this company.

1.6. Report Organization

Table 1. 4: Report Organization

Chapter 1:	This chapter describes about the project and organization.
Chapter 2:	This chapter covers all the history or report paper published by different peoples.
Chapter 3:	This chapter include methods, requirement specification and feasibility analysis and structured system requirements.
Chapter 4:	Data organization, system architecture and process are explained with the suitable diagram as required.
Chapter 5:	Tools used for front end and back end for the system is described in this chapter along with the development methodology.
Chapter 6:	The testing plans, tested inputs and comparison between expected outcome and real outcome is analyzed.
Chapter 7:	The whole system and its purpose are described in a summary

CHAPTER 2: LITERATURE REVIEW

2.1. Overview

Insurance is a contract for payment of a sum of money to the person assured on the happening of the event insured against. Usually the contract provides for the payment of an amount on the date of maturity or at specified dates at periodic intervals or at unfortunate death, if it occurs earlier. Among other things, the contract also provides for the payment of premium periodically to the Corporation by the assured. Insurance is universally acknowledged to be an institution which eliminates `risk', substituting certainty for uncertainty and comes to the timely aid of the family in the unfortunate event of death of the breadwinner.

Recent developments in information technology (IT) and web-enabled systems have made it easier for insurers to run global operations in a way that would not have been possible even two years ago. Insurers are already reaping advantages from IT improvements in internal efficiencies in areas as diverse as underwriting, claims, policy administration, financial reporting and human resources. But efficiencies go beyond these internal ones. In the coming years, the internet will have at least two major effects on the insurance industry: cost efficiencies and broader distribution. These efficiencies will come as insurers experience a greater availability of data from the internet and the transfer of business processes from manual-related or computer-related systems to newer communication related systems.

Such internet-style technology will reduce cost, reduce the level of effort and improve accessibility to large-scale data. Data accumulation becomes much easier under the internet approach and thus affects costs and value of insurance. The internet will bring insurers to a whole new audience, and will allow them to sample new markets that would have been too expensive to enter. Making information available to potential customers and the ability to market products to the new audience will have a tremendous impact. Insurance company’s website is very important for the organization that are becoming more spread from time to time. Almost every insurance company has a website with a homepage providing information about the company and products. (Life Insurance, 2018)

2.2. The Website: Comparison of Insurance Industries Offering v/s Customer Expectation

Today's customers have certain basic expectations about their insurer's website without which they will turn to other more interactive sites. As the website is a touch point for consumers and insurers, it should have the following basic features:

2.2.1. Functionality

Many insurers have made plans to add capabilities to their sites such as problem resolution. But such functions as claims handling, self-administration of policies, online billing and bill payment may have not yet been executed to the satisfaction of the site visitor.

2.2.2. Timely response

Today's sophisticated web surfers do not complain when they get a lack of response from an insurer's website – they just take their business someplace else. The Customer Respect Group discovered this gaffe in its "Summer 2004 Online Customer Respect Study". 27% of carriers surveyed do not reply at all to online inquiries and another 25% answer only about half of their inquiries. As a result, online users will abandon a visit to a site and go to a competitor's site to make a purchase if they have a less than satisfying experience. Response time should therefore be addressed more seriously.

2.2.3. Financial products and services features

Customers will visit an insurance site more often if it has a wider breadth of financial products and service features. For example, Nationwide, Usaa and Prudential insurance companies (all of which offer an extensive array of products that can be bought online) average three visits per customer each month, as opposed to one monthly visit per user to sites with narrower offerings.

Moreover, in another survey supporting this point of view, it appeared that 45% of consumers are less likely to use their insurance sites if products and services such as financial aggregation are provided elsewhere.

2.2.4. Connectivity and easy site navigation:

Insurers need to ensure that the consumer's online experience is as convenient as possible. In "Policyholder Self Service" report by Gomez Inc. it was established that currently the average visit to insurance sites lasts about 10 minutes, which means that insurers have a very short time in which to impress the consumer with the value of their site before they move on. In that same report it was also found that more than half of those who were unsuccessful at performing self-service say that they are unlikely to try again, while successful self-service will likely draw people back (74.7%)It can be concluded from the above that the basics of an attractive website is still not perfected by established insurers, which sheds some light on why the number of online customers are not yet up to expectation. (e Insurance Project, 2017)

2.3. Study of Existing System

Some of the existing websites based on the criteria of ease, choice, and advice from a user experience and usability perspective which are similar to proposed system are as follows:

2.3.1. New York Life

NYL is hands down one of the best insurance websites in the industry. This uncluttered, clean, and straight-to-the-point website sets the user experience bar a mile high with memorable taglines, effective images, and a brilliant, conversational wizard that cuts through the clutter and gets users to the right part of the website. New Your Life knows how to keep website visitors engaged with beautifully designed storytelling pages. The NYL website scores off the charts for many of the UX best practices: intuitive navigation, text readability, use of colors, highlighting salient points, and scrolling progress bar.

2.3.2. Concordia Plans Services

Concordia Plans Services (CPS) is consistently one of the top-rated insurance websites when it comes to user experience. The website's user-centric information architecture (IA) is based on distinct user types and the intuitive audience-based navigation is fully aligned with its customer journeys. A wizard, which is prominently integrated into the website, is designed to help users depending on who they are and the tasks they need to complete. This puts users in control, gives them advice, and humanizes the user experience.

2.3.3. Prudential

The Prudential homepage use large, family-oriented photographs of human faces to harness the power of emotion and storytelling. It also separates the content using audience-based navigation and has an effective information architecture. The website contains a wealth of content for research (which is what all insurance buyers want).

2.3.4. Geico

Geico's website takes a very clean, uncluttered approach to the homepage. The famous Geico Gecko humanizes the digital experience by giving guidance and advice, helping with the selection of insurance products, and starting the quote process. The website makes great use of UX icon best practices and color-coding that helps users find various insurance products and sections. It also does a good job explaining what's included with various policies and addressing FAQs.

2.3.5. Ladder

Ladder is looking to disrupt the life insurance market the same way lemonade disrupted renters/homeowner's insurance. And they are doing it in a strikingly similar way: focusing on a single effective storytelling homepage with a few support pages. This format works well and creates a memorable and positive user experience: chunking information and focusing on one concept at a time, creating emotional moments, offering social proof, and finally offering an incredibly simple, conversational process to get a quote. All of this helps Ladder score high points for ease, choice, and advice.

2.3.6. Progressive

Progressive's website lives up to its name. Flo, the company's iconic brand character, is front and center, projecting her upbeat personality and familiar enthusiasm. It's almost as if Flo is there by your side, helping you select insurance products or get a quote – all through a homepage wizard. The website is also full of engaging, informative, and highly visual storytelling pages that cover the products and services using attention-grabbing UX techniques and strategically-placed calls to action. The Progressive website scores very high in the three areas of ease, choice, and advice. (intechnic, 2015)

CHAPTER 3: SYSTEM ANALYSIS

3.1. Requirement Collection

The first step in developing a successful system is to gather all the requirements. Many things need to be taken into consideration to develop a whole system. There are various ways that can be used for the requirement collection method. Author have used two different methods for the collection of requirements for the development of the project. The first one is interview with the client which is a traditional method for the requirement collection and the second one is prototyping which is also considered as a modern method for the collection of requirements. (Delphic, 2015)

Requirement Collection process less or more can be inherited in these steps:

- Initial discussion with the client and collecting requirement.
- Structuring requirement into different categories.
- Negotiating priorities, highlights, color essentials.
- Evaluating requirements against established criteria, re-structuring requirement.
- Conceptual design
- Brainstorming conceptual designs with the client/decision makers.
- Making requirement changes in structure, showing it to the client after every change moving ahead with the final development process.

3.2. System Requirements

3.2.1. Functional Requirements

The following are the functionalities of the system:

User

- User shall be able to view different products (Insurance Types).
- User shall be able to view achievement gallery.
- User shall be able to view and download reports which could be annual or financial reports.

- User shall be able to view newsroom containing notices and press release.
- User shall be able to contact and send feedback to the company.
- User shall be able to view and search branches located in various places.
- User shall be able to view and search FAQs.
- User shall be able to view the presence of company in the map.
- User shall be able to view glossary.
- User shall be able to download claim forms.
- User shall be able to view agent details and customer citizen charter.
- User shall be able to register and login to the system with the policy code or agent number.
- User shall be able to edit profile.
- User shall be able to view transaction details according to their policy code.
- User shall be able to logout of the system.

Admin

- Admin shall be able to login to the system.
- Admin shall be able to add content.
- Admin shall be able to delete the content.
- Admin shall be able to update the content.
- Admin shall be able to logout of the system.

A. Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system. The figure 3.1 and 3.2 shows the use case diagram for user and admin respectively. It shows the interaction of user and admin with the system.

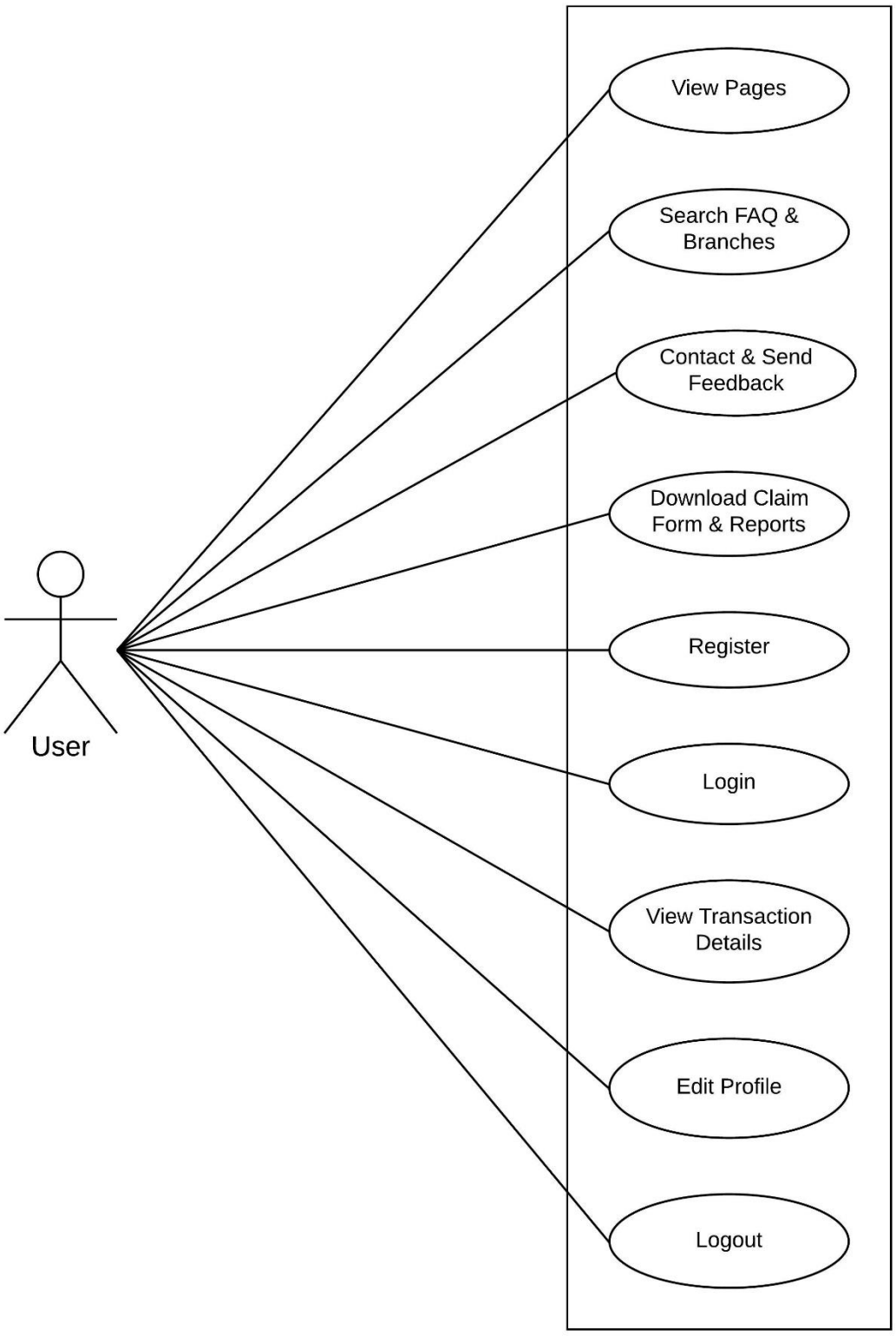

Figure 3. 1: Use Case diagram for User

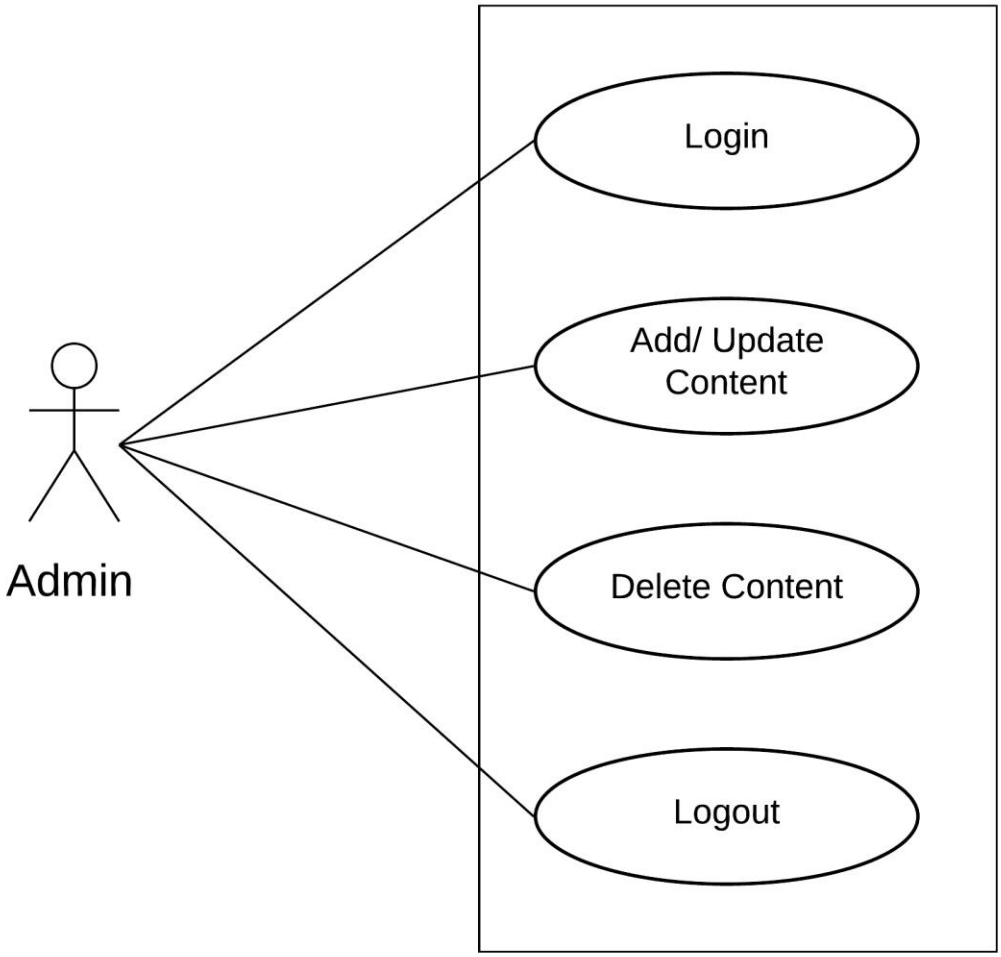

Figure 3. 2: Use Case diagram for Admin

3.2.2. Non-Functional Requirements

The following are the non-functional requirements of the system:

- **User friendly:** The website has simple UI design No technical expertise, manuals or catalogs are required to run the system i.e. even naïve users can use it easily. Users can easily navigate and explore different pages because of its simple user interface.
- **Responsive:** Author have used responsive SCSS style sheet to make the web responsive. This system should respond within 4 seconds.

- **Availability:** Once the database of desktop application is hosted over the internet the system should be available in web. The system should be available 24/7. However, internet connectivity is the prime requirement. User can browse from computers or mobile and various information about the insurance company will be easily available.
- **Security:** The system is password protected. Only a trusted user or admin has the credentials to bring change in the data of the website.
- **Supportability:** Users do not need to have any specific operating system to run this website as long as both, a browser and internet access is present. They can access this website via a computer, smart-phone or tablet. The site is adaptable even if new pages and contents are added later.

3.3. Feasibility Study

Feasibility means weighing up the benefits of the system against the development and operational costs of the system to determine whether the project is worth implementing. Feasibility can be assessed on different dimensions such as technological, economical, legal, operational, and schedule. Since the design phase of this project, team has been analyzing the feasibility of the project in order to determine the effectiveness and efficiency of the project.

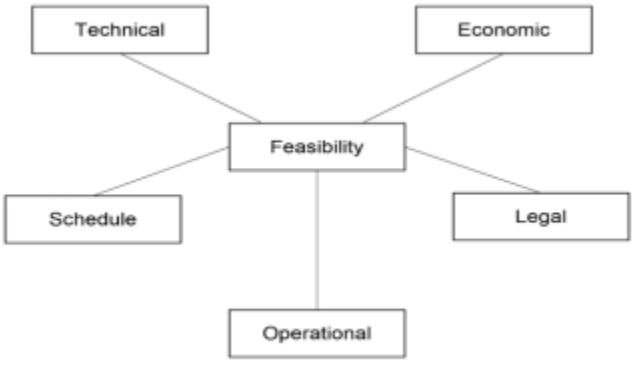

Figure 3. 3: Project Feasibility Analysis

Figure 3.3 shows the various types of feasibility analysis. The various types of project feasibility analysis are technical, economic, legal, schedule and operational feasibilities. The schedule of feasibility test has been performed to ensure that the project is feasible from all aspects.

3.3.1. Technical Feasibility

The technical feasibility assessment is focused on gaining an understanding of the present technical resources of the organization and their applicability to the expected needs of the proposed system. It is an evaluation of the hardware and software and how it meets the need of the proposed system.

The web application is designed using HTML, CSS, JavaScript as a frontend tool and WordPress and PHP as programming language. Further, the author of this project is equipped with adequate technical resources and knowledge. Based on various research for this project, the technical prospects of this project can be achieved by the current technology available. Therefore, both the project and the web application are technically feasible for practical implementation.

3.3.2. Economic Feasibility

This is a private project. And once the theme is uploaded online it can also be beneficial for the organizations who are interested in implementing a website of similar design and function. Hence, the required capital for deployment and maintenance of this system is dependent upon company's policy in which as an intern the researcher had no issue.

3.3.3. Legal Feasibility

Legal feasibility is the process of accessing potential legal and contractual consequences due to the construction of an application. It is carried to determine whether the proposed system contradicts with the existing legal issues or policies.

This application will not violate any rules and regulations that are applicable to it. All the formulae and measures were researched and are referenced accordingly. The references of the authors and published papers have been mentioned in the project in proper format without violating rules regarding copyright issues.

3.3.4. Operational Feasibility

This test of feasibility checks if the system works with least difficulties when it is developed and installed. Any person with basic computer and internet knowledge can use this system easily. The system has very easy user interface and is compatible for all kinds of web browsers. Hence, it is concluded that the system is operationally feasible.

3.3.5. Schedule Feasibility

The time schedule of the project is shown below:

A. Time Schedule

Table 3. 1: Scheduling Table

Task	Task Description	Start Date	Finished Date
1	Preliminary Work	2018/10/03	2018/10/15
2	Planning	2018/10/22	2018/10/24
3	Research	2018/10/25	2018/11/06
4	System Design	2018/11/14	2018/12/01
5	Design Implementation	2018/12/01	2019/03/12
6	Testing and Debugging	2019/01/05	2019/03/12
7	Documentation	2019/03/12	2019/03/20

B. Gantt Chart

Table 3. 2: Gantt Chart

Activities	Oct	Nov	Dec	Jan	Feb	Mar
Preliminary Work						
Planning						
Research						
System Design						
Design Implementation						
Testing and Debugging						
Documentation						

3.4. Process Model of the System

Process model is a description of a process at the type level. The same process model is used repeatedly for the development of many applications and thus, has many instantiations.

3.4.1. DFD

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. Level 0 DFD (Context diagram) is used to represent whole system (LIC Nepal) as a single process and level 1 DFD notates each of the main sub-processes that together form the complete system. Simply, level 1 DFD is used as an "exploded view" of the context diagram. (Smartdraw, 2015)

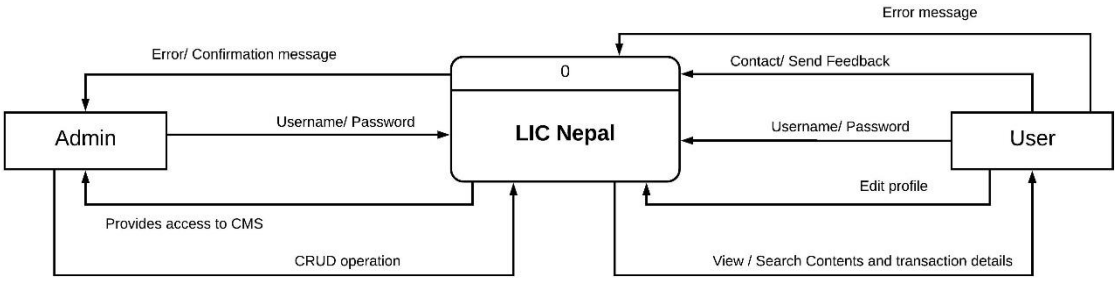

Figure 3. 4: Context Diagram

The diagram in figure 3.4 Context Diagram shows the general work flow of LIC Nepal. The system consists of admin and user. The admin performs the CRUD operation through the admin dashboard and user can easily view, search content and transaction details from website.

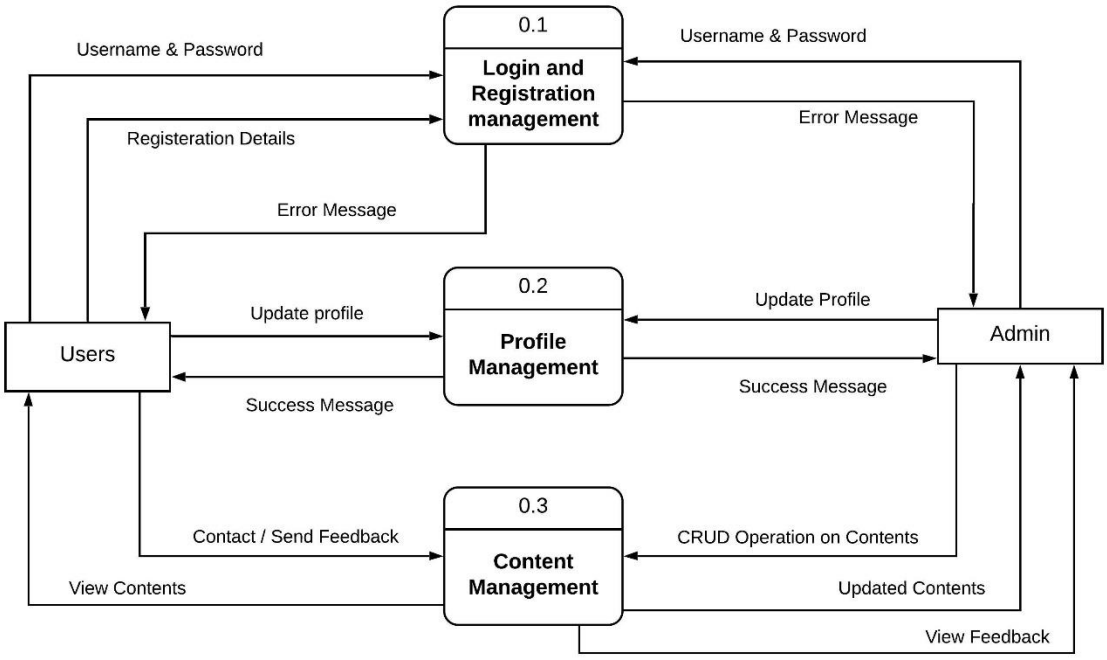

Figure 3. 5: Level 1 DFD

The diagram in figure 3.5 Level 1 DFD shows all the user functions from updating the content to viewing the information stored in the database. Basically, it displays the flow of data between different components of the system.

CHAPTER 4: SYSTEM DESIGN

4.1. Architectural Design

The main components of the system architecture are HTML, CSS and browser. The system is fully web-based. The system architecture can be depicted through the diagram shown below:

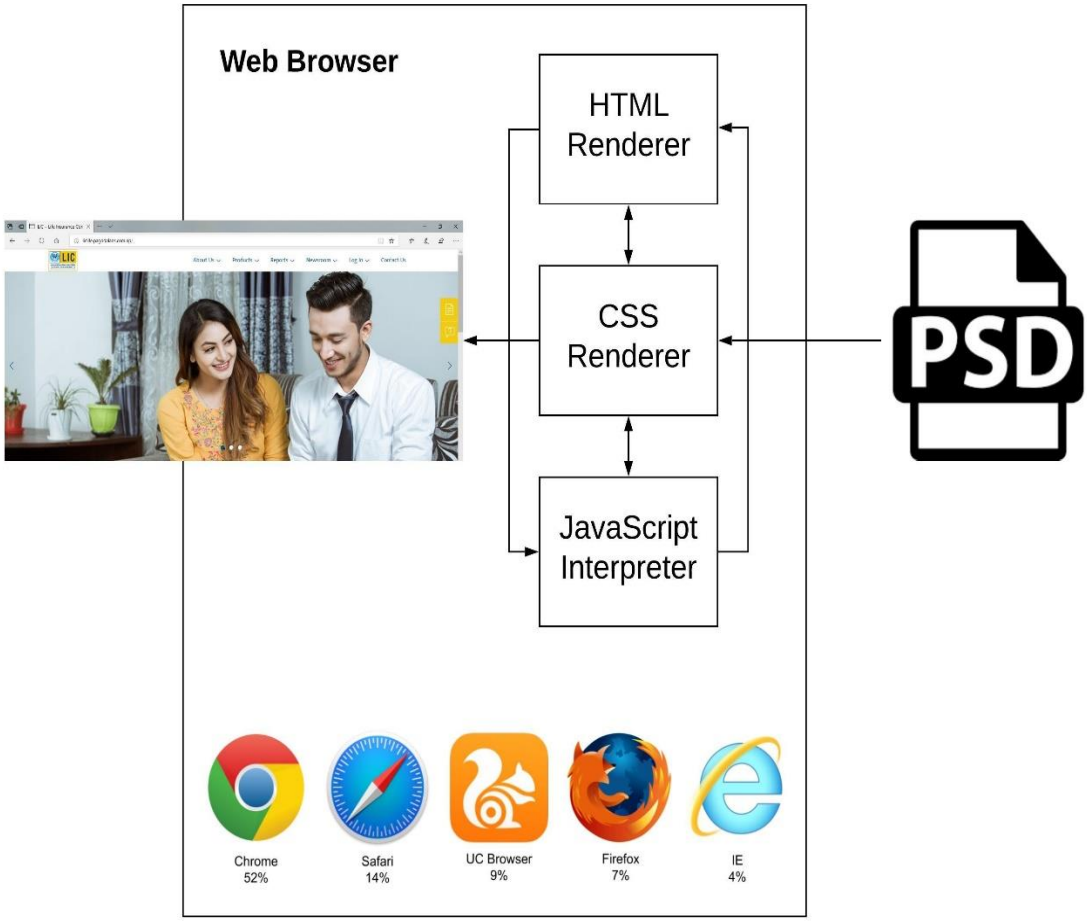

Figure 4. 1: Architecture of System

4.2. Interface Design

Interface design simply, is the means, by which the user and a computer system interact. It basically focuses on making the users interact with the system in easy and effective manner. The design stage typically involves moving the information outlined in the planning stage further into reality.

The development of the website was done with the help of wireframe and PSD design. The web interface is based on grid-based layout where HTML and CSS are used for structuring and designing of the website.

4.2.1. Wireframes

The visual layout of the website began to take shape with the development of wireframe. Wireframe for some of the pages of the website are shown in Figure 4.2, Figure 4.3, Figure 4.4, Figure 4.5 and Figure 4.6.

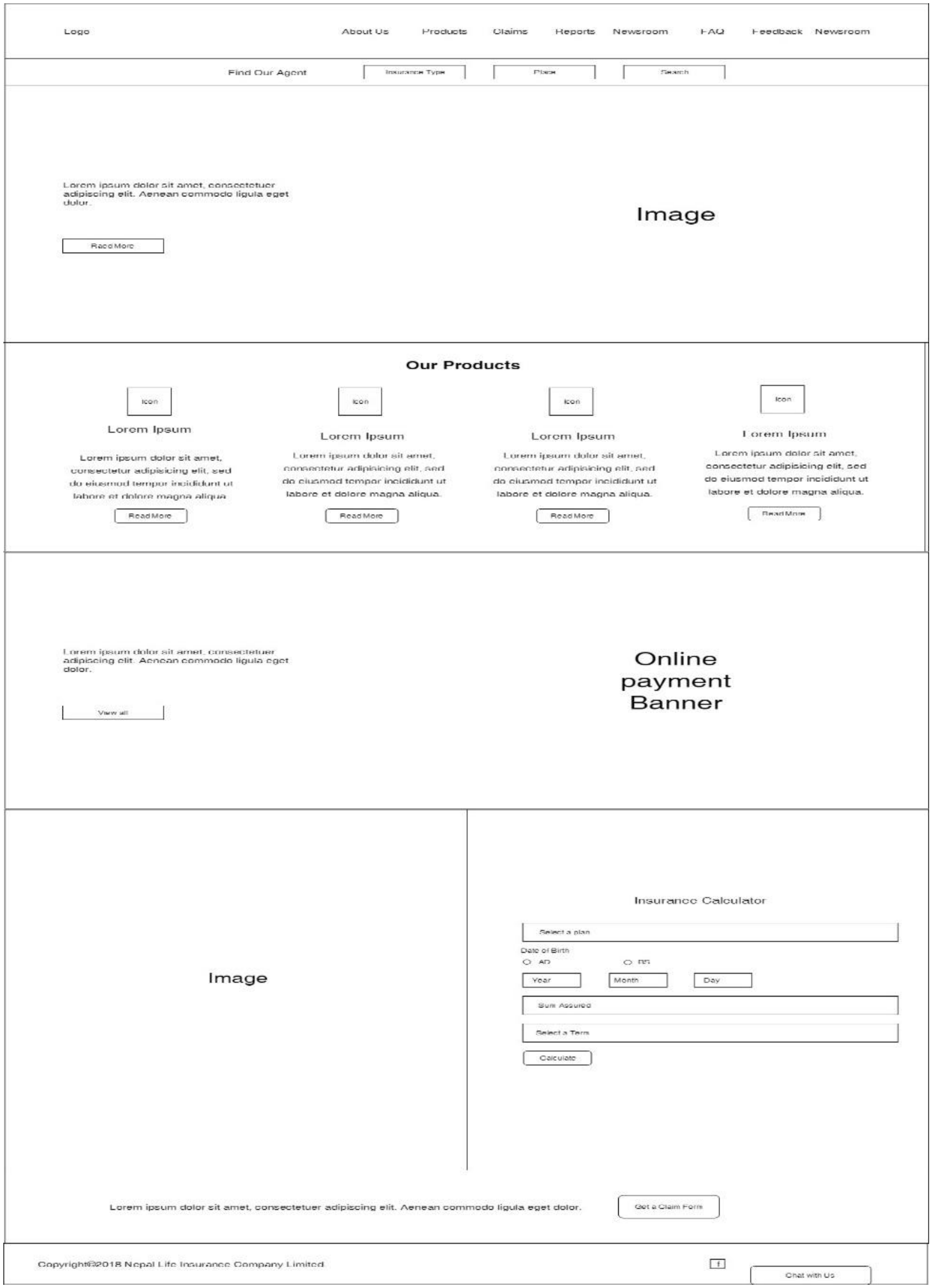

Figure 4. 2: Wireframe for Home Page

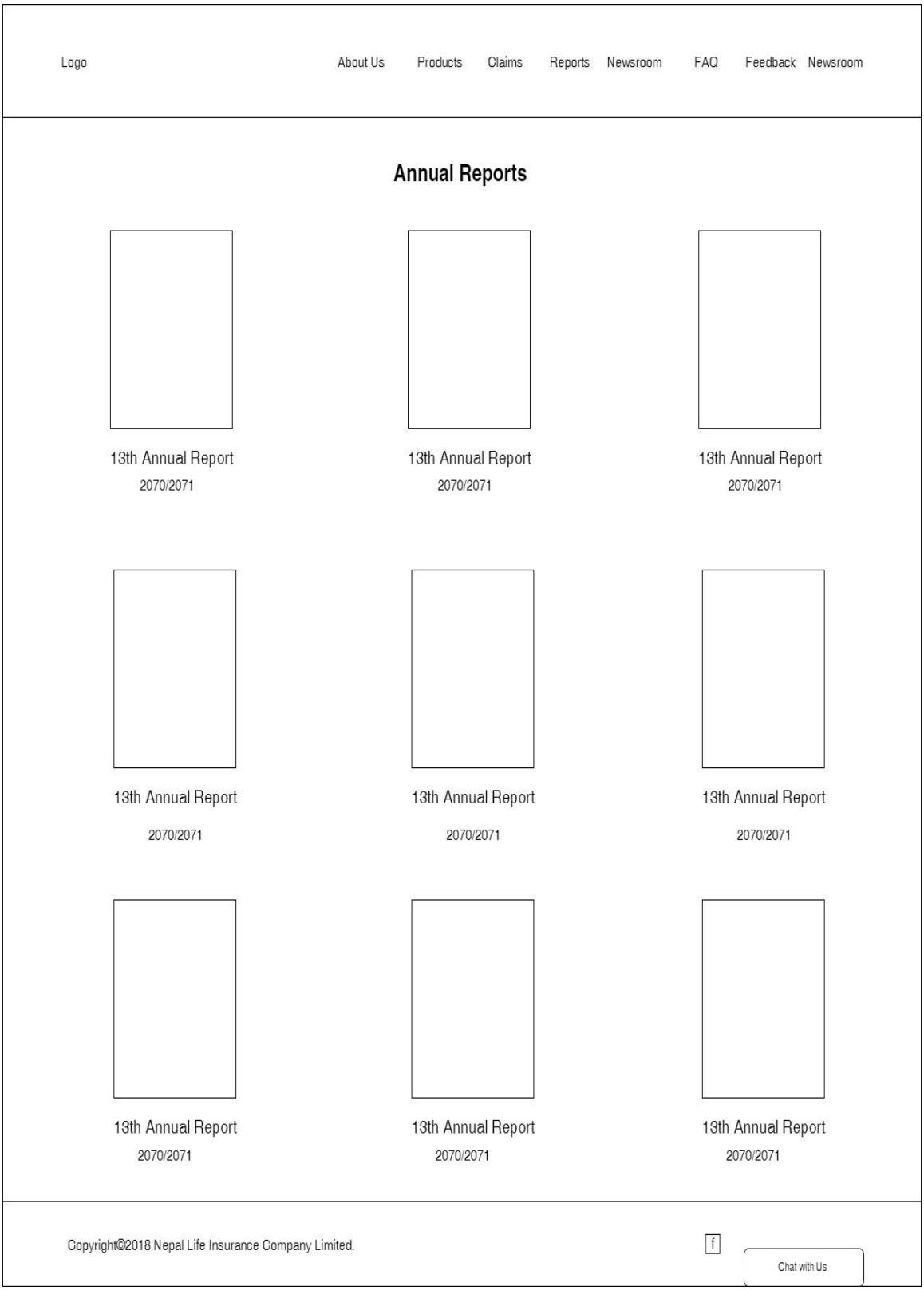

Figure 4. 3: Wireframe for Annual Report Page

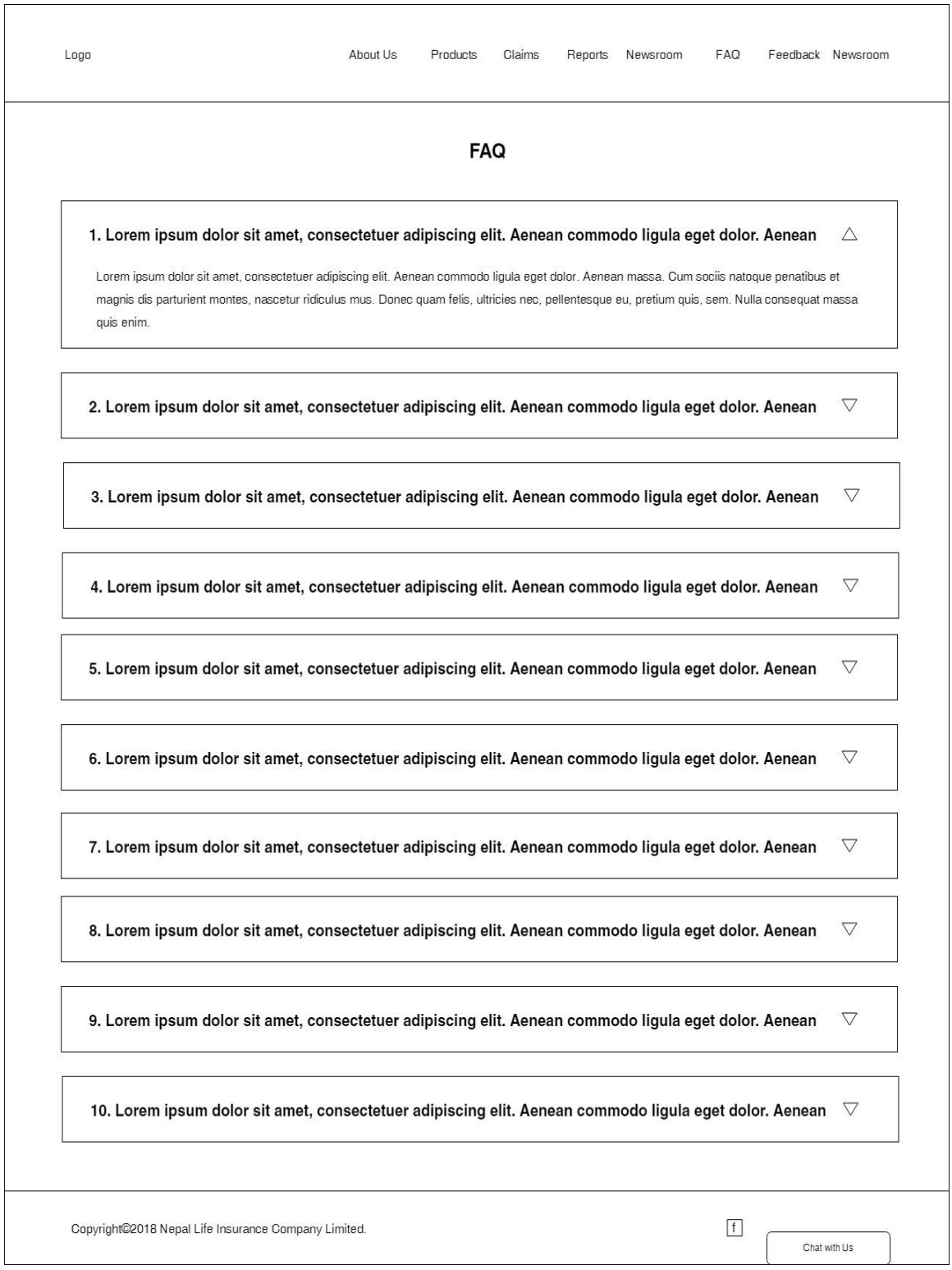

Figure 4. 4: Wireframe for FAQ Page

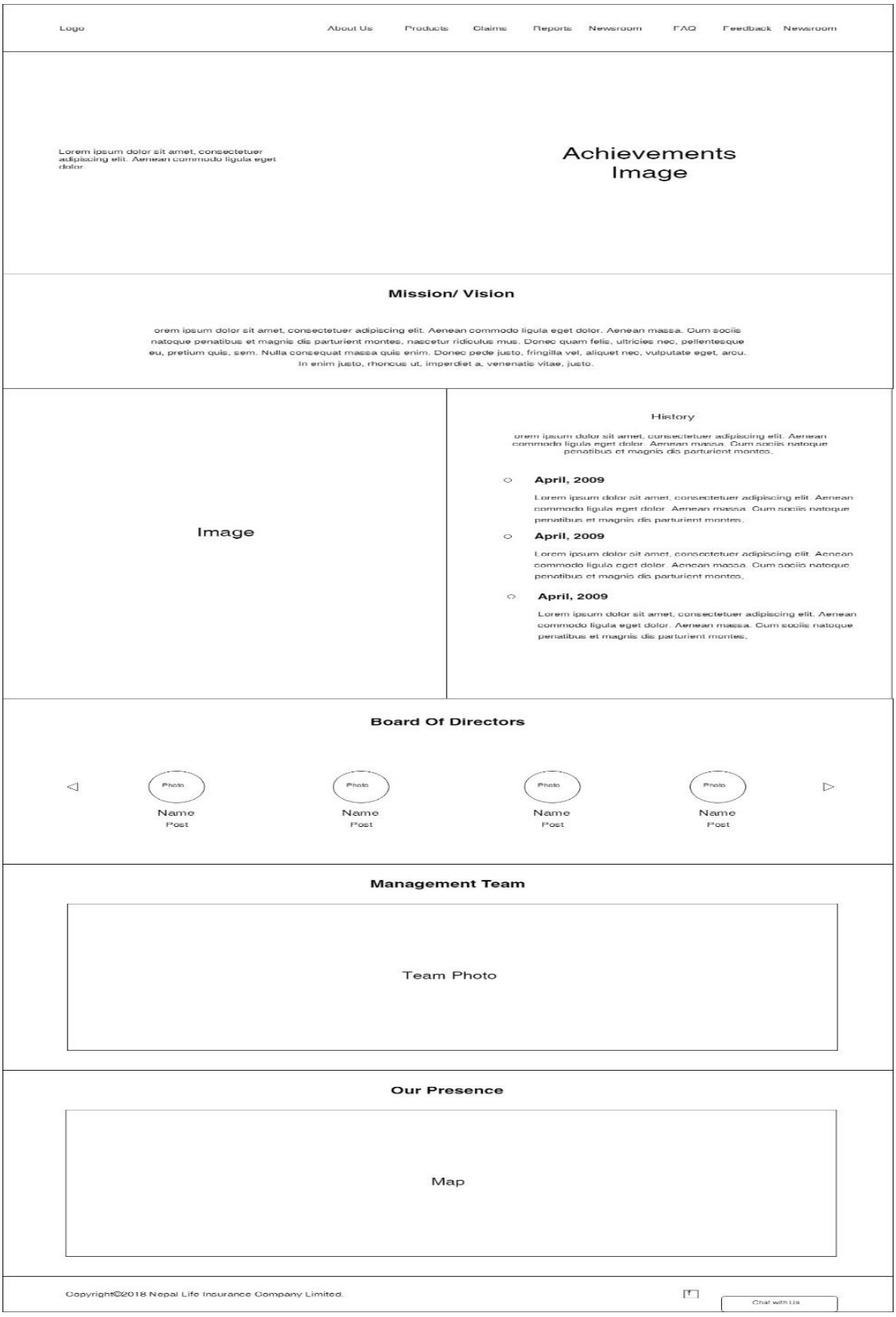

Figure 4. 5: Wireframe for About Us Page

Figure 4. 6: Wireframe for Notices and Press Release Page

4.2.2. PSD Designs

Some of the PSD designs which was made with the help of wireframe are shown in Figure 4.7, Figure 4.8 Figure 4.9 and Figure 4.10.

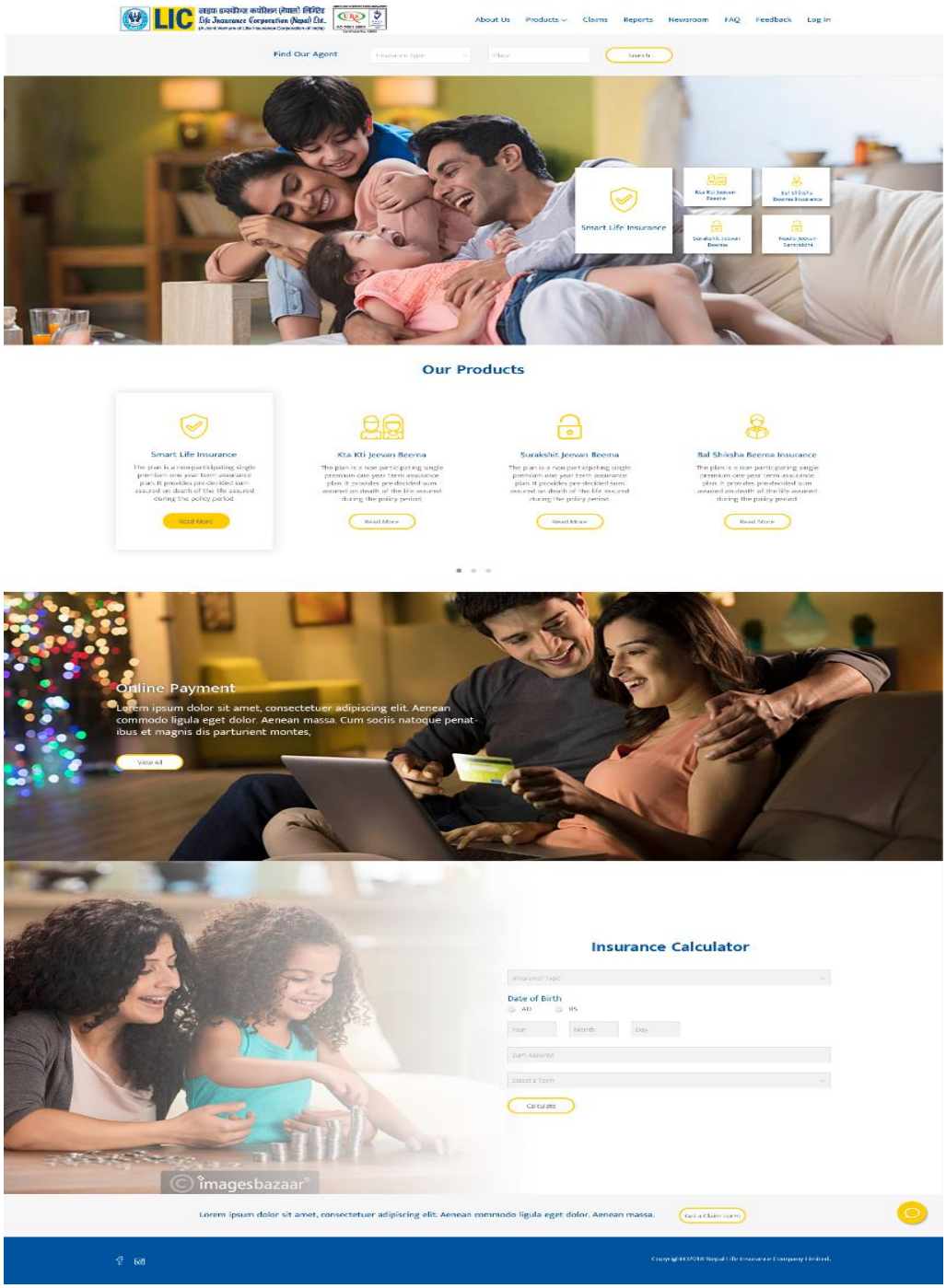

Figure 4. 7: PSD Design for Home Page

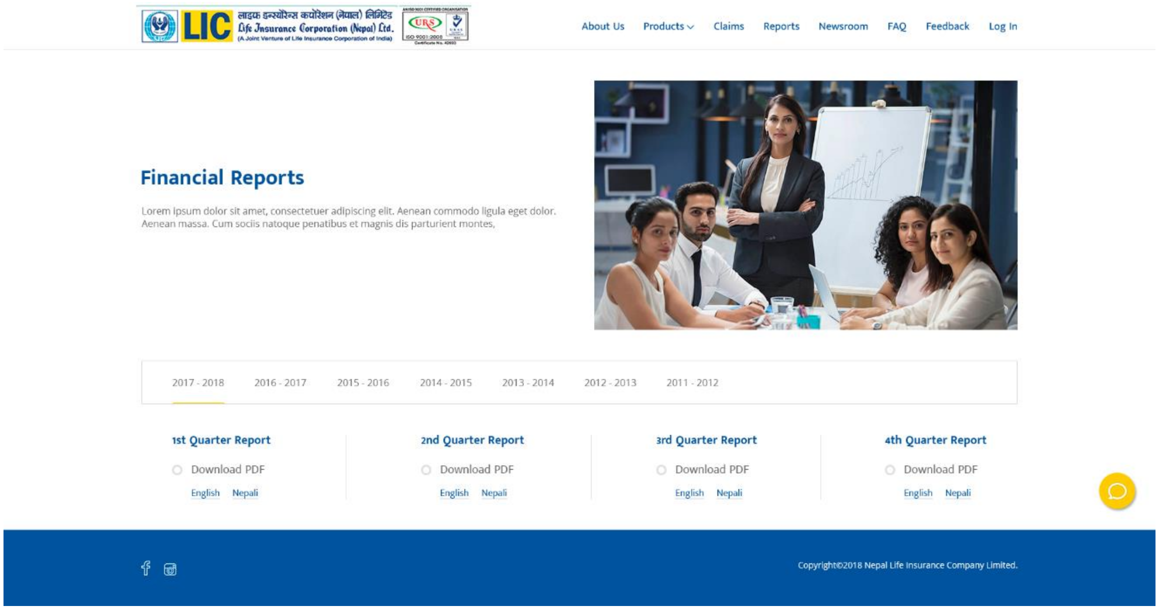

Figure 4. 8: PSD Design for Financial Report Page

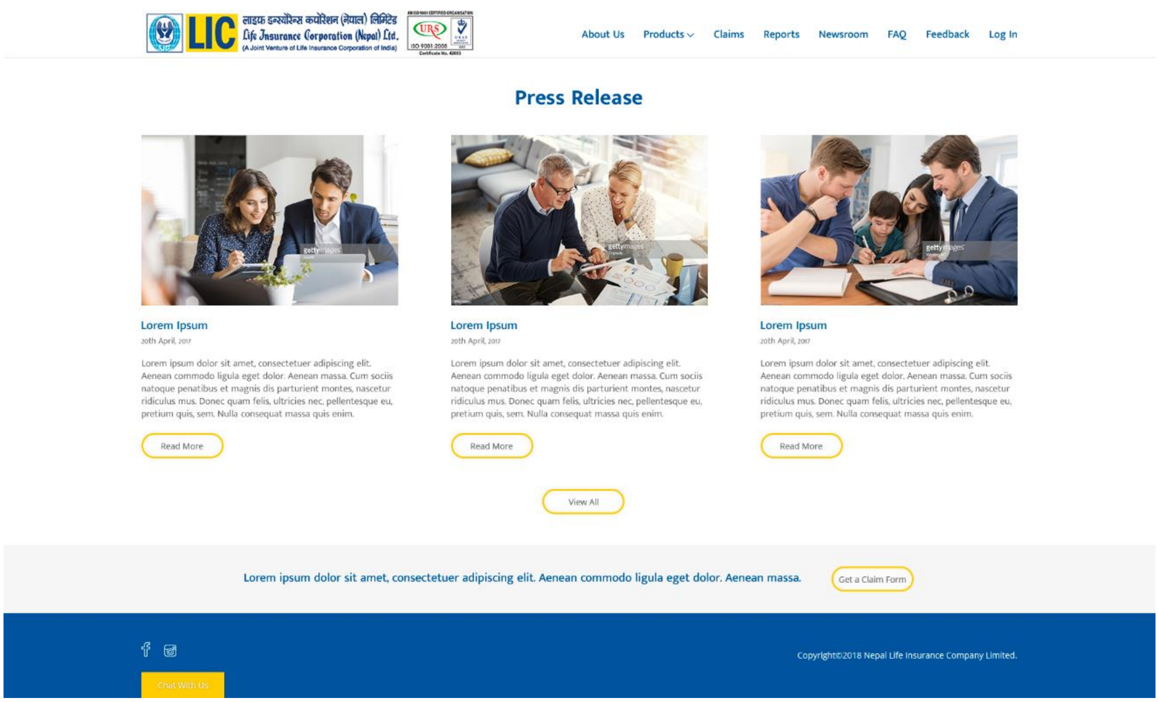

Figure 4. 9: PSD Design for Press Release Page

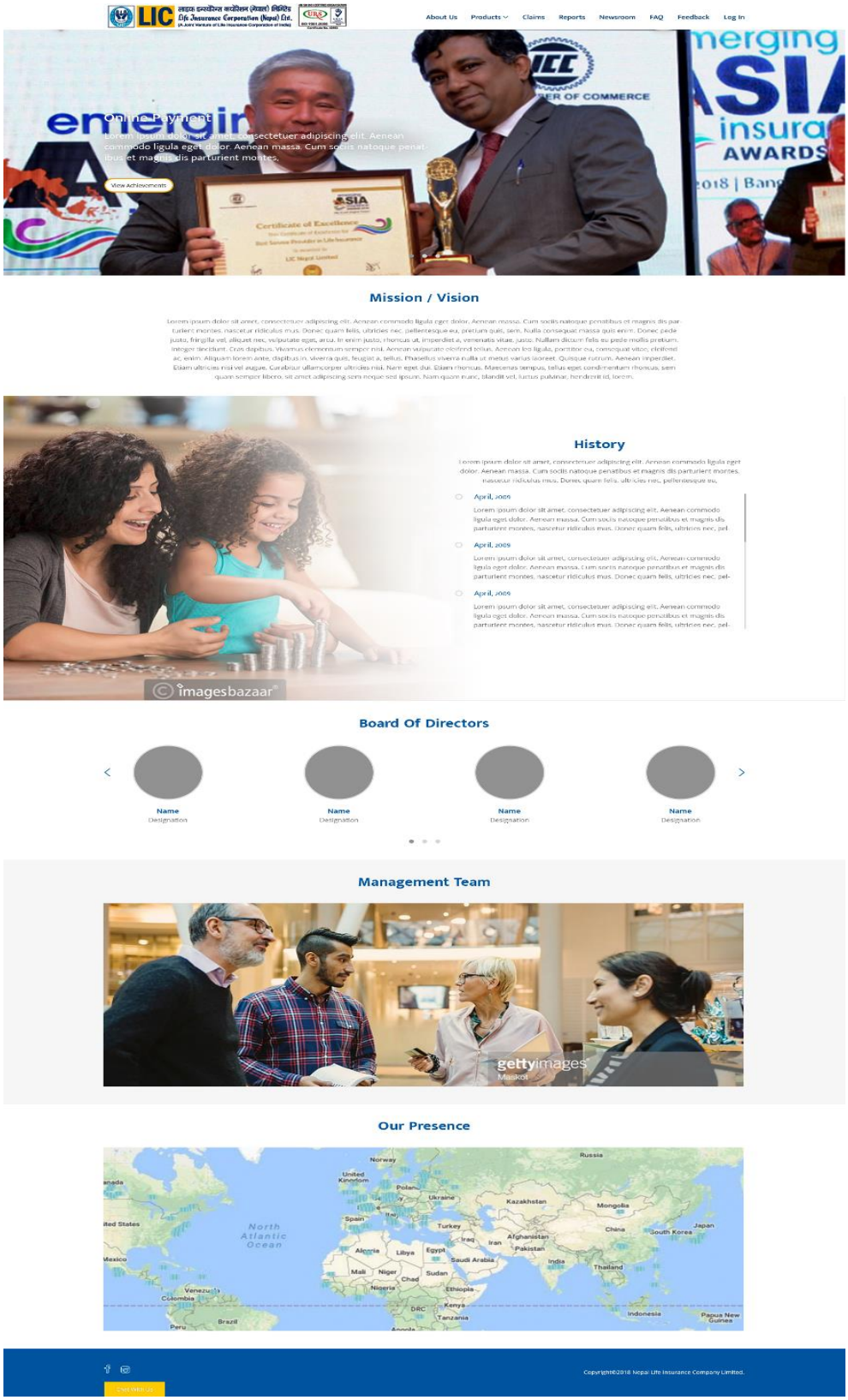

Figure 4. 10: PSD Design for About Us Page

4.2.3. Navigation Design

Navigation in LIC Nepal is used for navigating or exploring the website. For this purpose, author have created two navigation bars: one in the header section and the other one in the footer. Header navigation include about us, products, reports, newsroom, login and contact us. Similarly, the footer navigation include glossary, claims, agent details and customer citizen charter.

4.2.4. Input Design

Input design refers to the architecture of input elements that are used by the system for taking user input. For this purpose, author have used HTML form and HTML form elements. Author have used forms for login, register, insurance calculator, contact form and feedback form.

The following HTML elements are used:

A. Input Element

The <input> element represents a typed data field, usually with a form control to allow the user to add/edit. Author have used the following input attributes:

- <input type=”text”>: Defines a one-line text input field. This has been used in LIC Nepal for taking name as input.
- <input type=” password”>: Defines a password field. This has been used in LIC Nepal for taking password as input.

B. Select Element

- The <select> elements defines a dropdown list.
- The <option> element of select defines options that can be selected. Author have used select element to select plan name, date of birth, term in insurance calculator, subject in feedback form, in dropdown navigation and in small screen nav tabs and pills.

C. Button Element

- The <button> element defines a clickable button. This element has been used for read more, view all, calculate, clear, login, register and download.

4.2.5. Output Design

A quality output is the one, which meets the requirements of the end users and presents the information clearly. In LIC Nepal, all the details can be viewed in a website and the user can easily contact and send feedback.

In the other hand, when the admin logs into the system, he/she can bring required modification in the content of the system and view feedbacks and contacts.

4.2. Process Design

The frontend structure or the layout of the whole website can be portrayed through the diagram shown in Figure 4.11.

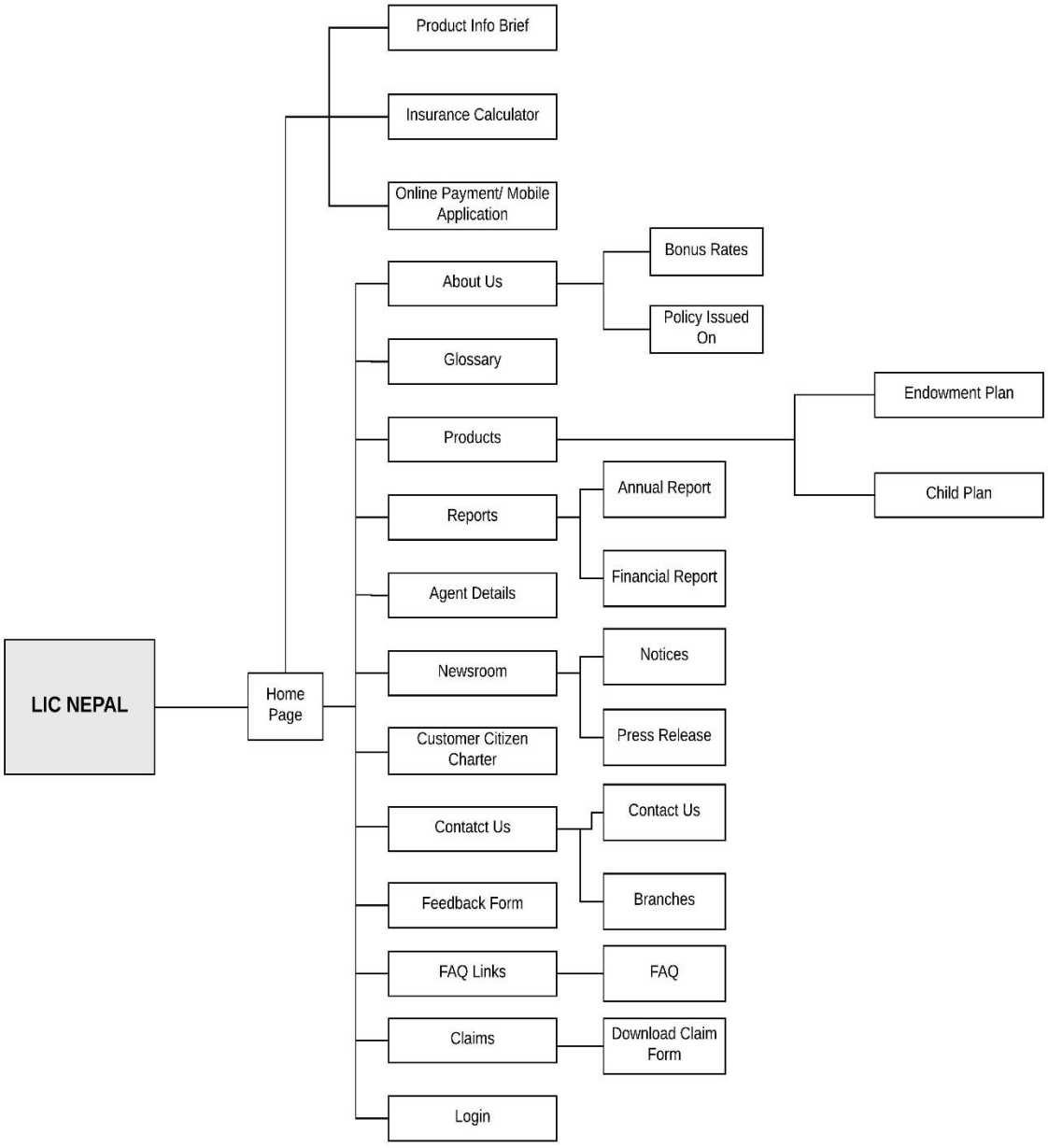

Figure 4. 11: Layout of Website

4.3.1. System Workflow

System workflow shows the process or the workflow of the whole project which is shown in Figure 4.12.

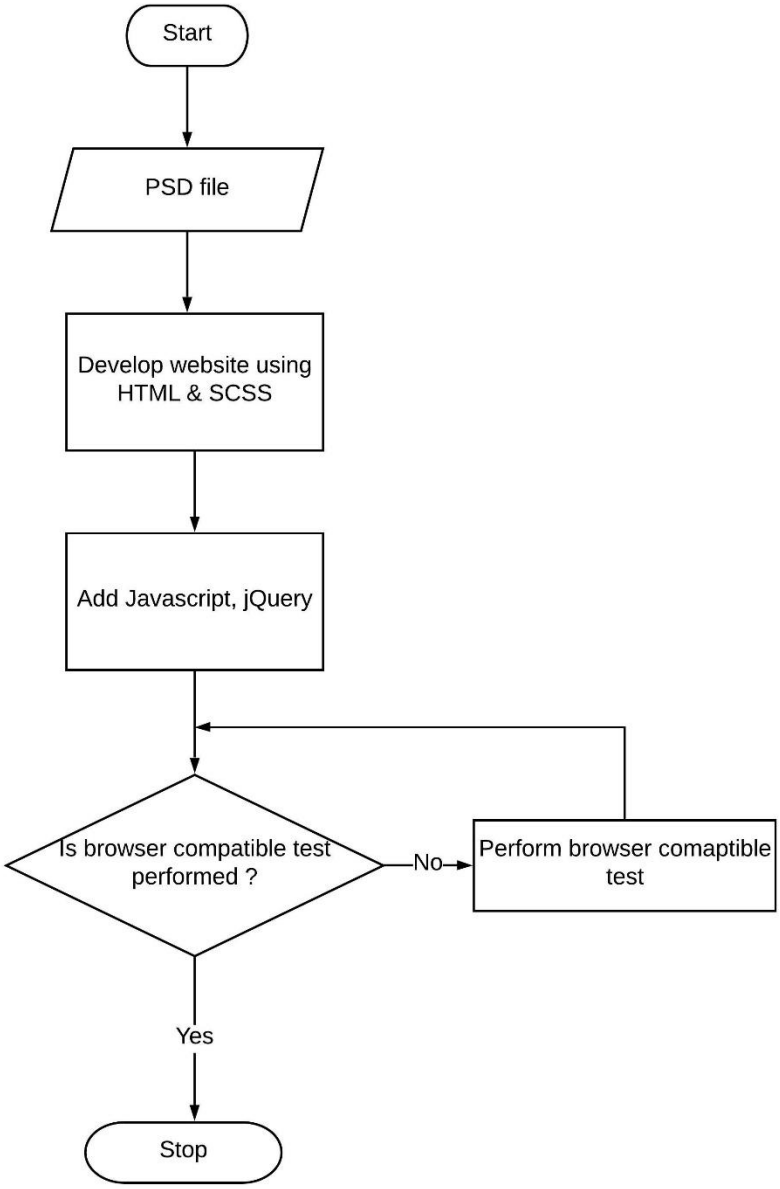

Figure 4. 12: Flowchart of the Project

First of all, the PSD file is provided through which the website is developed using HTML and SCSS. After that the JavaScript and jQuery are added for providing required functionalities to the website. Lastly, test cases are performed for the compatibility of the website.

4.3.2. Component Level Design

Component Level Design shows the workflow for different components of the system.

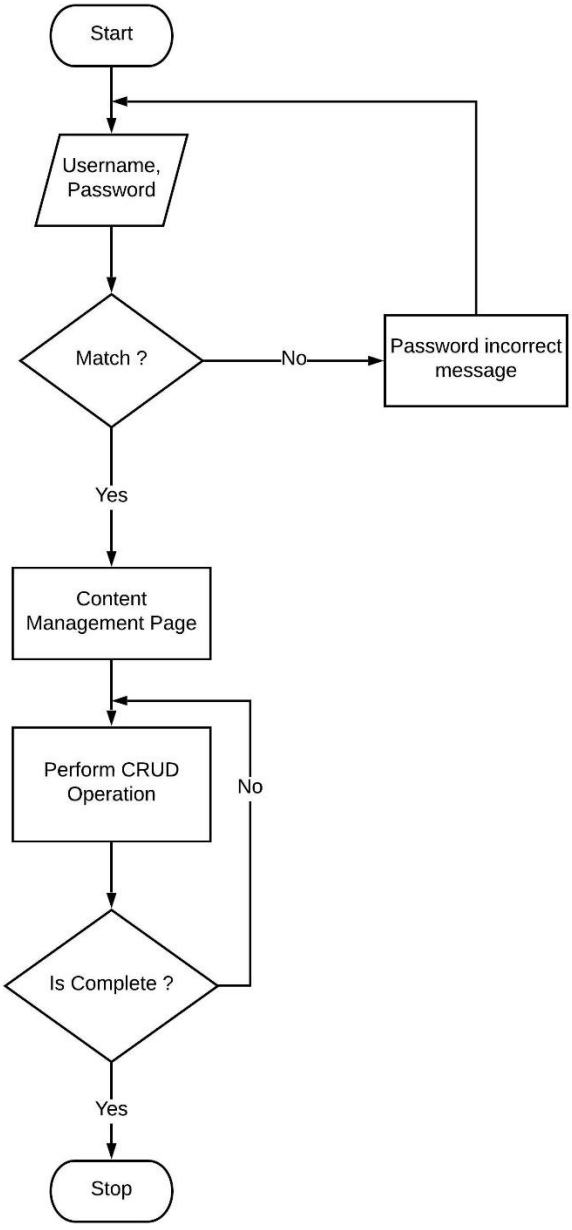

Figure 4. 13: Flowchart of CMS

Figure 4.13 shows the flowchart for the Content Management System. When the admin login to the system with valid credentials, the admin is redirected to the CMS dashboard. Now, admin can perform all the CRUD operation that is Create, Update and Delete contents for the website.

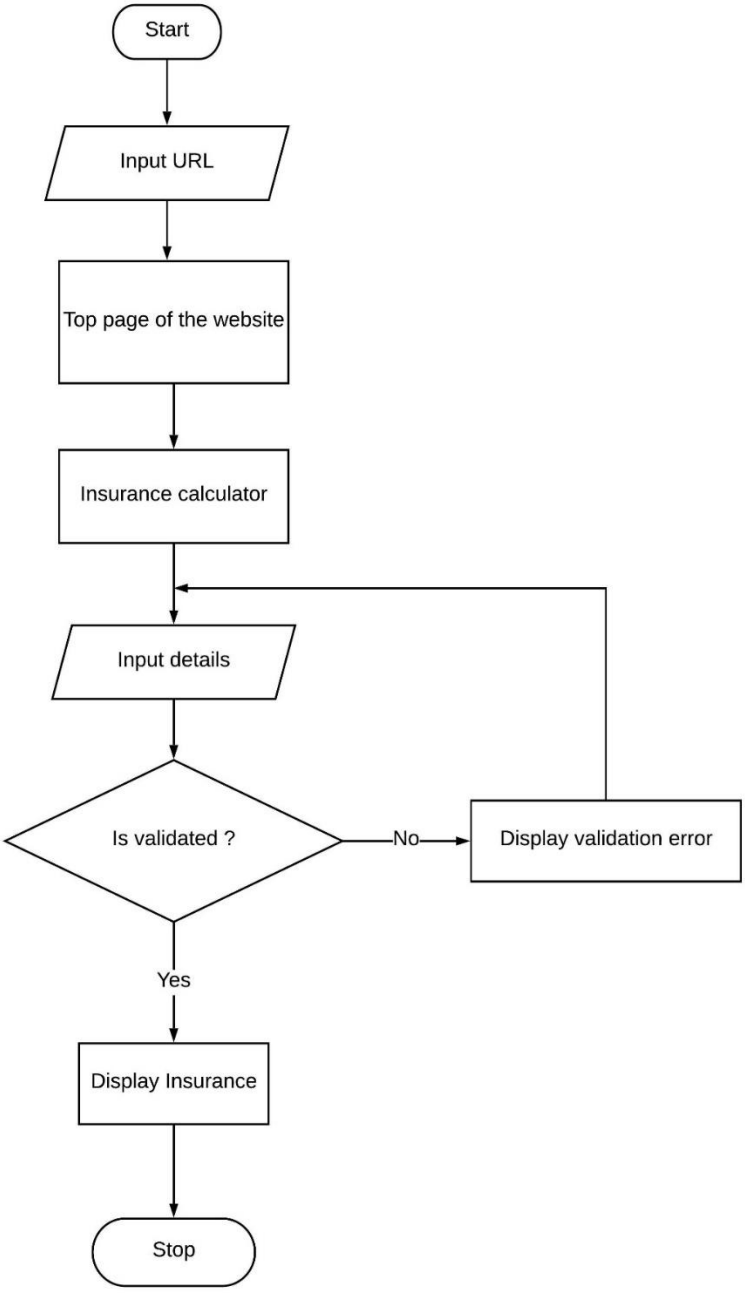

Figure 4. 14: Flowchart of Insurance Calculator

Figure 4.14 shows the flow for calculating the insurance. When the user visits the site and input details in the insurance calculator section all those details are checked and if valid the insurance table is displayed.

CHAPTER 5: IMPLEMENTATION

5.1. Tools Used

It provides details of programming tools and design tools used in the system.

5.1.1. Front End Tools

A. HTML

Hyper Text Markup Language (HTML) is a markup language for creating a webpage. HTML is used to allow website creation. The website of LIC Nepal is created using HTML by the author which can be viewed by anyone else connected to the Internet.

B. SCSS

SCSS also known as Sassy Cascading Style Sheet or superset of CSS. SCSS was used as an extension of CSS syntax where every valid CSS is a valid SCSS. SCSS made much easier to maintain large stylesheets and could recognize vendor specific syntax, where CSS and SCSS files used the extension .scss.

SCSS was used for describing the presentation of a document written in a markup language. It was designed to enable the separation of presentation and content, including layout, colors, and fonts.

C. JavaScript

JavaScript is a text-based programming language meant to run as part of a web-based application. It was used by the author to create the environment to the user and the admin to interact with the system. In the project, JavaScript was used for displaying table in the insurance calculator, calculating age, validation in the calculator form and showing presence of LIC in various locations in the map.

D. jQuery

jQuery is a fast, small, and feature-rich JavaScript library. jQuery was designed to simplify HTML, CSS animation, and Ajax. It helped the author to create abstractions for low-level interaction and animation, advanced effects and high-level theme able widgets. The modular approach to the jQuery library allowed for the creation of powerful dynamic website.

In the project, jQuery was used to make the website interactive like “toggle” method to show and hide the menu when the button is clicked in the small screen, for creating dropdown in the navigation and displaying the gallery. Similarly, it has also been used by the author for making sliders, search, modal, displaying input field on selecting an option in form, accordion and select options in nav tabs and pills for small screen.

E. AJAX

Ajax (Asynchronous JavaScript and XML) is a group of interrelated web development methods used in client side to create interactive web applications. In the project search is developed using AJAX. With Ajax, web application helped data to, and retrieve data from, a server asynchronously (in the background) without interfering with the display and behavior of the existing page. the web page can be refreshed dynamically. The web page doesn’t have to be reloaded each time after the user requests a change.

5.1.2. Coding Platform

A. PhpStrom

PhpStrom is text editor used for coding purpose. Author used the coding platform for writing all the codes.

5.1.3. Back End Tools

A. PHP

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP was used in combination with WordPress to make the website dynamic so that it could help in evolving and updating the project with more ease.

This also helps in removing the redundancy of HTML and JS codes so that there would be less consumption of memory as there was no need for writing the same update codes repeatedly.

B. WordPress

WordPress was used by the author for developing an admin dashboard which is used for handling things behind the scenes to make sure that the website is user-friendly and filled with great content and also to make contact form and feedback form functional. Admin can easily view the feedbacks and contacts in the admin panel. WordPress back end made those administrative tasks fairly easy. The WordPress backend is divided into pages that are either WordPress core pages like Media Library, Plugins, Tools, Themes or custom pages that are registered and rendered by third-party plugins or themes.

5.1.4. Server

A. Apache

Apache server has been used for the development of this site. Apache web server is an open source web server creation, deployment and management software. It is designed to create web servers that have the ability to host one or more HTTP-based websites. XAMMP was used as the apache server. It was used to check the output locally during the development so that the site could be error free before it was hosted.

5.1.5. Designing Tools

A. Photoshop

Adobe Photoshop was another application used during the development of the project. This tool was used for operating PSD files for the design of the website. It was used to measure the pixels values of the layout for pixel perfect margins and indentations and to crop, resize and correct color on digital photographs.

B. Lucid Chart

Lucid Chart is the diagramming and designing software to design various technical diagrams like flowcharts, UML designs, Gantt charts, and many other diagram types in the online platform. All the diagrams in this report have been developed using this tool.

5.2. Development Methodology

Author choose to develop the system on the basis of prototyping development methodology.

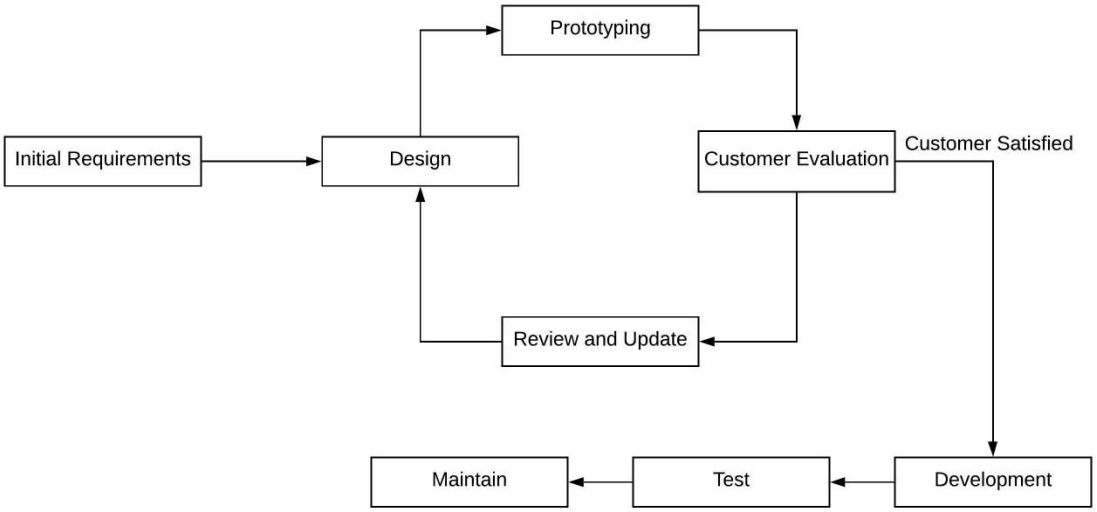

Figure 5. 1: Prototyping Model

In the system, website prototypes were developed which is an interactive demo of the website. The prototypes were used to gather feedback from project stakeholders early in the project lifecycle, before the project goes into final development.

CHAPTER 6: TESTING

This chapter includes different testing techniques used to test the system which are described below:

6.1. Unit Testing

The Unit testing part of a testing methodology is the testing of individual software modules or components that make up an application or system. Each page or section of the web application was tested after its development. Every sub-modules of module (user and admin) are tested. The sub-modules were tested respectively with their scenario. Sample test data is used to test each sub-module.

6.2. Integration Testing

Integration testing is a software testing methodology used to test individual web application components or units of code to verify interaction between various components and detect interface defects. All the components (individual pages) were tested as a single group in an iterative manner.

Sub-modules of each major modules user and admin are merged, and tested. This test is performed in two phases. In first phase all sub-modules of user are merged and tested and in second phase all sub-modules of admin are merged and tested using sample input data.

6.3. System Testing

System testing is conducted on a complete, integrated system to evaluate the system with its specified requirements. System testing is the testing to ensure that by putting the software in different environments it still works. The system was tested in both laptop of developers and on the server after deployment. Also, user and admin modules are merged and tested with sample test data.

6.4. User Acceptance Testing

User acceptance testing is testing whether the application is user friendly and meets the user requirements or not. The application was provided to LIC Nepal for acceptance. In response to feedback and comment further improvement were carried out.

6.5. Test Cases

The test cases provide an overview of the working process of the application. The author has divided test cases into the following groups:

Table 6. 1: Test Case for valid URL

Test	Test Steps	Test Data	Expected Result	Actual Result	Pass /Fail
Visit Website with valid URL	1.Enter URL	liclife.pagodalabs.com.np	User should get website	As expected	Pass
Visit Website with Invalid URL	1.Enter URL	pagodalabs.com.np/LIC	User should not get website	As expected	Pass

Table 6. 2: Test Case for valid Files

Test	Test Steps	Test Data	Expected Result	Actual Result	Pass /Fail
Upload valid file	1.Upload the files in valid size. 2.Check validation status.	File size less than 256MB.	File should be uploaded.	As expected	Pass
Upload Invalid file	1.Upload the files in valid size. 2.Check validation status.	File size more than 256MB.	File should not be uploaded.	As expected	Pass

Table 6. 3: Test Case for Browser Compatibility and Responsive website

Test	**Test Steps**	**Expected Result**	**Actual Result**	**Pass /Fail**
To check if the website is compatible in all browsers.	1.Run website in all browsers.	Website should be compatible for all browsers.	Website is compatible for all browsers.	Pass
To check if the website is responsive to all the devices.	1. Run the website in different resolution devices like desktops, laptops, tablets and mobile phones.	Website should be responsive for all screen size.	Website is responsive for all screen size.	Pass

Table 6. 4: Admin Login Testing

Test	**Test Steps**	**Test Data**	**Expected Result**	**Actual Result**	**Pass /Fail**
Login with valid data	1.Enter Username 2.Enter Password 3.Click Login	Username = lic Password = licnepal	User should reach admin's dashboard	As expected	Pass
Login with invalid data	1.Enter Username 2.Enter Password 3.Click Login	Username = hari Password = hari	User should not reach admin's dashboard	As expected	Pass

Table 6. 5: Test Case for Insurance Calculator

Test	**Test Steps**	**Test Data**	**Expected Result**	**Actual Result**	**Pass /Fail**
Form with all fields having some valid input.	1.Select Plan Name. 2.Select AD/BS 3.Enter DOB 4. Enter Sum Assured 5. Select Term	1.Plan Name = Child Plan 2.BS 2.DOB = 2052/11/28 3.Sum Assured = 20000 4.Select Term = 5	Table should be displayed.	As expected	Pass
Form with empty fields.	1.Select Plan Name. 2.Select AD/BS 3.Enter DOB 4. Enter Sum Assured 5. Select Term	1.Plan Name = Child Plan 2. 2.DOB = 20524/30/28 3.Sum Assured = 20000 4.Select Term = 5	Display Error message. (This field is required, year must be four digit and Month should be less than or equals to 12.)	As expected	Pass

CHAPTER 7: CONCLUSION AND LESSON LEARNT

7.1. Conclusion

With the completion of the internship, the author has gained much more insights on how to work in professional environment. The skills that once author had were sharpened during this period. During the three months course of time, the author got chance to work in real working environment and extend the knowledge regarding real world projects. Some of the tools and technologies learnt are WordPress, Design patterns, JavaScript, jQuery, PHP Programming Language.

The project "LIC Nepal: Development and Deployment of Interactive and Responsive Web Application" is still in the development phase. However, the web application allows users to view various detail about the company and their products. It also provides the functionality of searching the branches, FAQ and allows any user to contact and send feedback to the company. The project successfully delivered a full fledge interactive and responsive frontend template where the content can be easily updated from the admin dashboard.

7.2. Achievements and Lesson Learned

During the course of three months the author was able to experience various opportunities to work according to the organization deeds. Through this period of time, the author also learnt to handle client and their project and also learnt to work under extreme pressure and within deadline. It helped author enhance the presentation skills and implement the knowledge gained throughout the courses that were learnt during the university course.

This internship has also helped author to gain the knowledge of the practical environment of the organization.

- It has helped author to deal with the real-world problem which is different from the theoretical knowledge.
- Far from the main objective of building a system application, working in the organization has given the author better knowledge about collecting the user requirement and its analysis.
- Also, this has helped author to increase communication skills with the people.
- The exposure to the practical environment has increased experience and confidence to deal with various organizational communications with customer.

Therefore, from this internship program author was able to successfully receive job offer from the organization.

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APPENDICES

APPENDIX A: SNAPSHOT

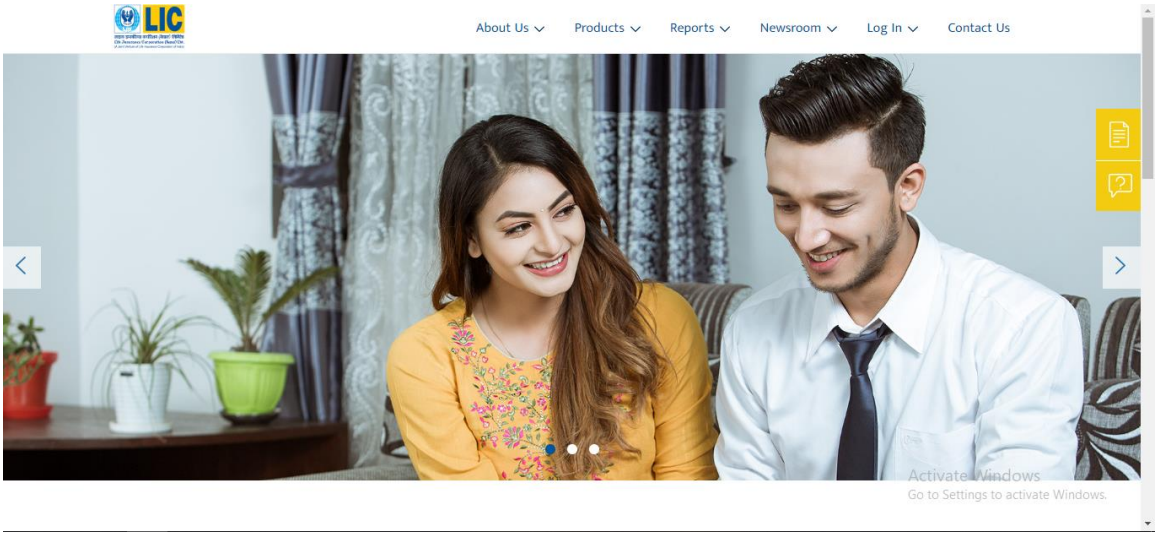

Figure A. 1: Home Page Banner Slider

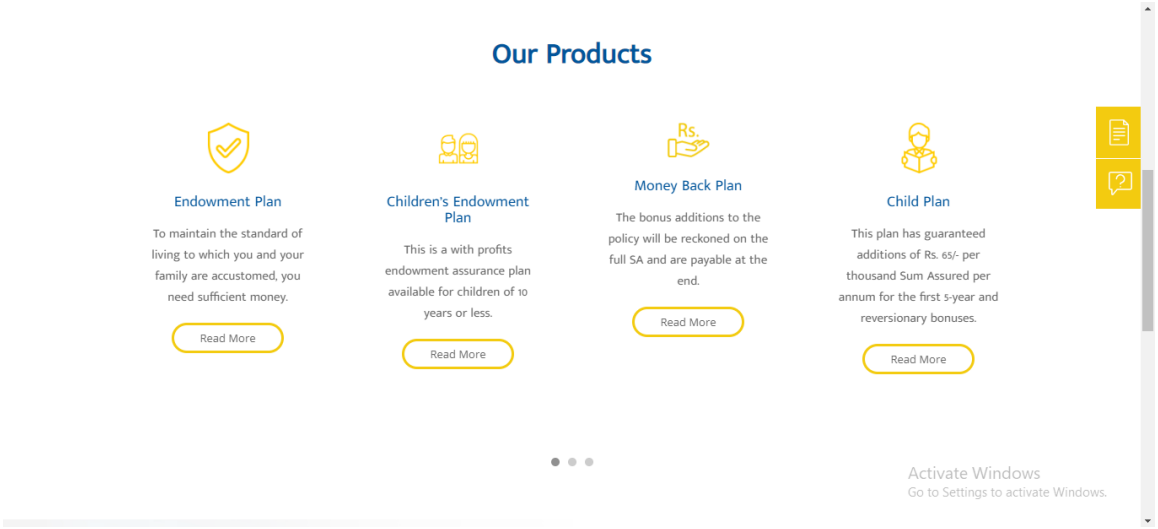

Figure A. 2: Home Page Products Section

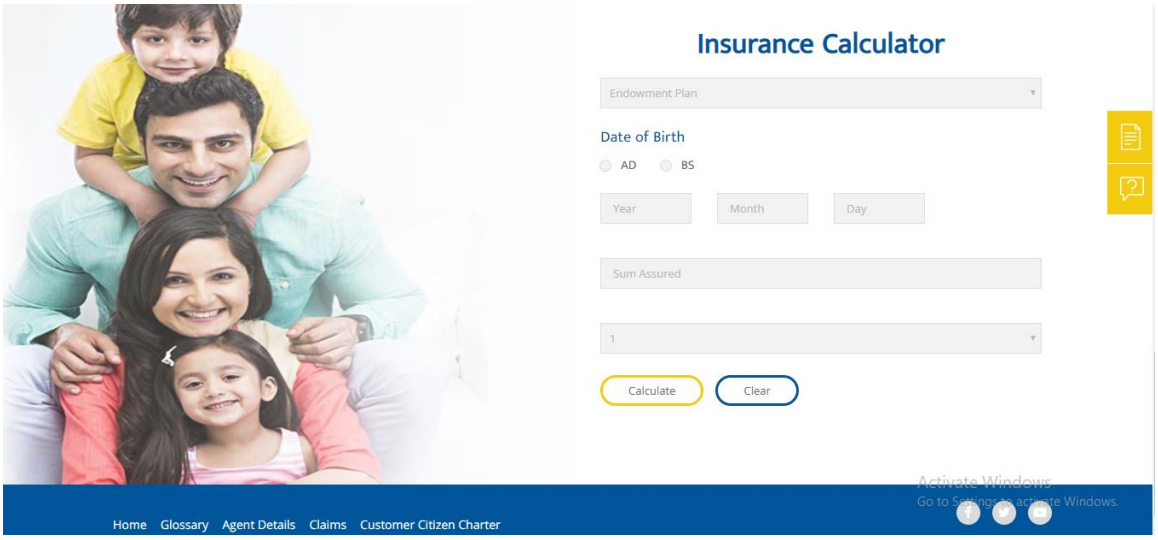

Figure A. 3: Home Page Insurance Calculator

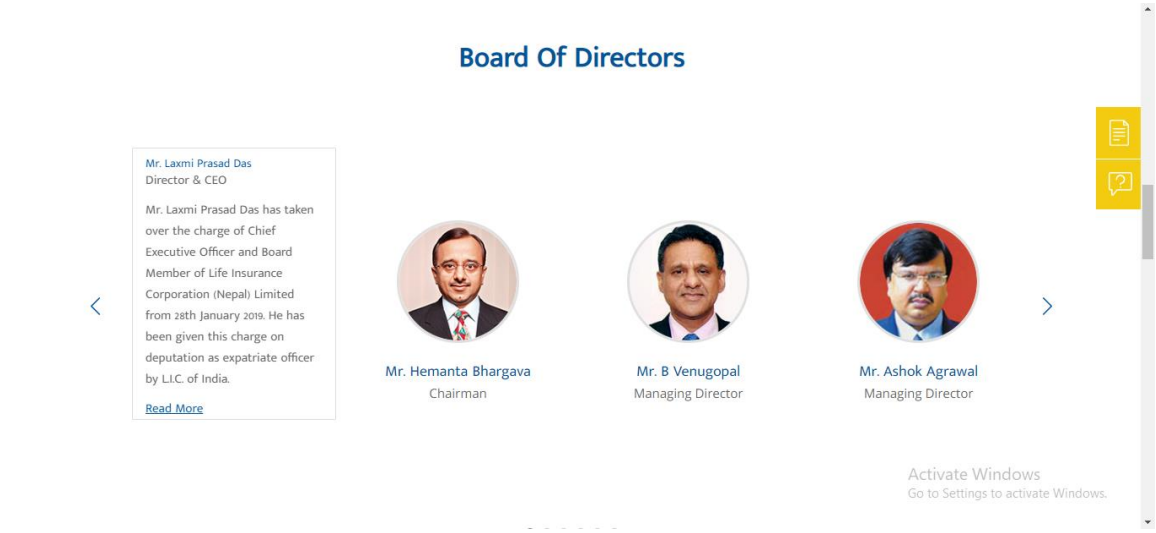

Figure A. 4: Board of Directors

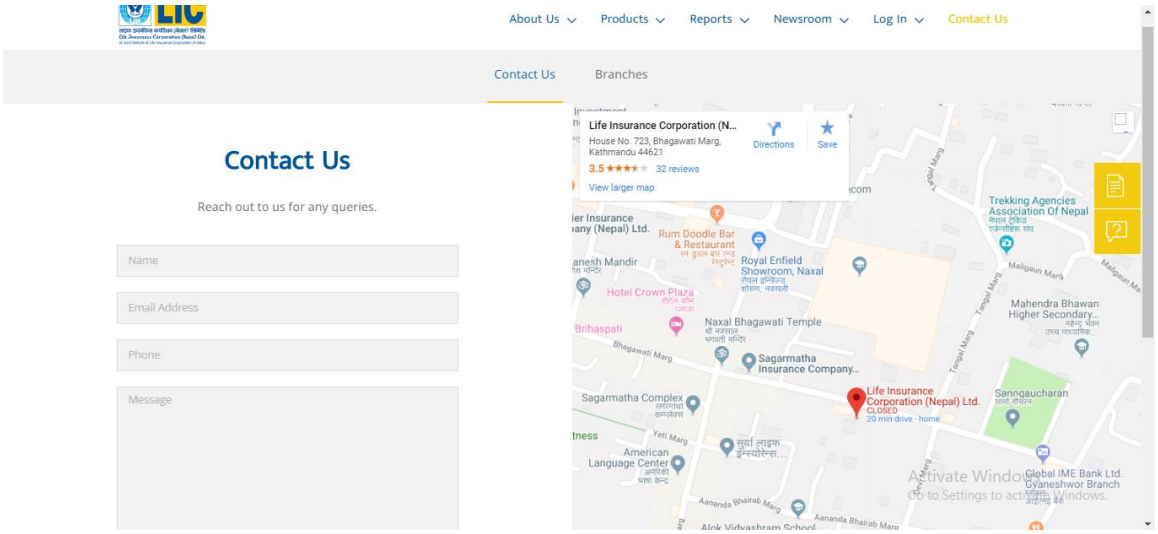

Figure A. 5: Contact Us

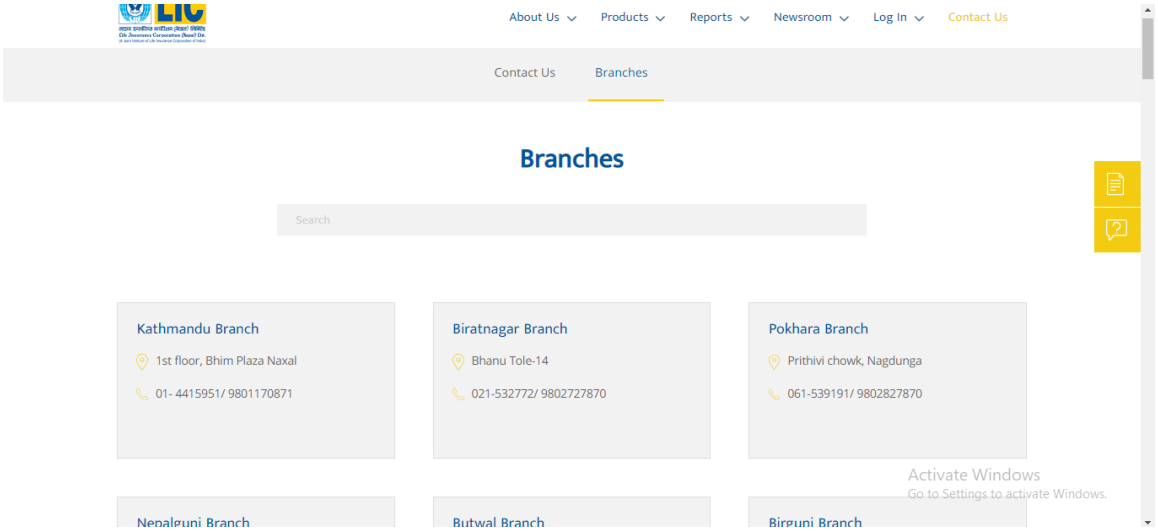

Figure A. 6: Branches

APPENDIX B: CODE SNIPPET

```
<?php
global $post;
get_header(); ?>
    <div id= "homepage">
        <section class="banner_section">
            <div class="banner-slider">
                <?php query_posts('post_type=post&category_name=banner_slider&order=asc');while (have_posts()): the_post(); ?>
                    <?php the_post_thumbnail('full'); ?>
                <?php endwhile; wp_reset_query(); ?>
            </div>

        </section>
        <section class="common-product-section">
            <div class="custom-container">
                <div class="section-title">
                    <h1>Our Products</h1>
                </div>

                <div class="product-content">
                    <div class="product-slider">
                        <?php query_posts('post_type=product_posts&posts_per_page=-1&order=asc'); while(have_posts()): the_post(); ?>
                            <div class="product-items">
                                <div class="inner">
                                    <div class="product-image-container">
                                        <?php $ico = get_field('product_icons');?>
                                        <img src = "<?php echo $ico['url']?>">
                                    </div>
                                    <div class="product-image-content">
                                        <h3><?php echo the_title(); ?></h3>
                                        <?php echo the_excerpt(); ?>
                                    </div>
                                    <div class="product-button">
                                        <button class="lic-button"><a href="<?php the_permalink(); ?>">Read More</a></button>
                                    </div>
                                </div>
                            </div>
                        <?php endwhile; wp_reset_query(); ?>
```

Figure B. 1: Source Code for Home Page

```
                        <?php endwhile; wp_reset_query(); ?>
                    </div>
                </div>
            </div>
        </section>
<?php get_footer(); ?>

<?php query_posts('post_type=post&category_name=modal&order=asc');while (have_posts()): the_post(); ?>
    <div class="modal fade lic-modal" id="homeModal" tabindex="-1" role="dialog" aria-labelledby="myModalLabel" aria-hidden="true">
        <div class="modal-dialog" role="document">
            <button type="button" class="close" data-dismiss="modal" aria-label="Close">
                <span aria-hidden="true">&times;</span>
            </button>
            <div class="modal-content">
                <div class="modal-header">
                    <h4 class="section-title"><?php the_field('modal_title')?></h4>
                </div>

                <div class="section-content">
                    <?php the_post_thumbnail(); ?>
                    <?php the_content(); ?>
                </div>
            </div>
        </div>
    </div>
<?php endwhile; wp_reset_query(); ?>
```

Figure B. 2: Source Code for Modal

```
<?php
get_header(); ?>
<?php
if ( have_posts() ) {
while (have_posts()) {
the_post();
?>
<div id="endowment_page">
    <section class="endowment-description">
        <div class="custom-container">
            <div class="section-content">
                <div class="section-title">
                    <h1><?php echo the_title(); ?></h1>
                </div>

                <h3>Description</h3>
                <p><?php the_content(); ?>
                </p>

                <?php $product_tableContent = get_field('product_table', get_the_ID());
                if(!empty($product_tableContent)):
                    ?>
                <div class="manage-table">
                    <div class="table-responsive">
                        <?php
                        echo $product_tableContent;
                        ?>
                    </div>
                </div>
                <?php endif; ?>

                <?php $benefitsContent = get_field('benefits', get_the_ID());
                if(!empty($benefitsContent)):
                    ?>
                    <h3>Benefits</h3>
                    <?php
                    echo $benefitsContent;
                    ?>
```

Figure B. 3: Source Code for Product Page

```
                <?php $benefitsContent = get_field('benefits', get_the_ID());
                if(!empty($benefitsContent)):
                    ?>
                    <h3>Benefits</h3>
                    <?php
                    echo $benefitsContent;
                    ?>
                <?php endif; ?>

                <?php $featureContent = get_field('features', get_the_ID());
                if(!empty($featureContent)):
                    ?>
                    <h3>Features</h3>
                    <?php
                    echo $featureContent;
                    ?>
                <?php endif; ?>

            </div>
    </section>
    <?php }
    }?>
</div>
<?php get_footer(); ?>
```

Figure B. 4: Source Code for Product Page

```scss
#homepage {
   .banner_section {
     position: relative;
     .banner-slider {
       .slick-dots {
         bottom: 40px;
         li {
           height: 14px;
           width: 14px;
           background-color: #fff;
           border-radius: 100%;
           margin: 0 7px;
           &.slick-active {
             background-color: $color-1;
           }
           button {
             opacity: 0;
           }
         }
       }
       .slick-prev {
         z-index: 1;
         width: 45px;
         height: 50px;
         left: 0;
         background: #ffffffad;
         top:50%;
         &:before {
           display: none;
         }
         &:after {
           content: '';
           background-image: url("../img/images/left-arrow.png");
           width: 28px;
           height: 28px;
           position: absolute;
           left: 0;
           right: 0;
```

Figure B. 5: SCSS for Home Page

```scss
.management-section {
     background-color: #f6f6f6;
     .custom-container {
       .section-title {
         padding-bottom: 35px;
         h1 {
           text-align: center;
           font-weight: bold;
         }
       }
       .section-content {
         display: flex;
         flex-wrap: wrap;
         .management-items{
           width: 25%;
           margin-bottom: 30px;
           &:nth-of-type(1), &:nth-of-type(2), &:nth-of-type(3){
             width: 100%;
           }
           .inner {
             .management-image-container {
               margin-bottom: 30px;
               .management-image {
                 margin: auto;
                 width: 150px;
                 height: 150px;
                 background-repeat: no-repeat;
                 background-size: cover;
                 background-position: center;
                 border-radius: 100%;
                 border: 3px solid #e0e0e0;
               }
             }
             .management-image-content {
               text-align: center;
               h3 {
                 color: $color-1;
```

Figure B. 6: SCSS for Management Section