

UNITY UNIVERSITY

**College of Engineering, Technology and
Computational Sciences**

Department of Computer Science and MIS

SHEGER NOTICE

Final Project Document

**Submitted to department of computer
science and MIS in partial fulfillment of
the requirements for the degree of
Bachelor Science in computer science**

GROUP MEMBERS

- 1. GETINET FEKADU**
- 2. MESAY MEKONEN**
- 3. MICKAEL BELETE**
- 4. MISGANA DANIEL**
- 5. TINSAE ASRES**
- 6. YITBAREK ASSEGED**

Advisor:

Ato. Gulilat Yohannes

June, 2018

SHEGER NOTICE

Final Project Document

**Submitted to department of computer science and MIS in partial
fulfillment of the requirements for the degree of Bachelor Science in
computer science**

GROUP MEMBERS

- 1. GETINET FEKADU**
- 2. MESSAY MEKONNEN**
- 3. MICHAEL BELETE**
- 4. MISGANA DANIEL**
- 5. TINSAE ASRES**
- 6. YITBAREK ASSEGED**

Advisor:

Ato. Gulilat Yohannes

Signature: _____

Examiner:

Name: _____

Signature: _____

Abstract

Sheger Notice web based advertisement and notice display system.

Unity University, 2018

The main aim of this study is to solve the problems on the advertisement and notice industry. As the residence of Addis Ababa, one can notice that our advertisement and notice culture is absurd. First, when we start this project we started with the apparent problem, the cleanliness of the city. We said the apparent problem because everywhere we go we see every walls and polls covered with advertisements and notices. But, we managed to find some other problems that must be addressed in the advertisement and notice industry. The first one is unregulated and unorganized advertisement and notice industry. Unregulated and unorganized industry is the way an advertisement and notice are disseminated through the city. Any person can look at a concrete wall nearby plastered with some kind of paper advertisement/notice. The second one is unimplemented laws, and regulation. Unimplemented laws and regulation is to imply that there are proclamations and regulations but the city administration lacks the capacity to implement them. If these laws are implemented, we may see a better advertisement/notice industry. The third is the cleanliness of the city. A Paper-based advertisement/notice that is produced each day filling the city in every direction is one of the problem of the city sanitation. The option is not to eliminate but to limit or regulate the production of paper-based advert/notice by digitalizing the industry. The last is none vetted advertisement and notice. None vetted advertisement and notices that are unlawful, immoral, and culturally wrong contents are filling the city in four direction.

To solve these problems the project goes above and beyond, by implementing different techniques. The business rule makes the advertisers and the advertisement agent to think twice before sending any material. The business rule is one of the vetting process, which avoids immoral, unlawful, and insensitive materials. Analyses are done on the current and proposed system. We manage to interview the advertisers on the process of advertisement and notice from the conception to the end. Then, not only integrating it but also, making it interactive, engaging and entertaining. Data are collected. The data that are collected are mostly high definition pictures, videos and audios. The design aspects are done so that every visitor will be captivated, involved, and amused with the features through its stay on the site. We use every possible techniques to minimize the line of code without compromising the performance of the site. We make it easy to find any information provided that it is in the database, by creating categories for each subject matter. So if you advertise on our site your information can be accessed easily by millions of people.

Acknowledgment

First and for most we would like to thank our God almighty for helping us throughout our lives. We would also like to thank our advisor Ato Gulilat Yohannes, who gave us valuable professional guidance and technical assistance throughout the course of this project. Last but not list we like to thank our families for the nonstop support they have given us.

List of abbreviations

CMT	Content management tools
BR	Business rule
BSC	Bachelor of science
CON	Constraints
CRC	Class responsibility collaborator
CSS	Cascading style sheet
ETB	Ethiopian birr
FPSN	Final project sheger notice
FPSNEUC	Final project sheger notice essential use case
HTML	Hypertext markup language
MIS	Management information system
PHP	PHP hypertext preprocessor
RMMM	Risk mitigation monitoring management
SMART	Specific measurable achievable realistic time bounded
SQL	Structured query language
UI	User interface
WBS	Work breakdown structure

List of tables

Table 1: work breakdown structure (WBS)	35
Table 2: Resource planning (Human resource)	36
Table 3: Resource planning (Materials/equipment)	36
Table 4: Financial planning (human resource)	37
Table 5: Financial planning (materials/equipment)	38
Table 6: FPSN01.....	40
Table 7: FPSN02.....	41
Table 8: FPSN03.....	42
Table 9: FPSN04.....	42
Table 10: FPSN05	43
Table 11: FPSN06	44
Table 12: FPSN07	45
Table 13: FPSN08	45
Table 14; FPSN09	45
Table 15: FPSN11	47
Table 16: FPSN12	48
Table 17: FPSNEUC-01	55
Table 18: FPSNEUC-02	57
Table 19: FPSNEUC-03	57
Table 20: Constraints	80
Table 21: FPSN-01.....	83
Table 22: FPSN-02.....	85
Table 23: FPSN-07.....	85
Table 24: FPSN-05.....	86
Table 25: FPSN-06.....	87
Table 26: FPSN-11.....	88
Table 27: FPSN-09.....	89
Table 28: FPSN-13.....	89
Table 29: FPSN-14.....	90
Table 30: FPSN-16.....	91
Table 31: FPSN-18.....	91
Table 32: FPSN-19.....	92

List of figures

Figure 1: Gantt chart.....	20
Figure 2: Essential use case diagram	54
Figure 3: Essential UI for home page.....	58
Figure 4: Essential UI for login.....	59
Figure 5: Essential UI for register	60
Figure 6: Essential UI for contact.....	61
Figure 7: Essential UI for about us	62
Figure 8: Essential UI for submit advert/notice.....	63
Figure 9: Essential UI for payment	64
Figure 10: Essential UI for advertisement.....	65
Figure 11: Essential UI for notice.....	66
Figure 12: UI flow diagram.....	67
Figure 13: System use case	82
Figure 14: Sequence diagram for post advert/notice.....	92
Figure 15: Sequence diagram for check advert/notice	93
Figure 16: Sequence diagram for update/delete advert/notice	94
Figure 17: Sequence diagram for generate report.....	95
Figure 18: Sequence diagram for contact with cutomers.....	96
Figure 19: Sequence diagram for make payment	97
Figure 20: Sequnce diagram for login.....	98
Figure 21: Sequnce diagram for submit advert/notice.....	99
Figure 22: Sequnce diagram for register	100
Figure 23: Sequnce diagram for send comment.....	101
Figure 24: Sequence diagram for search advert/notice.....	102
Figure 25: Activity diagram for send comment	103
Figure 26: Activity diagram for make payment.....	104
Figure 27: Activity diagram for register	105
Figure 28: Activity diagram for check advert/notice.....	106
Figure 29: Activity diagram for post advert/notice	107
Figure 30: Activity diagram for search advert/notice	108
Figure 31: Activity diagram for contact with customers	109
Figure 32: Activity diagram for update/delete advert/notice	110
Figure 33: Activity diagram for generate report	111
Figure 34: Activity diagram for submit advert/notice.....	112
Figure 35: Activity diagram for login and visit.....	113
Figure 36: sub system decomposition.....	118
Figure 37: Class diagram	120
Figure 38: Persistence model	121
Figure 39: Table to be normalized	122
Figure 40: 1NF.....	122
Figure 41: 2NF.....	123

Figure 42: 2NF.....	123
Figure 43: 3NF.....	123
Figure 44: 3NF.....	123
Figure 45: Home page UI	124
Figure 46: Login UI	125
Figure 47: Register UI	125
Figure 48: Contact UI.....	125
Figure 49: About us UI.....	126
Figure 50: Advert UI	126
Figure 51: Advert details UI	127
Figure 52: Video adverts UI.....	127
Figure 53: Advert video play UI.....	128
Figure 54: Notice UI.....	128
Figure 55: Notice details.....	129
Figure 56: Submit advert/notice UI.....	129
Figure 57: Network diagram.....	131
Figure 58: Deployment diagram.....	132

Definitions of terms used

1. “**Public advertisement**” means message in the public interest disseminated by the mass media;
2. “**Personal advertisement**” means an advertisement advertised through the means of advertisement dissemination and it includes looking for missing person advertisement, condolence message, and other similar advertisement;
3. “**Advertising activity**” means an activity that includes production and dissemination of advertisements, promotional services and other related activities;
4. “**Advertising agent**” means a person who undertakes advertising activity;
5. “**Advertisement disseminator**” means a person who disseminates advertisements through the use of means of advertisement dissemination by providing air time, column coverage or other related services;
6. “**Advertiser**” means a person whose advertisement is advertised through the means of advertisement dissemination;
7. “**Outdoor advertisement**” means any advertisement:
 - a) Disseminated by using billboard, electronic screen or moving picture;
 - b) Written or affixed to a building or any structure or transport vehicle;
 - c) Disseminated by using banner, poster, sticker, brochure, leaflets or flier;
 - d) Disseminated through audio cassette, loud speaker; or
 - e) Disseminated through any other related means of dissemination.

Table of Contents

CHAPTER ONE	12
INTRODUCTION.....	12
1. BACKGROUND	13
2. Statement of the problem	14
3. Objective of the project	15
3.1 General Objective of the project.....	15
3.2 Specific Objectives of the project	15
4. Scope of the Project.....	16
Limitations of the project.....	17
5. Tools and Methodology	17
5.1 Data Collection Methodology.....	17
5.2 Development Tools.....	18
5.3 System Development Methodology.....	18
6. Beneficiaries of the project.....	19
7. Schedule	20
CHAPTER TWO	21
PROJECT MANAGMENT	21
1. Introduction.....	21
2. Project Planning (WBS)	22
3. Resource planning.....	35
3.1 Human resource	35
3.2 Materials/Equipment	36
4. Financial planning	37
4.1 Human resource	37
4.2 Materials/Equipment	37
5. Team organization	38
6. Process modeling.....	39
7. Risk MMM plan	39
7.1 Risk item sheet.....	39
7.2 RMMM plan.....	40
CHAPTER THREE	49
SYSTEM ANALYSIS.....	49

1. Introduction.....	49
3. Proposed system overview.....	52
3.1 Functional requirements	52
3.2 Non-functional requirements	53
4. System Models.....	54
4.1 Essential use case modeling.....	54
4.2 Essential UI prototype and UI flow diagram.....	58
4.3CRC Modeling.....	68
4.4 Supplementary Specification	70
5. Analysis System Models	82
5.1 System use case modeling.....	82
5.2 Sequence diagram	92
CHAPTER FOUR.....	114
SYSTEM DESIGN.....	114
1. Introduction.....	114
2. Design Goals	114
3. Design tradeoff	117
5. Class diagram	119
6. Persistent Model.....	121
6.2 Normalization	122
7. UI design	123
8. Network Diagram.....	130
9. Deployment diagram	132
CHAPTER FIVE	133
IMPLEMENTATION	133
1. Introduction.....	133
2. Sample code	134
CHAPTER SIX	152
CONCLUSION AND RECCOMENDATION	152
1. Conclusions.....	152
2. Recommendations	154
Bibliography.....	156

CHAPTER ONE

INTRODUCTION

The world is changing rapidly. Especially due to the fast economic growth of the country, Ethiopian cities are going through dramatic change. One of this change is the way people get information in their day-to-day life. Now a days, we have many choices where to look for information. TV, radios, internet, printed advertisement, notice board, and the recent phenomenon are social Medias. The main focus of this project, the capital city Addis Ababa is bombarded with useful and useless information in every direction. Have your eyes rest for a second without seeing an advertisement, or notices? If you noticed, the city street cleaner's swipes the street in the morning; most of the litters are broachers and fliers? Have you notice the polls, the railways wall, private and public walls, walls of buildings, and traffic stands, of Addis Ababa. If you notice throughout the city, every walls, polls, buildings and railroad walls are covered by useful and useless "advertisement" and "notices". Banners, posters, stickers, broachers, leaflets, and fliers jam-packed the city in every direction. Do not take us wrong, advertisements plays a significant role in the nation's economic, social and political development, by influencing the activities of the public in market exchange or service providing, also advertisement makes a significant contribution in establishing healthy market competition in the economic system of the country. So as notice; job vacancies, bids, trademark introduction, auctions, and many other opportunities are created through notice.

As much as it produced many opportunities, there are advertisements and notices that are not well vetted, misleading, and wrong. Both advertisement and notice, if not regulated, may harm the rights and interest of the people and the image of the country. You should not go far to notice this. Addis Ababa's walls packed with advertisement/notice staring from "በረከታዊን ማጥፊት ይፈልጋል?" to "የተዚረ ብቻ በአዲስ ገዢ" these are unethical, out of the norms and cultures of Ethiopians. A close examination leads you to conclude it is an empty promise only to generate money from desperate and vulnerable people. According to article 9 sub-article 1 of advertisement proclamation under the title advertisements required special certificate states that '*Prior certification by the appropriate body shall be required in order to promote products or services that have to meet mandatory standard requirements.*'(The Advertisement Proclamation

No.759/2012) Nevertheless, no one is regulating it at the moment. Advertisements should be truthful, reliable, well-vetted, right, informative, entertaining, respect the culture and values of the people, respect the law of the land, and in-line with public moral and safety. The aims and goals of this project are to make the industry truthful, reliable, well-vetted information, right, informative, entertaining, respect the culture and values of the people, respect the law of the land, and finally in-line with public moral and safety. We hope this project work will be the stepping-stone for the web-based digitalization of the industry that the format will be text, picture, audio, and video.

1. BACKGROUND

Before going further, let us see what advertisement and notice is. The Advertisement Proclamation, No.759/2012 article (1) of Ethiopia, defines advertisement as '*means a commercial advertisement which is disseminated through the means of advertisement dissemination to promote sales of goods or services or to publicize name, logo, trademark or objectives, and includes public and private advertisements.*' (The Advertisement Proclamation No.759/2012). Oxford advanced learner's dictionary define advertisement as, '*a notice, picture, or film telling people about a product, job, or service.*' In addition, it is '*an example of something that shows its good qualities*' (Oxford advanced learner's dictionary 7th ed. 2010). As stated, advertisements aim to convince consumers to purchase a specific product or brand. It tries to convince consumers to buy goods and services here rather than from somewhere else by employing persuasive language to cast the business, product or service in the most favorable light and make it more appealing. Although advertisements cannot intentionally deceive by providing false information about a product, they receive considerable freedom in how they go about making a product or service appealing. A product advertisement might focus on positive rather than draw attention to its negative content.

Notice on the other hand, is '*a warning or information of something and a written or printed announcement.*' (Merriam Webster dictionary 2009) or '*information or a warning giving in advance of something is going to happen*' (Oxford advanced learner's dictionary 7th ed., 2010). Notices typically appear as blocks of text in print or online. The text serves to convey information about government actions, business activities and social issues that has impact on the lives of citizens. In general, notice is a formal statement in writing or announcement that is paper based or online, which gives information or warning something is going to happen. Notice should be

exact, precise, simple, clear and comprehensive so that the reader can understand it easily. It should be noted that, both advertising and notice are for public consumption.

As we see from the above explanations, both advertisement and notice has their own distinction and similarities. Advertisement should not be told as a notice and notice should not told as an advertisement. The other problem is the way it is disseminated. Most of the advert and notice are produced as a printed material, which should be dispersed to reach on the hand of the public or posted on the wall of public and private property. The other problem is keeping the advisement industry in the context of Ethiopian values and norms. Not only that making it in line with the law of the land. The opportunity presented here is in federal level Ethiopia has advertisement proclamation stating any advertisement should follow this law. The down side is the Addis Ababa administration has no laws regulating how this industry can be managed. The federal proclamation prohibits using billboard in public places except in private property. The problem is no one is implementing it. The gap in the law and in practice gives the image that we see in Addis Ababa now.

As a group, we believe the advertisement/notice industry is one part of the change we aspire for Addis Ababa. However, we always wonder when and how it can be structured and regulated. On this regard, Addis Ababa is not matching her name. If we can reduce all these it would be best, but it takes time and effort. For sure it can be done. Until this change happen, we would like to devise a method for the city. We believe the city should have a web based centralized and digitalized advertisement and notice system used as a notice e-board where people should get what they need when they need it at the right time. The proposed system is a supplementary information billboard and notice board with broad category of choices that visitors view and filter information that they only needed. Advertisements, jobs, markets, books, newspaper, magazines, notices, entertainments, conferences, exhibitions, and bather, information that is happening or going to happen will be viewed by visitors. The steps will be easy the information will be detail. This helps them to get specific information, any time anywhere. And we call it **Sheger Notice**.

2. Statement of the problem

A project may be lunched to solve a problem or combination of problems. As stated on the introduction and background, there are four reasons way we think of this project. The first one is

unregulated and unorganized industry, the second one is unimplemented laws and regulation, the third is the cleanliness of the city. The last is none vetted advertisement and notice. Unregulated and unorganized industry is the way an advertisement and notice are disseminated through the city. Any person can look at a concrete wall nearby plastered with some kind of paper advertisement/notice. Unimplemented laws and regulation is to imply that there are proclamations and regulations but the city administration lacks the capacity to implement them. If these laws are implemented, we may see a better advertisement/notice industry. The other point is the cleanliness of Addis Ababa. A Paper-based advertisement/notice that is produced each day filling the city in every direction is one of the cause of the city's problem on sanitation. The option is not to eliminate but to limit or regulate the production of paper-based system by digitalizing the industry. Lastly, none vetted advertisement and notices that are unlawful, immoral, and culturally wrong contents are filling the city in four direction. If we do not want to expose the public to such advertisements/notices, we must devise a channel to inspect such postings lawfully.

Therefore, this project is an effort in solving these problems associated with the unregulated and unorganized industry, the unimplemented laws and regulation, the cleanliness of the city, and none vetted advertisement/notice. Those plastered print advertisements and notices around the town in a manner that is changing the city's image badly. The Efforts may be geared towards the minimization, if not the total elimination. By doing this project the city, the advertising agent, advertiser and the visitor of the site will be beneficiary.

3. Objective of the project

3.1 General Objective of the project

- Develop web-based advertisement and notice e-board¹.

3.2 Specific Objectives of the project

- Contribute to the advertisement and notice industry by digitalizing.

¹ e-board: referred to an electronic board

- To make standardized advertisement and notice.
- Minimizing advertisement cost and time.
- Conveying reliable, vetted, morally and culturally acceptable information.
- Making advertisements and notices easily available 24/7.
- Contributing to the transformation of the city.
- Creating centralized information system.
- Contributing to paper free advertisement
- Increasing the accessibility of advertisements and notices
- Decreasing advertisers concerns regarding advertising policies and laws.
- Design easy, user-friendly system.
- To increase the accessibility of advertisements and notices.

4. Scope of the Project

The proposed system has two different parts, one for the advertiser and the other for the end user/site visitor. The scopes of the project are:

✓ The company/advertiser: -

- An advertiser ²must register and provide verification on the product and/or service.
- Send advertisement and/or notice to the site manager.
- The advert or notice must fulfill the rules and regulations set by the site managers.

² An advertiser may be a business that is legally formed, or a natural person.

- The site manager may accept it, if satisfied; the advertisement or notice will be posted on the site.
 - The advertiser will be informed that his advert or notice is accepted or rejected. In addition, that he can view what has been posted.
- ✓ **The end user/ site visitor:** -
- They can visit the site and view what has been posted by the site user.
 - Comment on the advertisements/ notices forum by registering.

Limitations of the project

- The site displays advertisements and notices. User cannot buy or sell.
- The users/visitors of the site do not need to register to view contents.
- The system only works where there is internet access.
- Advertiser cannot directly post advertisement/notice.

5. Tools and Methodology

This part deals about the method of data collection, system development, and development tools.

5.1 Data Collection Methodology

- **Document** (supplementary method)

Collecting information from different government and privet institution, references books, other projects, web sites, and the internet.

- **Proclamations and regulations**

By referring proclamations and regulations of advertisement/notice on the Negarit gazette and city administration.

- **Brainstorming**

By discussing and analyzing the problems with project team.

- **Interview**

To gather information, interview will be conducted with different advertisers, print houses and individuals living in the city.

➤ **Observation**

To assess the current system of print advertisement and find the gap between print advertisement and online advertisement. Additionally,

5.2 Development Tools

5.2.1 Front End

- HTML
- CSS
- Jscript

5.2.2 Back End

- MySQL
- PHP
- Apache

5.2.3 Documentation

- Microsoft office word 2013.
- Microsoft office PowerPoint 2013
- Microsoft office Visio 2013
- Microsoft office paint.

5.3 System Development Methodology

According to the book Systems Analysis and Design with UML Version 2.0 An Object-Oriented Approach 2nd Edition by Alan Dennis, Barbara Haley Wixom, David Tegarden, there are six requirement to select the appropriate system development methodology. These are, Clarity of User Requirements, Familiarity with Technology, System Complexity, System Reliability, Short Time Schedules and Schedule Visibility. When we choose agile system development methodology, we share the author's viewpoints. '*These Agile Methodologies share three key principles: (1) a focus on adaptive rather than predictive methodologies, (2) a focus on people rather than roles, and (3) a self-adaptive process.*' Even though we know what type of web site it turn out to be, from this

point we cannot determine what the end product will be this is the behavior of any software product, so our product- web based advertising/notice e-board system will be incremental. We will make it progressively adaptive. We as a group believe each group members contribute to this project unique quality and talent, so rather than giving out rolls, we let each group member to bring its own uniqueness and talent to the best quality of the project work. Finally, Agile Methodologies promote a self-adaptive software development process. As the methodologies are applied, they should adapt different technology. No single uniform methodology effectively fits all developers on all projects at all times. As we stated, clarity of user requirements, familiarity with technology, system complexity, system reliability, short time schedules and schedule visibility are the main criteria to select system development methodology. User requirement will be negotiated with the developers and users, in accordance to the law and the intention of the developers what the system wanted to achieve. Since all the developers are familiar with most of the technology, we will not resort to new technology that are very time consuming and take longer time to learn but, if it is necessary we will learn anything that full fill this project. We believe the system is not that much complex for the developers. As much as possible we will work for system reliability to be the core of our project. Short time schedule fits very perfectly. Finally, schedule visibility, schedule in this project are visible but it should not be a burden to the quality of the project, if necessary we go back and forth whenever change is needed.

6. Beneficiaries of the project

The beneficiaries of the project are listed below.

- Addis Ababa city

The capital city of Ethiopia is one of the primary beneficiaries of the project. The project makes the city more clean and neat in respect to the unregulated postings of paper adverts.

- Developers of the project

We the developers have benefited a lot from this project like upgrading our know how on coding with different programming languages e.g. HTML, CSS, PHP and JavaScript also with the preparation of the documentation of the project.

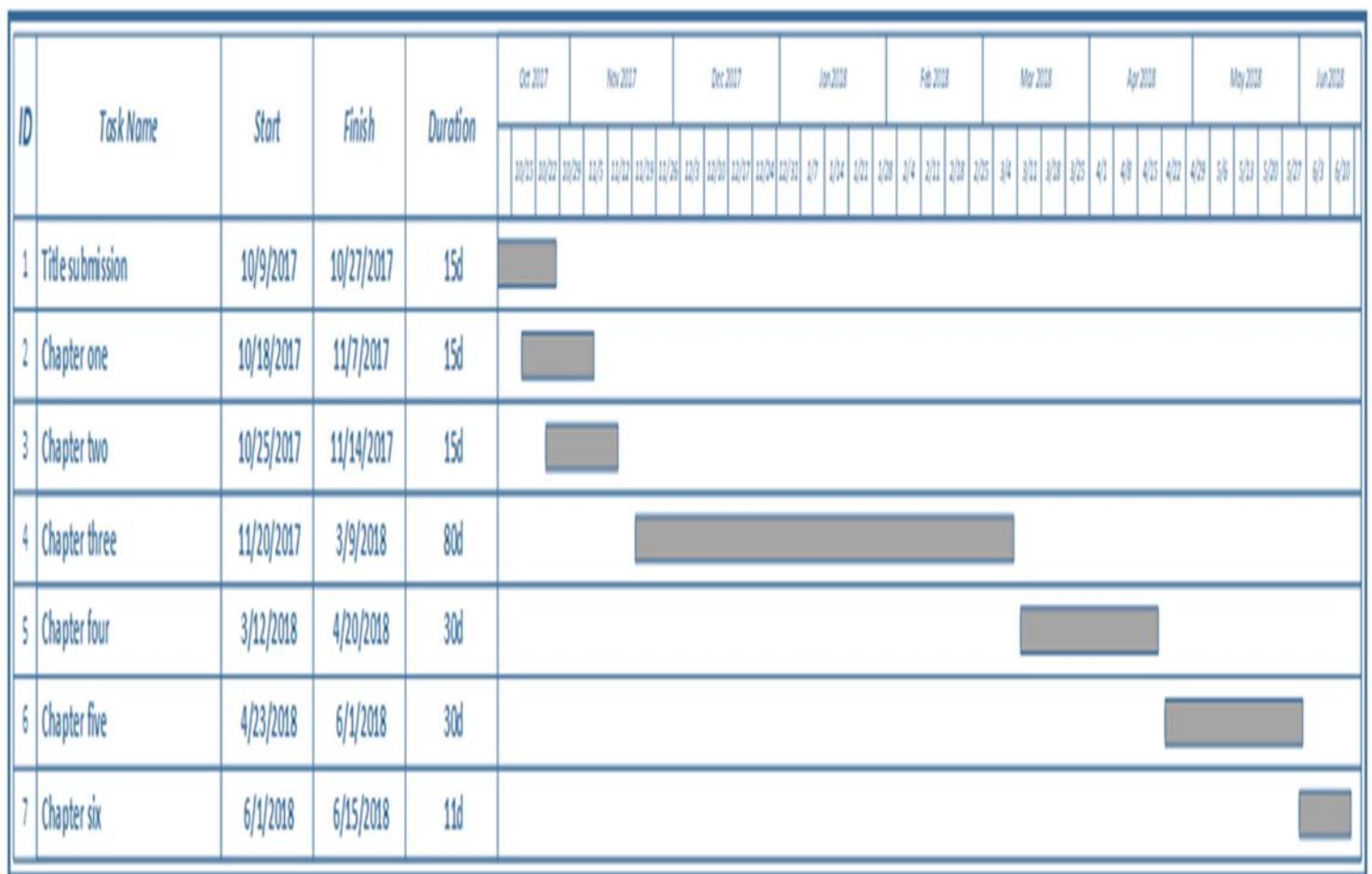
- Advertisers

This project will benefit the advertisers with respect to minimizing the cost of money for individuals to plaster the advert/notice and the overall cost of advertisement since our project costs less than most ad. Companies.

- Users/ visitors

Users are the second most beneficiaries of this project. The project will help the users/visitors to find the advert/notice they want in one place at any time and at any place.

7. Schedule



CHAPTER TWO

PROJECT MANAGEMENT

1. Introduction

Project management is one of the tasks that are performed throughout the lifecycle of the project. It ‘*manage the software development project, including planning, staffing, and monitoring the project, as well as managing the risks.*’ (Object-oriented analysis and design with applications / Grady Booch... [Etal.]—3rd ed., 2007). Most books agree that project is a planned undertaking of related activities, having a beginning and an end, to reach an objective. Therefore, formally, Project management is the process of planning and controlling the development of a system within a specified period at a minimum cost with the right functionality. When project became larger, there is a greater need for project management. In a nutshell, the focus of project management is to ensure that system development projects meet the customer’s expectations, delivered within budget, and in time. Since, project is temporary; project management is a controlled process of initiating, planning, executing, and closing down of a project. As the saying goes, to be prepared is half the victory.

Some of the advantages of project management are listed below:

Less anxiety

- Both in the side of the advertiser and the developers side it lessens the anxiety, since most of the outcomes are well documented and known.

Better efficiency in delivering service

- If every requirements and deliverables are stated clearly, it is a road map to project completion in turn lead to better efficiency in time, budget, and delivering service. It also helps develop a full understanding of the project goals, objectives and benefits before committing significant resources.

Enhance customer satisfaction

- If there is better efficiency in delivering service, advertiser’s satisfaction will be granted.

Smarter decision

- Using project management helps us to deploy every possible technique of scientific management methodology. These in turn produce decisions based on scientific backing, which will be smart and SMART.

Increase risk assessment

- If every strategy is in place and well implemented, potential risk will jump out.

Increase quality

- In general, if we implement all of the above, it would be an educated guess expects greater quality.

2. Project Planning (WBS)

Task No.	Task Name	Duration (days)	Dependency	Status	Deliverable
1	Introduction			Completed	Chapter one documentation
1A	Introduction <ul style="list-style-type: none">➤ Brain storming➤ Document preparation	1	1A	“	
1B	Statement of the problem <ul style="list-style-type: none">➤ Brain storming➤ Document/data collection➤ Document/data analysis➤ Document preparation	1	1A	complete	
1C	Objective	1	1B	“	

	<ul style="list-style-type: none"> ➤ Brain storming ➤ Document/data analysis ➤ Document preparation 				
1D	<p>Scope</p> <ul style="list-style-type: none"> ➤ Brain storming ➤ Document/data analysis ➤ Document preparation 	2	1C	“	
1E	<p>Tools and Methodology</p> <ul style="list-style-type: none"> ➤ Brain storming ➤ Document preparation 	1	1D	“	
1E-1	<p>Data Collection Methodology</p> <ul style="list-style-type: none"> ➤ Brain storming ➤ Document/data analysis ➤ Document preparation 	2	1E	“	
1E-2	<p>System Development methodology</p> <ul style="list-style-type: none"> ➤ Brain storming ➤ Document/data analysis 	2	1E-1	“	

	➤ Document preparation				
1E-3	Development tools ➤ Brain storming ➤ Document preparation	1	1E-2	“	
1E-3-1	Front End ➤ Brain storming ➤ Document preparation	1	1E-3	“	
1E-3-2	Back End ➤ Brain storming ➤ Document preparation	1	1E-3-1	“	
1F	Beneficiaries ➤ Brain storming ➤ Document preparation	1	1B,1C,1D	“	
1G	Schedule ➤ Group discussion ➤ Document preparation	1	-	“	
1H	Review	1	1A,1B,1C,1D,1E		
2	Project Management			completed	

2A	Introduction ➤ Group discussion ➤ Document preparation	1	-	“	Chapter two documentation
2B	Project Planning(WBS) ➤ Brain storming ➤ Group discussion ➤ Document preparation	2	1G	“	
2C	Resource Planning ➤ Group discussion ➤ Document preparation	1	1G,2B	“	
2C-1	Head count ➤ Group discussion ➤ Document preparation	1	1G,2B,2C	“	
2C-2	Material and Equipment ➤ Document preparation	1	1G,2B,2C,2 C-1	“	
2D	Financial Planning ➤ Analysis ➤ Group discussion	1	1G,2B,2C	“	

	➤ Document preparation				
2D-1	Head count ➤ Group discussion ➤ Document preparation	1	1G,2B,2C	“	
2D-2	Material and Equipment ➤ Document preparation	1	1G,2B,2C	“	
2E	Team Organization ➤ Group discussion ➤ Document preparation	1	2B,1D,1G	“	
2F	Process Modeling ➤ Analysis ➤ Group discussion ➤ Document preparation	1	2E	“	
2G	Risk Item Sheet ➤ Analysis ➤ Group discussion ➤ Document preparation	4	1C,1D,2B	“	
2G-1	Risk MMM Plan ➤ Analysis	1	2G,	“	

	<ul style="list-style-type: none"> ➤ Group discussion ➤ Document preparation 				
2H	Review	1	2A,2B,2C,2D,2E,2F,2G	"	
3	System analysis			"	
3A	Introduction <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	2	-	"	
3B	Current system overview <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	2	3A	"	
3C	Proposed system overview <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	1	3B	"	
3C-1	Functional requirements <ul style="list-style-type: none"> ➤ Analysis 	3	3C	"	

	<ul style="list-style-type: none"> ➤ Group discussion ➤ Document preparation 				
3C-2	Non-functional requirements <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	2	3C	"	
3D	System models			"	
3D-1	Essential use case modeling <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	2	3A	"	
3D-1-1	Use case diagram <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	3	3C,3C-1	"	
3D-1-2	Use case documentation <ul style="list-style-type: none"> ➤ Analysis 	2	3C,3C-1,3D-1	"	

	<ul style="list-style-type: none"> ➤ Group discussion ➤ Document preparation 				
3D-2	<p>Essential UI prototype and flow diagram</p> <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	3	3C	“	
3D-3	<p>CRC diagram</p> <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	2	3C	“	
3D-4	<p>Supplementary specification</p> <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	2	3C	“	
3D-4-1	<p>Business rule</p> <ul style="list-style-type: none"> ➤ Analysis 	3	3C	“	

	<ul style="list-style-type: none"> ➤ Group discussion ➤ Document preparation 				
3D-4-2	Constraints <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	2	3C	"	
3D-4-3	Change case <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	2	3C,3C-1,3C-2	"	
3E	Analysis System models			"	
3E-1	System use case models <ul style="list-style-type: none"> ➤ Analysis ➤ Group discussion ➤ Document preparation 	2	3C,3C-1,3C-2	"	

3E-1-1	System use case diagram ➤ Analysis ➤ Group discussion ➤ Document preparation	3	3C,3C-1,3C-2,3E	"	
3E-1-2	System use case documentation ➤ Analysis ➤ Group discussion ➤ Document preparation	1	3C,3C-1,3C-2,3E,3E-1-1	"	
3E-2	Sequence diagram ➤ Analysis ➤ Group discussion ➤ Document preparation	2	3E-1-2	"	
3E-3	Activity diagram ➤ Analysis ➤ Group discussion ➤ Document preparation	3	3E-1-2	"	
4	System design			"	

4A	Introduction ➤ Analysis ➤ Group discussion ➤ Document preparation	1	3	"	Chapter four Documentation
4B	Design goals ➤ Brain storm ➤ Analysis ➤ Group discussion ➤ Document preparation	1	3	"	
4C	Design trade off ➤ Analysis ➤ Group discussion ➤ Document preparation	1	3	"	
4D	System decomposition ➤ Brain storm ➤ Analysis ➤ Group discussion ➤ Document preparation	3	3	"	

4E	Class diagram ➤ Analysis ➤ Group discussion ➤ Document preparation	2	3C,3C-1	"	
4F	Persistent model			"	
4F-1	Mapping class diagram to relation ➤ Brain storm ➤ Analysis ➤ Group discussion ➤ Document preparation	2	3C,3C-1	"	
4F-2	Normalization ➤ Analysis ➤ Group discussion ➤ Document preparation	2	3C,3C-1	"	
4G	User interface diagram ➤ Analysis ➤ Group discussion	2	3C,3C-1	"	

	➤ Document preparation				
4H	Network diagram ➤ Group discussion ➤ Document preparation	1	3C	"	
4I	deployment diagram ➤ Analysis ➤ Group discussion ➤ Document preparation	1	3C	"	
5	Implementation			"	Website and chapter five documentation
5A	Implementation ➤ Brain storm ➤ Document preparation	23	3C,3C-1	"	
5B	Sample code ➤ Document preparation	1	5A	"	
6	Conclusion and recommendation			"	Chapter six Documentation
6A	Conclusion ➤ Group discussion ➤ Document preparation c	2	1,2,3,4,5	"	

6B	Recommendation <ul style="list-style-type: none"> ➤ Group discussion ➤ Document preparation 	2	1,2,3,4,5	"	
----	--	---	-----------	---	--

Table 1: work breakdown structure (WBS)

3. Resource planning

3.1 Human resource

Human Resource type	Head Count	Qualification	Responsibility
System Analyst	1	<ul style="list-style-type: none"> ➤ BSC degree in computer science with business background. ➤ Must have knowledge of the relevant system Analysis profession. 	<ul style="list-style-type: none"> • Identifying the objectives of the project. • Planning the system. • Gather different requirements • Understand the problem carefully. • Identify alternative solutions. • Determine the functionality of the solutions. • Design the scope of the project.
Database Developer	1	<ul style="list-style-type: none"> ➤ BSC degree in computer Science. ➤ Specialize in database developing & database Administrator. 	<ul style="list-style-type: none"> • Develop & maintain databases across the organization • Ensure all database systems meet business & performance requirement
Interface Designer	2	<ul style="list-style-type: none"> ➤ B.S.C degree in computer science ➤ Good Knowledge about HTML,CSS,JAVASCRIPT 	<ul style="list-style-type: none"> • Design attractive interface • Design easy to use or user friendly interface

Programmer	2	<ul style="list-style-type: none"> ➤ B.S.C degree in computer science ➤ Good knowledge about PHP, SQL, HTML, CSS ➤ Good knowledge about installing, configuring and maintaining PHP, Apache and MySQL packages 	<ul style="list-style-type: none"> • Writing codes • Fix errors • Prepare documentation of code for other programmers
Project Manager	1	<ul style="list-style-type: none"> ➤ B.S.C degree in MIS (Management Information System). ➤ Experienced in good communication and leadership. 	<ul style="list-style-type: none"> • Manage the overall project • Ensuring schedule and requirements are met.

Table 2: Resource planning (Human resource)

3.2 Materials/Equipment

No.	Item	Quantity	Specification	Justification
1	Laptop computers	4	<ul style="list-style-type: none"> ➤ Core i5 Processor. ➤ 1 TB Hard Disk ➤ 8GB RAM ➤ 2GB Graphics Card ➤ 2.2 GHZ speed CPU. 	<ul style="list-style-type: none"> ➤ Interface designing ➤ For programming ➤ For database developing ➤ For system analyst. ➤ Used as server.
2	Printers	1	HP LaserJet printer 1018	Every printing needs of the project.
3	External hard disk	2	Seagate 1TB 3.0 serial cable	Backup, transporting data from one medium to another and Storage.
4	Software		<ul style="list-style-type: none"> ➤ Microsoft word 2016 ➤ Microsoft presentation 2016 ➤ Xampp server 5.0 	
5	Stationary		<ul style="list-style-type: none"> ➤ Pen ➤ Pencil ➤ A4 paper 	For all the stationary needs of the project.

Table 3: Resource planning (Materials/equipment)

			<ul style="list-style-type: none"> ➤ Stapler ➤ Sticky note ➤ Marker 	
6	Internet			<ul style="list-style-type: none"> ➤ For reference ➤ For gathering information ➤ For contacting each other ➤ For expert advice - forums

4. Financial planning

4.1 Human resource

Employees	Head count	Salary(ETB)	Total (ETB)
Interface designer	2	3,500	7,000
Programmer	2	4,000	8,000
Database administrator	1	3,000	6,000
Editor	1	3,500	6,500
Project Manager	1	6,500	6,000
Total	7	20,000	33,500

Table 4: Financial planning (human resource)

4.2 Materials/Equipment

Items	Quantity	Unit price(ETB)	Total price (ETB)
Laptop Computer	6	15,700	47,100
CD-ROM	1	12	12
External Hard Disk	1	2,500	2,500
Pen	1 dozen	72	72
Pencil	3 pic	6	18
Paper	1 pack	115	115
Sticky note	1	12	12
Flash Disk	6	180	1,080
Internet	23 GB	165	3,795

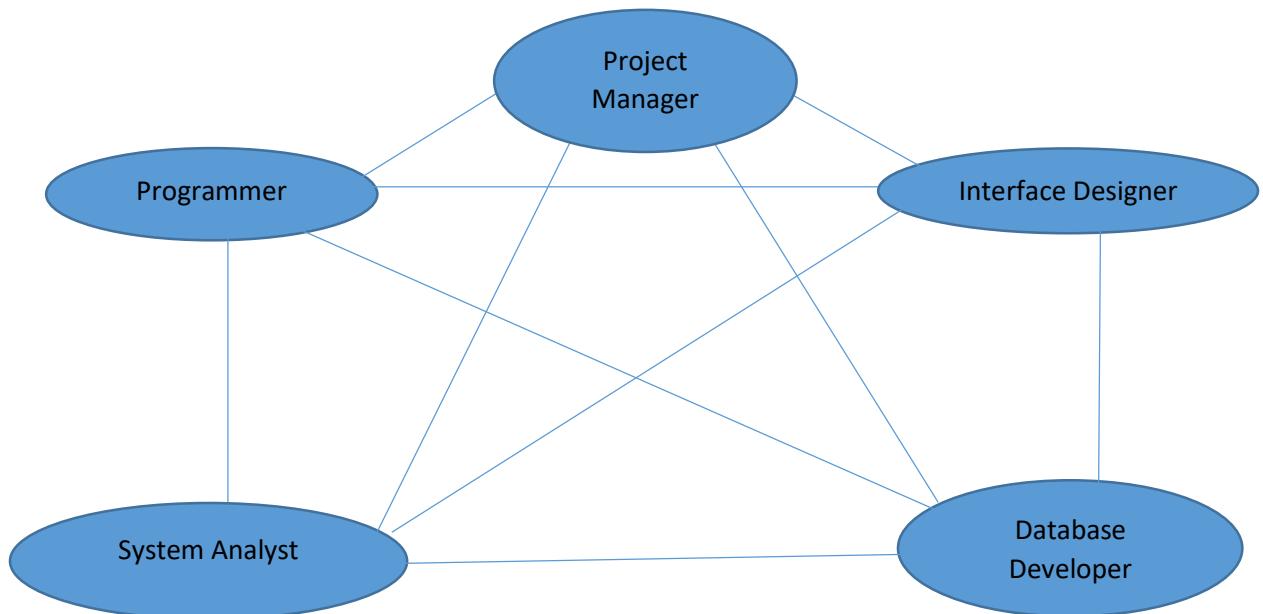
Total	54,704
--------------	--------

Table 5: Financial planning (materials/equipment)

5. Team organization

Team organization means the way the project development team communicates with each other to exchange or share information. This method of communication can be categorized into three. The first one is centralized, which team member's communication and information sharing is emanated from a centralized authority. This type of communication is important if team members have less knowledge about the task that is performed. The second one is decentralized team organization, in this form of team organization; information flows from any direction as long as it is important for the project. The last one mixed control which the mixtures of both. Among the three team organization types we selected the decentralized team organization to develop our project for the following reasons:

- All have equal responsibilities on the project
- To avoid a hierarchy which will somehow hinder free communication among all development team
- To create a conducive environment for creativity



6. Process modeling

A process model provides a specific roadmap for project. It defines as “*...the flow of all activities, actions and tasks, the degree of iteration, the work products, and the organization of the work that must be done.*” (Roger .s & Rruce R. 2015). From the different types of process models, we have chosen incremental process models based on the following reasons:

- It combines linear and parallel process flow
- The first increment is often core product
- It generate a working system quickly and early
- It is more flexible and less costly to change scope and requirements
- It is easier to test and debug during a smaller iteration
- It is easier to manage risk because risky pieces are identified and handled during its iteration

7. Risk MMM plan

7.1 Risk item sheet

- FPSN01.Change in schedule
- FPSN02.Requirement change
- FPSN03.Cost overrun
- FPSN04.Time Shortage
- FPSN05.Computer(Server) crash
- FPSN06.End user/advertiser resist system
- FPSN07.Difficulty working with each other among development team
- FPSN08.Budget Shortage
- FPSN09. Not following the advisors advice
- FPSN10.Not meeting customer expectation
- FPSN11.Poor requirement Analysis
- FPSN12.Lack of developer experience

7.2 RMMM plan

Risk Information Sheet for Change in Schedule			
Risk ID: FPSN01	Date:	Probability: 30%	Impact: Marginal
Description: Since all phases are interrelated, schedule change may occur.			
Refinement/context: Sub-condition 1: Schedule change may occur when waiting for approval of the phase. Sub-condition 2: Team member may miss scheduled meeting. Sub-condition 3: Estimated time for project tasks may be shorter.			
Mitigation: 1. Group members should not wait for project phase approval. 2. Group members should be strictly disciplined for schedule meetings. 3. Plan wisely each task. Leave a room for schedule change.			
Monitoring: 1. Project phase should be listed before the project begin so that progress can be tracked. 2. All group members should be knowledgeable about all project phase so, anyone can do anyone's task. 3. Revise time schedule before, during and after project task.			
Management/contingency plan: 1. Re-adjust time project schedule to fit the left over task. 2. Project members should know the importance of this project, work beyond schedule time until project schedule in line with schedule. 3. Calculate the gap in project schedule and work until the gap is eliminated.			
Current status: Originator: Misgana Daniel Assigned: Michael Belete			

Table 6: FPSN01

Risk information sheet for last time requirement change			
Risk ID:FPSN02	Date:	Probability: 30%	Status: Critical
Description: Since this project idea is new, and the team is inexperienced, requirement may change time to time.			
Refinement/context: Sub condition 1- Requirement change may occurs, since it is new idea. New things should be accommodated. Sub condition 2- Some requirement may be technical and misunderstood. Sub condition 3- Lack of experience may cause to last minute requirement change Sub condition 4- Miscommunication of team members may cause last minute change.			

Mitigation:

- 1-Even though, it is new idea, project members should research every possible requirement for the best performance of the system.
- 2-List every technical function a system should perform, ask clarity for every requirement, and clearly define requirements.
- 3-Ask for guidance and clarity if there is no clear requirements.
- 4-Research for and gather user's requirements of the system after all it is user's system.

Monitoring:

1. List every requirements so that they can be tracked.
2. Clearly understand every requirements so that tracking would be easy.
3. Follow the guidance set on the project plan.
4. List and track all user's suggestion so that it can be tracked.

Management/contingency plan:

1. Strictly implement functional and non-functional requirement.
2. Describe each requirement, and reason out why and when it is need.
3. Implement user's feedback on what the system wants them accomplish.

Current status:

Originator: Michel Belete **Assigned :** Misgana Daniel

Table 7: FPSN02

Risk Information Sheet for Cost overrun

Risk ID: FPSN03	Date:	Probability: 40%	Impact: Marginal
------------------------	--------------	-------------------------	-------------------------

Description:

The estimate cost for the project may exceeds.

Refinement/context:

- Sub-condition 1: Not following scientific methods for estimating the cost.
- Sub-condition 2: Market fluctuation for estimated cost.
- Sub-condition 3: Not estimating budget carefully, not knowing each activity.
- Sub-condition 4: Not following the scope specified of the project.

Mitigation:

1. Estimation should be done based on scientific methods.
2. Study the market to take correct estimation regard to a specified activity.
3. Estimate cost based on the current market.
4. Work only with the framework of the project.
5. Avoid unnecessary costs, which are not related to the project.

Monitoring:

1. Prepare budgetary report so that it can be tracked.
2. Study the market fluctuations and list differences.

- | |
|---|
| <ol style="list-style-type: none"> 3. Track project cost and current markets. 4. Clearly understand the scope of the project. 5. List essential and non-essential costs. |
|---|

Management/contingency plan:

- 1. Take cost corrective measures based on the current market value.
- 2. Based on the market difference correct project cost.
- 3. Avoid project costs that are not essential.
- 4. Use cost minimizing ways to develop the system.
- 5. Avoid all unrelated and unnecessary personnel.

Current status:

Originator: Mesay Mekonnen

Assigned: Getinet Fekadu

Table 8: FPSN03

Risk information sheet for Time shortage			
Risk ID: FPSN04	Date:	Probability: 40%	Impact: Marginal
Description:			
The estimated time for developing a project may not be sufficient.			
Refinement/context:			
Sub-condition 1: Lack of focus & concentration on project objectives.			
Sub-condition 2: Lack of time management. (spending time on our course projects & assignment)			
Sub-condition 3: Not developing an appropriate time-frame for each phase.			
Mitigation:			
<ol style="list-style-type: none"> 1. Develop project schedule, we have to breakdown tasks into smaller phases with respect to time-frame. 2. Adjusting tasks when any change occurs. 3. Strictly follow the schedule. 4. Work toward harder to easier tasks. 			
Monitoring:			
<ol style="list-style-type: none"> 1. Use time management tools to track schedule of the project. 2. Adjust the overall time done and the remaining activities may not proportional. 3. Track the schedule during and after every tasks. 4. Outline when we need overtime. 			
Management/contingency plan:			
<ol style="list-style-type: none"> 1. Manage our time based on our schedule. 2. Assign overtime work to group members. 3. Use each time frame properly for each phases. 4. Be aware every overtime project activities to be done on estimated time. 5. Adding new work force to meet the estimated time. 			
Current status:			
Originator: Mesay Mekonnen		Assigned: Getinet Fekadu	

Table 9: FPSN04

Risk Information Sheet for Server crush			
Risk ID: FPSN05	Date:	Probability: 20%	Impact: Critical
Description:			Server is the most important essential part of web development because it holds all our information, our database, our code, user's information. Our server may stops functioning or crashes.
Refinement/context:			<p>Sub-condition 1: If the server capacity is over used.</p> <p>Sub-condition 2: If our server is attacked by virus, malware, hackers.</p> <p>Sub-condition 3: If there is no continuous backup and maintenance for our server.</p> <p>Sub-condition 4: If there is, a power shortage server may fail.</p>
Mitigation:			<ol style="list-style-type: none"> 1. Preparing very large capacity servers taking into account the possible users and future user's growth. 2. Using firewalls, intrusion detected system (IDS), anti-viruses, patching ports, high level of authentication techniques, updating our software regularly. 3. Backing-up everything regularly using backup servers in case one crashes the other can take over. 4. Using stand by power, power regulator. 5. Store the server in a safe place. 6. Run routines check-ups on the server.
Monitoring:			<ol style="list-style-type: none"> 1. Inventory server. 2. Make sure server environments can be controlled. 3. Make sure back-up storage device are available. 4. Make sure there are reserve power sources. 5. Prepare schedule for routine check-ups. 6. Acquire knowledge how to routine check-ups done.
Management/contingency plan:			<ol style="list-style-type: none"> 1. Repair server. 2. Prepare new server with very large capacity and restore backup. 3. Add skilled work force. 4. Maintain how to compensate cost. 5. Need to update project members to become skilled on the task.
Current status:			
Originator: Yitbarek Assegid	Assigned: Mesay Mekonnen		

Table 10: FPSN05

Risk information Sheet for end user/advertiser not willing to accept system			
Risk ID: FPSN06	Date:	Probability: 25%	Impact: Catastrophic
Description: Does the system address the end user or the advertiser?			
Refinement/context: Sub condition 1: Not well designed user interface. Sub condition 2: Not involving user during development. Sub condition 3: Not considering users comment or feedback.			
1. Mitigation: <ol style="list-style-type: none"> 2. Develop the system with the end user in mind. 3. Involve end users/advertisers in the development process. 4. Develop an attractive user-interface. 5. Collect and implement end user feedback 			
Monitoring: 1. Make schedule meeting with users/advertisers. 2. Ask users who it feels to use the system. 3. Study what makes a good user interface. 4. Document user's feedback.			
Management/contingency plan: 1. Make improvement to the system, which involves the end user. 2. Accept feedback from the users. 3. Create a user-friendly and easy system based on the feedback. 4. Implement user's feedback.			
Current status:			
Originator: Tinsae Asres	Assigned: Mesay Mekonnen		

Table 11: FPSN06

Risk Information sheet for Difficulty working with each other			
Risk ID: FPSN07	Date:	Probability: 30%	Impact: Critical
Description: Communication of the team members is mandatory.			
Refinement/context: Sub-condition 1: Lack of experience working in a team. Sub-condition 2: Not meeting regularly to discuss project status. Sub-condition 3: Having different understanding. Sub-condition 4: Not being able to compromise ideas.			
Mitigation: <ol style="list-style-type: none"> 1. Develop a principle based team building method. 2. Group members should be present during discussions. 3. Members should explain what they understood. 			

4. Each members has to contribute their effort into the project and know the status of the project.
Monitoring:
1. Monitor team building methods are working. 2. Meeting should be scheduled and known before the meeting. 3. List how ideas are came about, developed, and implemented. 4. Revise what has been done each time.
Management/contingency plan:
1. Have a team who manages the crisis. 2. Use different kinds of motivation and team building methods. 3. Share ideas as how to avert crises. 4. Make sure each team member contribute to contingency plan.
Current status:
Originator: Michael Belete Assigned: Getinet Fekadu

Table 12: FPSN07

Table 13: FPSN08

Risk information sheet for Budget Shortage			
Risk ID:FPSN08	Date:	Probability:	Status: Catastrophic
Description: Budget is the amount of resource needed to complete this project.			
Refinement/context: Sub condition 1- Budget shortage leads to lower quality projects. Sub condition 2- Budget shortage may affects the group's moral. Sub condition 3- Budget shortage leads to less expectations of the project. Sub condition 4- Budget shortage can lower the scope our project plan.			
Mitigation:			
1. Planning the project to use reusable materials that saves cost. 2. Prepare the budget according to its priority. 3. Reserve budget for essential tasks according priority. 4. Allocate /reserve enough resource to essential functions.			
Monitoring:			
1. Make sure we are using reusable materials that saves cost. 2. Make sure priorities are set properly. 3. Track tasks are prepared according to priority. 4. Make sure resources are reserved for essential functions.			

Table 14; FPSN09

<p>Management/contingency plan:</p> <ol style="list-style-type: none"> 1. Find alternate ways to fill the shortage. 2. Eliminate tasks that are not essential to the project. 3. Use reserved resource to complete essential tasks. 4. Control use of resource according to priority. 			
<p>Current status:</p>			
Originator: Yitbarek Assegid		Assigned : Getinet Fekadu	
Risk information sheet for not following the advisors advice			
Risk ID: FPSN09	Date:	Probability: 15%	Impact: Marginal
<p>Description: Taking advice from the adviser is important. Remember experience always matters!</p>			
<p>Refinement/context: Sub condition 1: Clarity on formats and standards are set by meeting with the adviser Sub condition 2: ways on practical means are discussed. Sub condition 3: Misunderstanding and doubt may occur in team members, it helps to avoid that.</p>			
<p>Mitigation:</p> <ol style="list-style-type: none"> 1. Strictly following the advisor's advice. 2. Working based on the advisor's format and standard. 3. Attending regular meetings and taking notes during consultation. 4. Take notes. 			
<p>Monitoring:</p> <ol style="list-style-type: none"> 1. List down adviser's advise and make sure it is implemented. 2. Make sure advisers format and standard are followed. 3. Make sure everyone is attending schedule meeting with the adviser. 			
<p>Management/contingency plan:</p> <ol style="list-style-type: none"> 1. Ask again if we think we miss points. 2. Work based on the notes you took during meeting. 3. If someone miss advisers meeting brief the group member. 			
<p>Current status:</p>			
Originator: Tinsae Asres		Assigned: All team members	

Risk information sheet for not meeting customer expectation			
Risk ID: FPSN10	Date:	Probability: 25%	Impact: Catastrophic
Description: As stated, the system should be user friendly, and meet end user's expectation.			
Refinement/context: Sub condition 1: The system not being user friendly. Sub condition 2: Not meeting intended use. Sub condition 3: Not communicating the users when developing the system.			
Mitigation: 1. Involve end users on the development process. 2. Use professional feedback including interfaces & detail contents of the system. 3. Strictly follow the system requirement specification document.			
Monitoring: 1. List demands of end users and make sure they are implemented. 2. Record feedback or ideas that are gotten from professionals. 3. Make sure all system requirement are followed.			
Management/contingency plan: 1. Ask for feedback on every cycle of the development process. 2. Modify the system to meet & fulfill the customer's requirements/expectation. 3. Make sure we are following the system requirement specification.			
Current status:			
Originator: Tinsae Asres	Assigned: All team members		

Table 15: FPSN11

Risk Information Sheet for poor requirement analysis.			
Risk ID: FPSN11	Date:	Probability: 20%	Impact: Critical
Description: Web based system has unique system requirements; if user requirements is poor it leads to poor performance of the system.			
Refinement/context: Sub-condition 1: During system analysis, developers may not understand system requirements. Sub-condition 2: Users may not describe system requirement sufficiently enough for the developers. Sub-condition 3: Poor requirements analysis leads to poor system requirements.			
Mitigation: 1. Developer should describe the system in details to the user. 2. System should be described, explained and each components should be reasoned out.			

3. Carefully and diligently, perform requirement analysis.	
Monitoring:	
<ol style="list-style-type: none"> 1. List down every requirements, and make sure they are implemented accordingly. 2. Make sure the requirement is meet with the reason it is stated. 3. Check the diligence of each group member by comparing. 	
Management/contingency plan:	
<ol style="list-style-type: none"> 1. Use standards set by advisor and references. 2. Add essential requirement when needed. 3. Device encouragement mechanisms to keep up the diligence of the group. 	
Current status:	
Originator: Yitbarek Assegid	Assigned: Mesay Mekonnen

Table 16: FPSN12

Risk information Sheet for developer's lack of experience			
Risk ID: FPSN12	Date:	Probability:25%	Impact: Marginal
Description:			
Lack of experience (project management, coddling, and team management) is an impediment to this project.			
Refinement/context:			
Sub-condition 1: All group members are new for the work (to develop such system). Sub-condition 2: The team members may not have enough educational background to develop the system. Sub-condition 3: Since the idea is new, not having a guideline to develop the system. Sub-condition 4: Poor development skill.			
Mitigation:			
<ol style="list-style-type: none"> 1. The team must consult experienced person develop the system. 2. The team members should educate themselves. 3. Learning and practicing new subject matters. 4. Our final product may not meet standards. 			
Monitoring:			
<ol style="list-style-type: none"> 1. Understand which areas are we lacked experience. 2. List down areas that we lacked experience. 3. Research and refer those lacked subjects. 			
Management/contingency plan:			
<ol style="list-style-type: none"> 1. The team members should refer books and egger to implement new information in the project. 2. Implement researched and referred subject matters. 3. Take advices from different experts, how to manage. 			
Current status:			
Originator: Tinsae Asres	Assigned: Mesay Mekonnen		

CHAPTER THREE

SYSTEM ANALYSIS

1. Introduction

The term analysis refers to breaking a whole into its parts with the intent of understanding the parts' nature, function, and interrelationships. The basic process of *analysis* involves three steps:

- Understand the existing situation (the as-is system).
- Identify improvements.
- Define requirements for the new system (the to-be system).

System analysis is a process of collecting and interpreting facts, identifying the problems, and decomposition of a system into its components.

System analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose. Analysis specifies what the system should do. (System analysis and design tutorials point).

The topics that will be covered in this chapter are the current system overview, which gives detailed information about the system's current operating procedures, the proposed system overview, describes about what the system will look like after the completion of this project, system models which will include the essential use case diagram and use case documentation, the essential user interface prototype, which is a low-fidelity model or prototype of the user of the proposed system, user interface flow diagram ,a diagram that will enable us to capture the high level relationships between major user interface elements, class responsibility collaborator(CRC) modeling, which helps to convert use cases into a set of classes and find their responsibilities and collaborators, and the supplementary specification which deals about business rule, change case and constraints.

2. Current system overview

The history of notice in Ethiopia is most probably remembered during the wartime, starting from ‘Negarit’ a drum like instrument kings used to announce anything important, to the resent announcing through printed paper, television and radio. “*The business of advertisement began a century ago in Ethiopia after the establishment of the first newspaper ‘Ayimiro’ and continued in the 1950’s with the state newspaper ‘Addis Zemen’*” (Fortune: 2017 by Brehane Hylemariam). Currently in Addis Ababa print adverts and notices are displayed to the viewers through plastering the adverts and notices on building walls, street light poles and on different structures in the city. The scary part which no one seems to care is the way the printed advertisement is prepared and disseminated. Anyone with a printer at hand can print any advertisement and disseminate it without the content being checked, with his or her on judgment. Even we have doubt on companies (big or small) how they understand the word advertisement/notice and its consequence. There are also the legitimate print advert and notice posting boards throughout the city. Other than the ones mentioned above there are some advertisement and notice digital methods. Ethiojobs, e-tender, delala.com, merkato.com, lomi.com, and also social medias such as, Facebook, twitter, viber, telegram, are other means of advertisement means that are created for other purpose but people use it to promote themselves and products in the digital platform.

Assuming a company has an advertisement they want seen throughout the city via print media, the procedures that are to be followed are as follows:

1. Advertiser goes to an advertising company either with the finished advert/notice for printing or to request the company to design an advert/notice
2. **-If the advertiser brings a finished advert**

The company might suggest some change on the advert/notice if the advertiser wants/accepts the suggestion the company will implement the change to the advert/notice, but if the advertiser wants the advert/notice to be printed as he/she brought it to the company, the company will print the finished advert/notice.

-Request to design an advert

The company first asks the advertiser:

- What sort of advert/notice he/she wants

- What information to put on the advert/notice
- Size of the advert/notice
- Color preference
- Picture preference

After taking this data into consideration the company will design the advert/notice as per the advertiser's request, when finished the company will send the finished advert/notice to the advertiser via viber or email

- If the advertiser approves the advert/notice he will order them to print
- If the advertiser doesn't approve the advert/notice he will request the changes he wants done on the advert/notice and order them to print.

3. Once the advert/notice is printed,

-If the deal to post the advert/notice is the responsibility of the company

- If the advertiser wants the advert/notice to be posted on road side bill board the company will post it on the board as per the deal between them on size and duration.
- If the advertiser wants the advert/notice to be posted on private buildings posting area the company will deal with the building owner or manager on the duration and size of the advert when agreed the company will post it.

- If the deal to post the advert/notice is the responsibility of the advertiser

- If the advertiser wants the advert/notice to be posted by few individuals on the cities electric poles, bridges etc. the advertiser will take the printed advert/notice and deal with individual who are in this kind of business, mostly its 1 ETB/paper.
- If the advertiser wants the advert/notice to be posted in a banner format the company will give the advert/notice to the advertiser to post the advert/notice in a place chosen by the advertiser him/herself.

3. Proposed system overview

The system has two different parts, one for **an advertising company** and the other for **the end user/site visitor**.

The advertising company: -

- They must register using the registration format on the website.
- Send advert or notice to the site manager with the time duration of the advert/notice using their previously created account.
- The site managers will check if the advert/notice fulfills the rules, regulations and standards set by the company.
 - If the advert/notice fulfills the rules, regulations and standards
The site manager will post the advert/notice on the site
 - If the advert/notice does not fulfill the rules, regulations and standards
The site manager will contact the advertiser to change or change the advert/notice as per the rule and regulations of the company
 - If the advertiser doesn't agree with the rules, regulations and standards
The advert/notice of the advertiser will be discarded
- The advertising company will be informed via email that his advert or notice is posted on the site.

The end user/ site visitor: -

- Any interested individual who wants to visit the site will do so by using any browser and a pc with internet connection.

3.1 Functional requirements

Functional requirements are requirements that describes what the system should do. Below we have listed functional requirements for the system we are developing.

- Registering advertisers
 - The system should be able to let advertisers register for an account by themselves.
- The System shall give full information Regarding the advertisements/notices
 - The system should display the entire information related to a specific advertisement.

- The system displays adverts/notices depending up on the time duration of the advert/notice.
- The system should enable visitors to search, retrieve and filter information.
- The system should enable contact between advertiser and the company.
- The system should enable registered to login.

Functional requirements for the backend user/administrator: -

- The system shall store, update, delete and retrieve information such as
 - Advertisers information
 - Advertisement's information
 - Registered account

3.2 Non-functional requirements

Non-functional requirements are requirements which describe the characteristics the system should have. Some of the nonfunctional requirements that we have identified:

- The application should be easy to use by the back end and end users (viewers and advertisers).
- The performance of the system should not downgrade up on multiple access to it.
- The system should accommodate large number of users simultaneously.
- The website should be accessed globally.
- Maintenance or modification of the website should be done easily by the system admin.
- Data integrity should be ensured.
- The system should be secured.
- The system should support back up to database and recovery mechanism from system failure.
- The system has to eject all unnecessary data entry. (Error Handling).

4. System Models

4.1 Essential use case modeling

4.1.1 Use case diagram

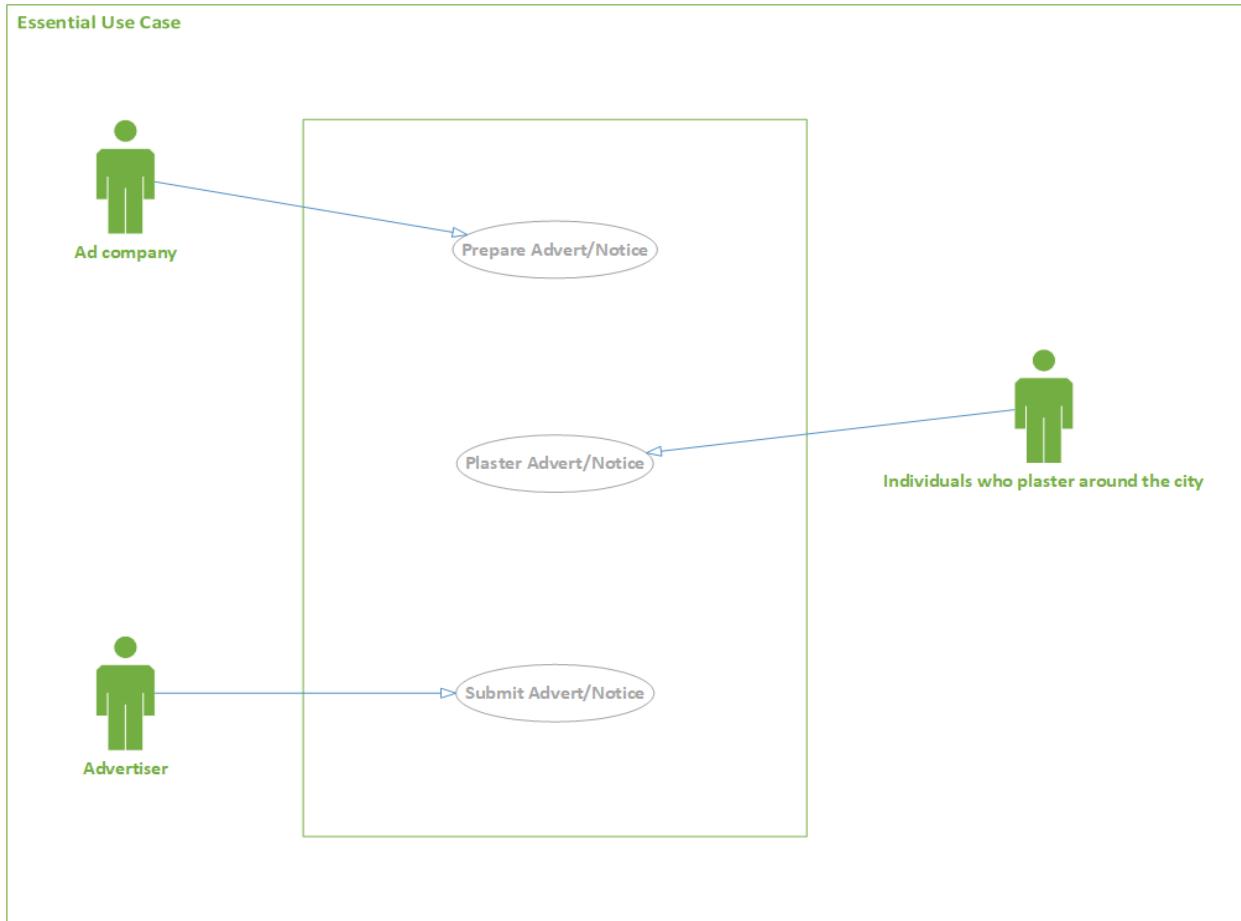


Figure 2: Essential use case diagram

4.1.2 Use case documentation

<p>Name: Prepare advert/notice</p> <p>ID: FPSNEUC-01</p> <p>Description:</p> <ul style="list-style-type: none">- The advertisement company uses this use case to prepare adverts/notices as per the advertiser's request. <p>Pre-condition:</p> <ul style="list-style-type: none">- The advertiser must submit the contents of the advert- The advertiser must tell the type of the advert/notice (Video, banner, paper).- The advertiser must tell the size of the advert/notice.- The advertiser must tell number of copies needed.- The advertiser must tell the posting area. <p>Post-condition:</p> <ul style="list-style-type: none">- Prepare the requested advert/notice successfully. <p>Actors:</p> <ul style="list-style-type: none">- Advertisement Company, advertiser. <p>Basic course of action:</p> <ol style="list-style-type: none">1. Design the advert/notice using variety of designing tools like Photoshop.2. Make sure if the advertiser likes the advert/notice design.3. Print the designed advert/notice.4. Use case ends. <p>Alternative course of action:</p> <ul style="list-style-type: none">- If the advertiser doesn't like the advert/notice design.<ul style="list-style-type: none">A2. Re-design the advert/notice.A3. Make sure if the advertiser likes the re-designed advert/notice.A4. Print the designed advert/notice.A5. Use case ends.
--

Table 17: FPSNEUC-01

Name: Plaster advert/notice

ID: FPSNEUC-02

Description:

- Individuals who are hired either by the advertisement company or the advertiser plaster the printed advert/notice all around the city with price of 1 ETB/paper.

Pre-condition:

- The advertisement company must give finished advert/notice.
- The advertiser must notify the area where he/she want the advert/notice to be posted.
- Glue and transportation allowance.
- The advertiser must tell the size of the advert/notice.
- Deal with the advertiser about the duration of the billboard.

Post-condition:

- Post the advert/notice on the areas requested by the advertiser successfully.

Actors:

- Advertisement Company, advertiser, individuals who plaster advert/notice around the city.

Basic course of action:

1. Travel to the area requested by the advertiser.
2. Plaster the advert/notice as requested.
3. Use case ends.

Alternative course of action:

- If the advertiser requests the advert/notice to be posted as a billboard.
 - A1. Post the advert/notice on the requested area.
 - A2. Maintain the billboard if the advert/notice is getting torn.
 - A3. When the time dealt with the advertiser is up remove the billboard.
 - A4. Use case ends.
- If the advertiser requests the advert/notice to be posted on privately owned notice boards.
 - A1. Deal with the notice board owning companies about the duration.

- | |
|---|
| A2. Post the advert/notice on the notice board. |
| A3. Use case ends. |

Table 18: FPSNEUC-02

<p>Name: Submit advert/notice</p> <p>ID: FPSNEUC-03</p> <p>Description:</p> <ul style="list-style-type: none"> - The advertiser submits the advert/notice or tells the advertisement company what the advert/notice should look like to be designed. <p>Pre-condition:</p> <ul style="list-style-type: none"> - The advertiser must submit the contents of the advert. - The advertiser must tell the size of the advert/notice. - The advertiser must tell number of copies needed. - The advertiser must tell the posting area. <p>Post-condition:</p> <ul style="list-style-type: none"> - Prepare the requested advert/notice successfully. <p>Actors:</p> <ul style="list-style-type: none"> - Advertisement Company, advertiser. <p>Basic course of action:</p> <ol style="list-style-type: none"> 1. Submit the advertisement in person to the advertisement company. 2. Make sure if the advertisement is in order. 3. Deal on the date when the advert will be ready. 4. Use case ends.
--

Table 19: FPSNEUC-03

4.2 Essential UI prototype and UI flow diagram

Essential UI prototype

Essential User Interface prototype for Home page.

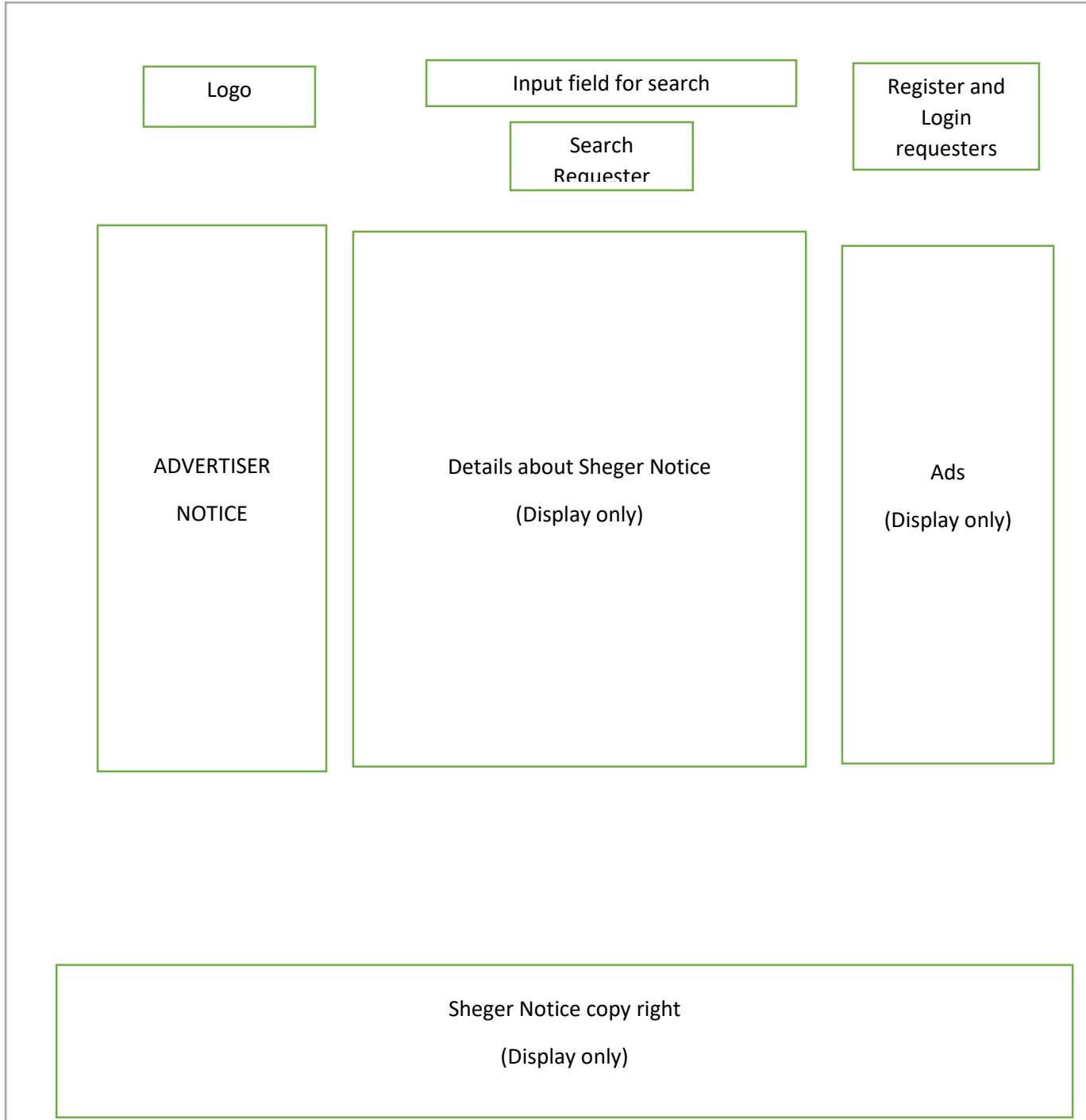


Figure 3: Essential UI for home page

Essential User Interface prototype for Login.

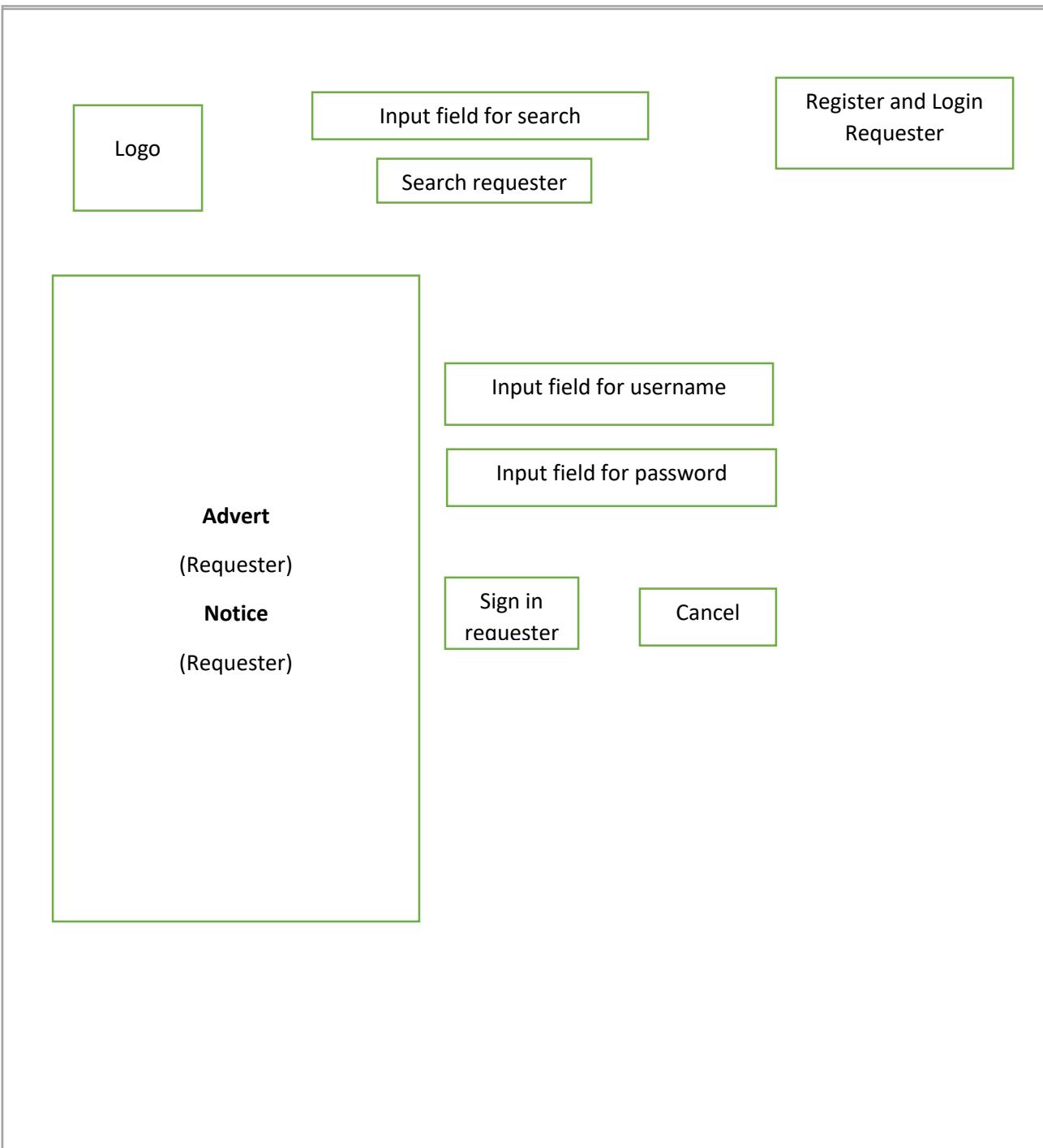


Figure 4: Essential UI for login

Essential User Interface prototype for Register.

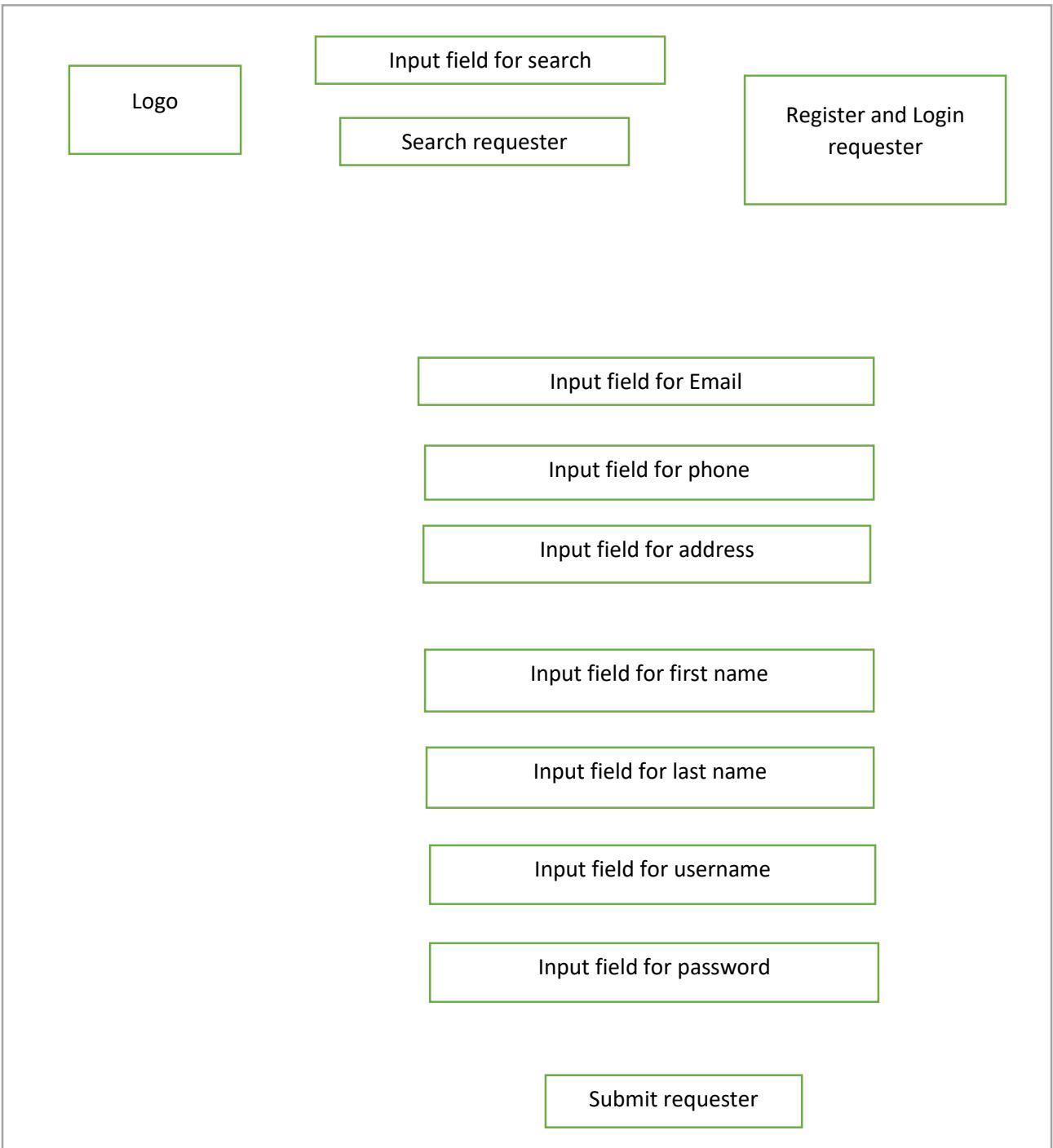


Figure 5: Essential UI for register

Essential User Interface prototype for contact.

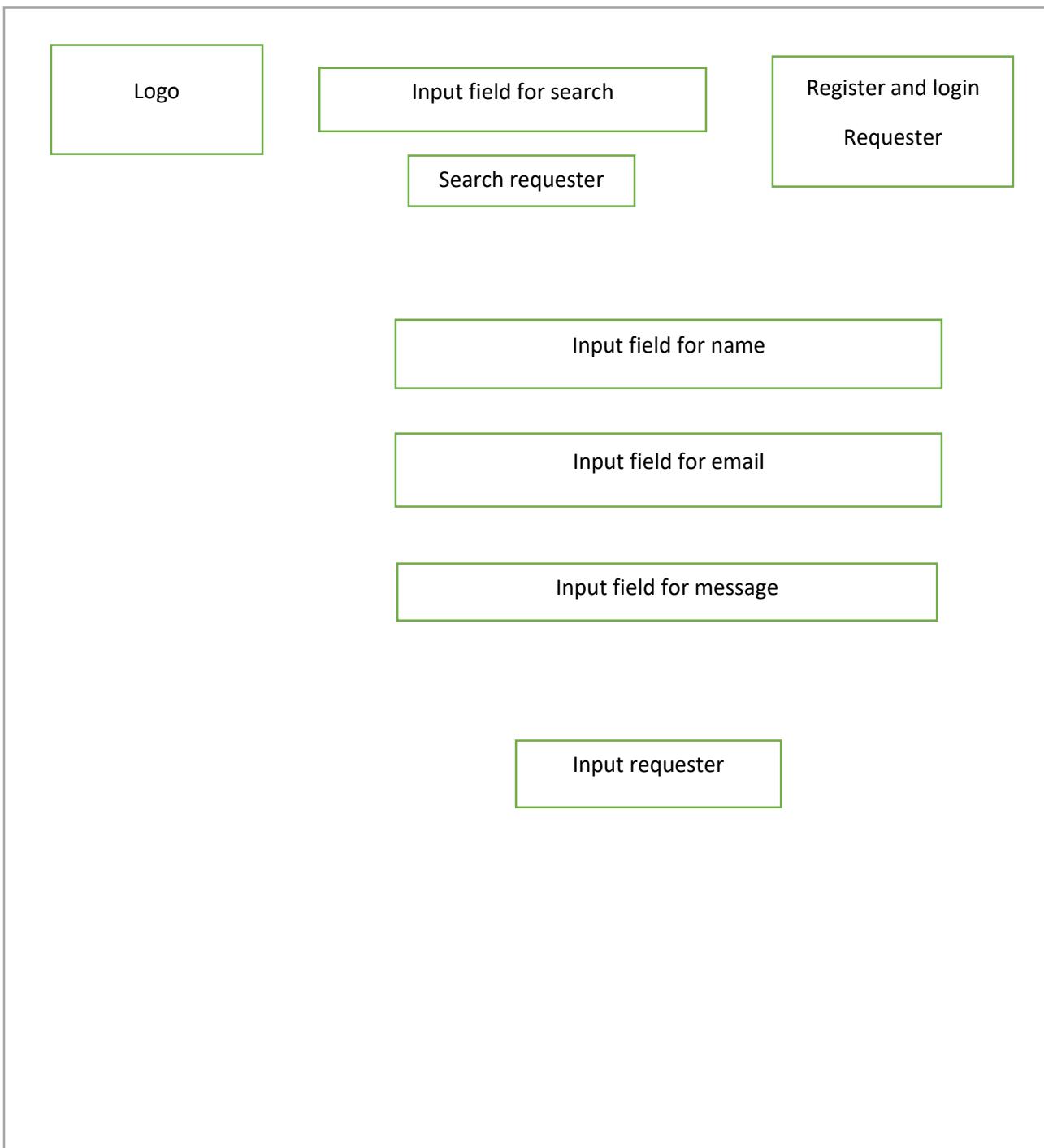


Figure 6: Essential UI for contact

Essential User Interface prototype for about us.

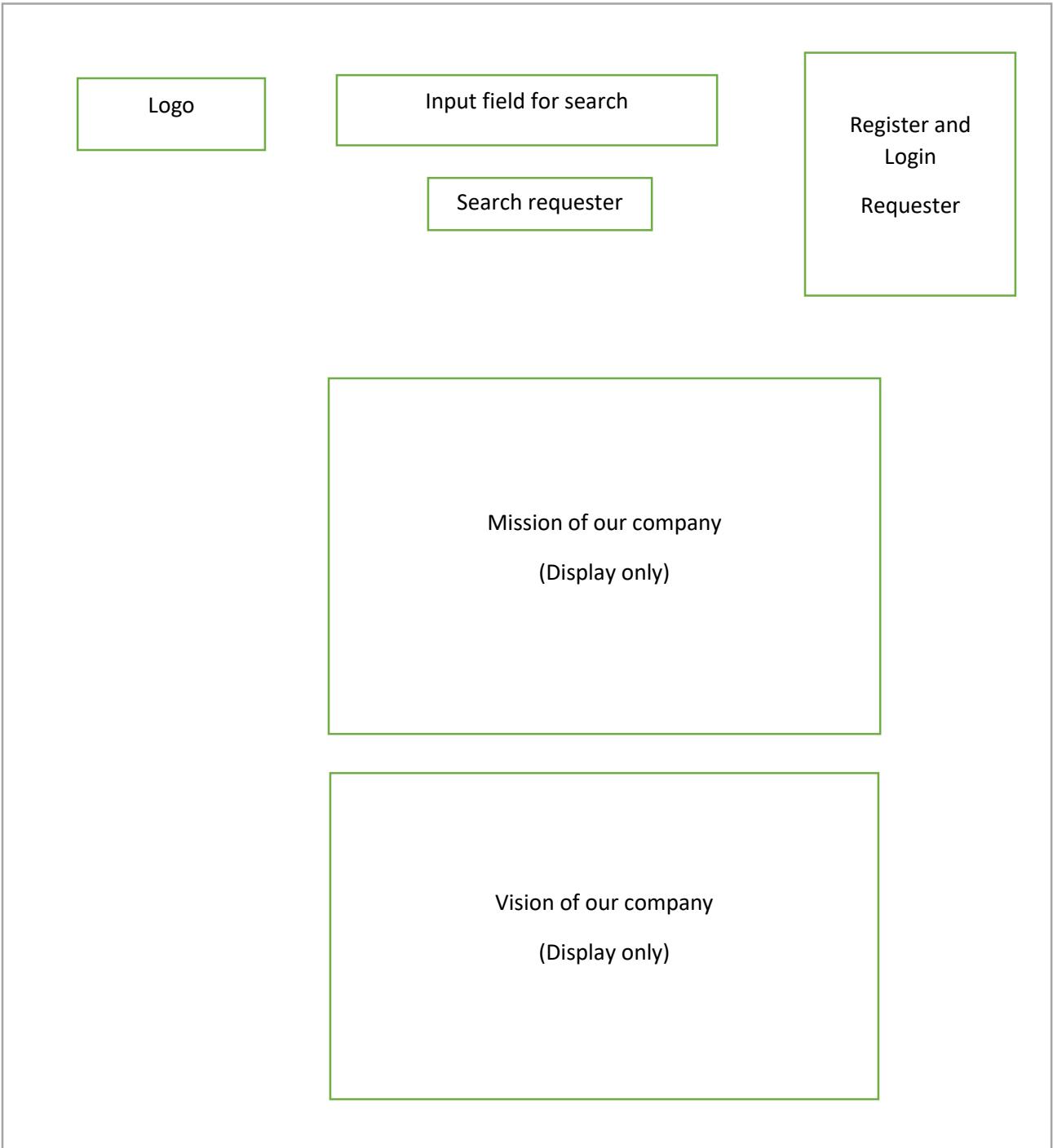


Figure 7: Essential UI for about us

Essential User Interface prototype for submit advert/notice.

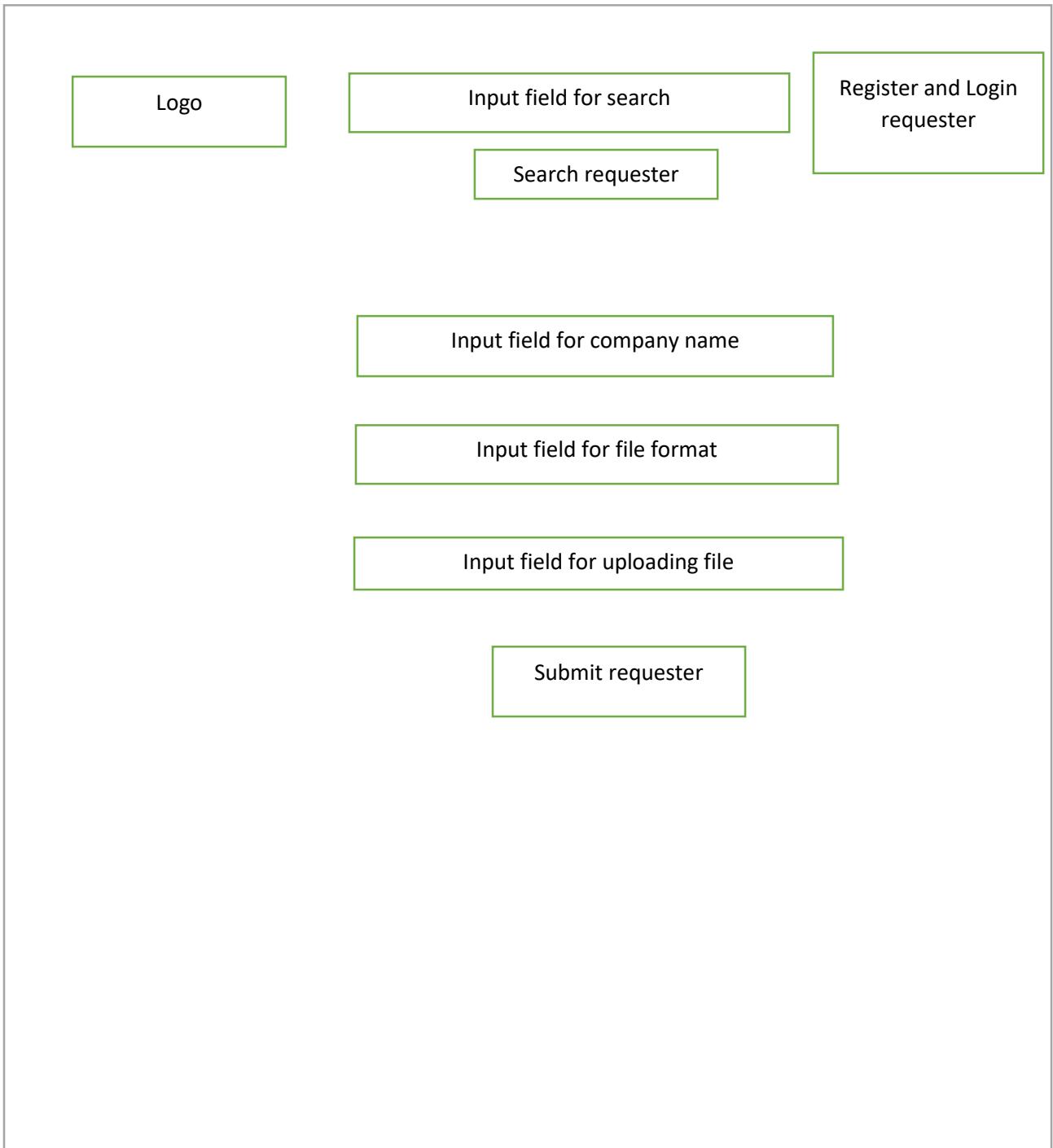


Figure 8: Essential UI for submit advert/notice

Essential User Interface prototype for payment.

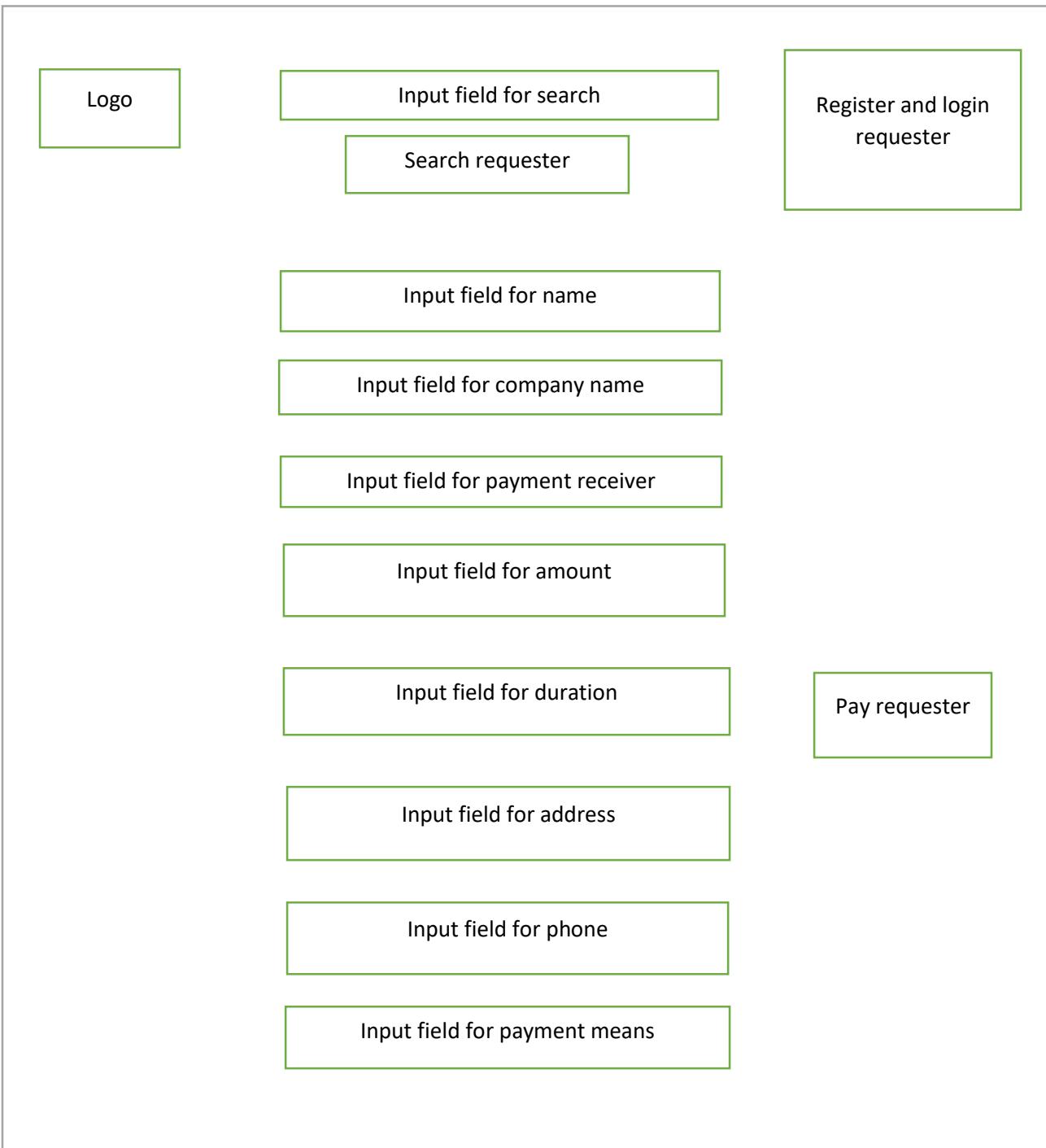


Figure 9: Essential UI for payment

Essential User Interface prototype for Advertisement.

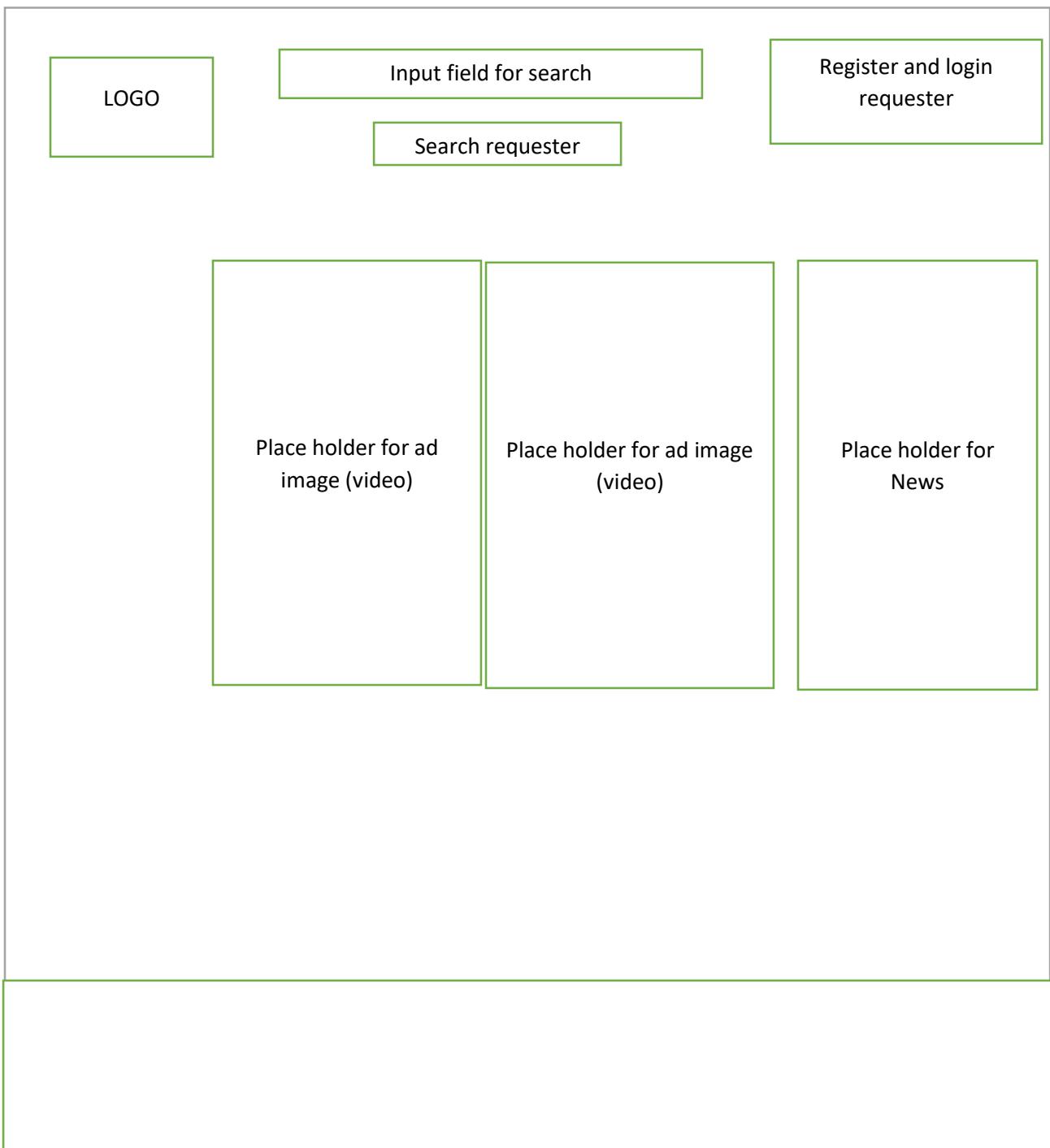


Figure 10: Essential UI for advertisement

Essential User Interface prototype for Notice.

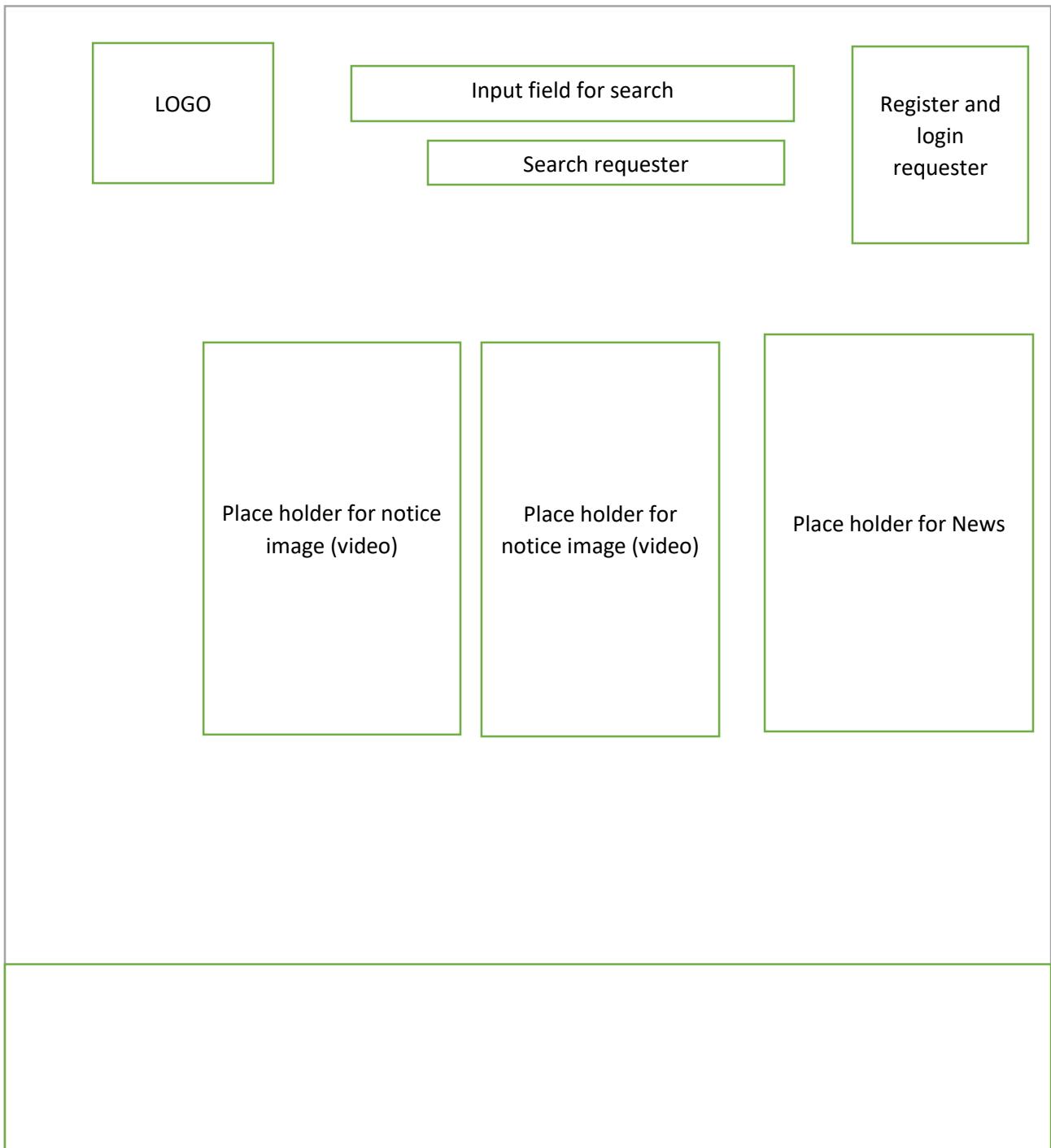


Figure 11: Essential UI for notice

UI Flow Diagram

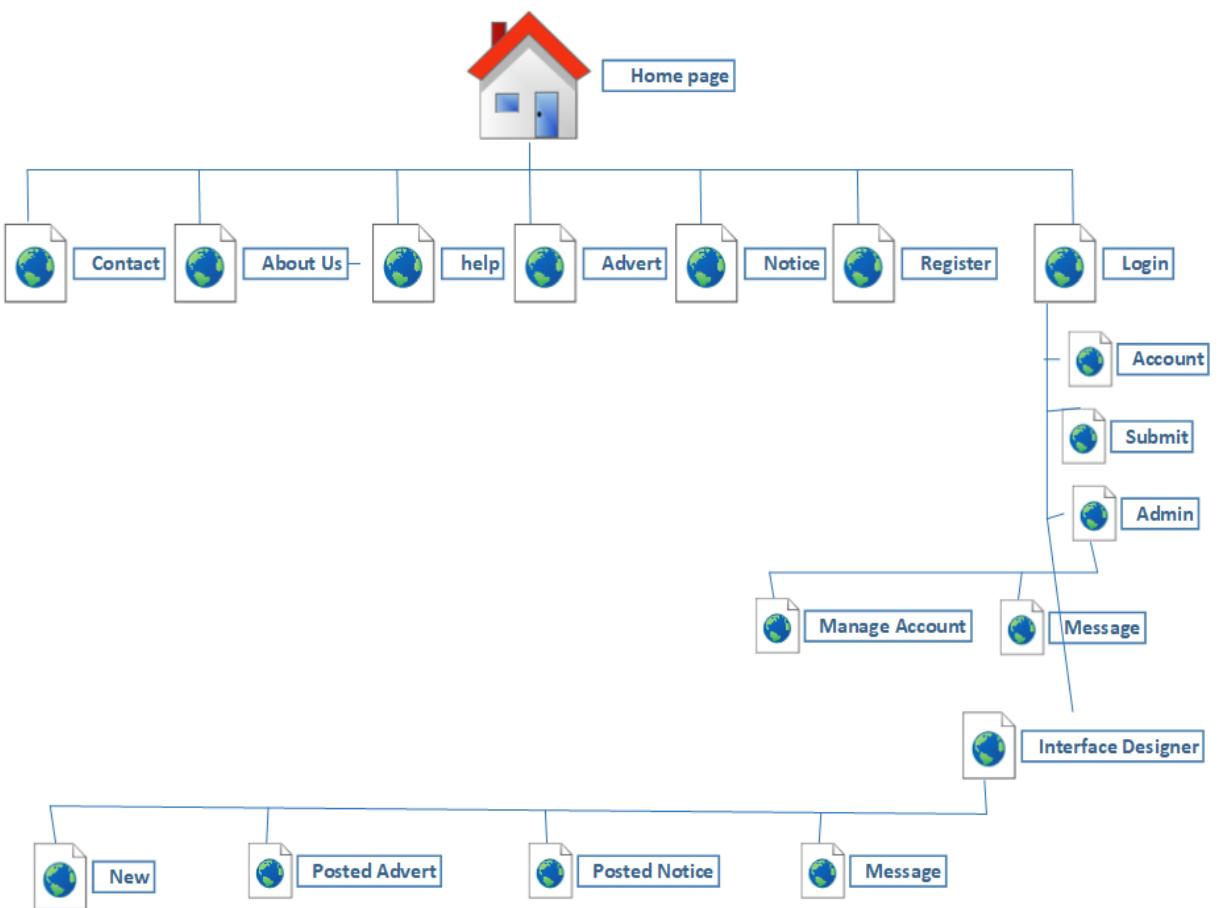


Figure 12: UI flow diagram

4.3CRC Modeling

A Class Responsibility Collaborator (CRC) model is a collection of standard index cards that have been divided into three sections. (Beck & Cunningham 1989; Wilkinson 1995; Ambler 1995). A class represents a collection of similar objects, a responsibility is something that a class knows or does, and a collaborator is another class that a class interacts with to fulfill its responsibilities.

Advertiser	
<<actor>>	
Advertiser ID	Advert
Name	Notice
Address	
Phone number	
Send advert/notice	

Visitor	
<<actor>>	
Send comment	Advert
View advert/notice	Notice

Advert	
<<UI>>	
Advert ID	Visitor
Advert category	Advertiser
Posting date	
Advertiser	

Register	
<<UI>>	
Name	Advertiser
Address	Register
Phone number	Database developer
Password	
Username	

Notice	
<<UI>>	
Notice ID	Visitor
Notice category	Notice sender
Posting date	
Expiry date	
Advertiser	

System analyst	
<<actor>>	
Id	Visitor
Name	
Address	
Title	

Make payment	
<<UI>>	
Advert/notice ID	Project manager
Advertiser Name	Advert
Advertiser Address	Notice

4.4 Supplementary Specification

4.4.1 BUSINESS RULE

A business rule defines or constrains one aspect of your business that is intended to assert business structure or influence the behavior of your business. Business rules often focus on access control issues. Business rules may also pertain to business calculations and the policies of your organization.

Name: Logging in to the web site

ID: BR #01

Description/rule: No user of the web page can be logged in unless they are advertiser/notice teller.

Name: Posting on the web page.

ID: BR #02

Description/rule: No user/viewer or advertiser/tell notice can post any content directly to the web page.

Name: Editing the web page

ID: BR #03

Description/rule: No user/viewer or advertiser/notice teller can edit the content of the web page. However, can claim editing with his or others advert or notice if its write is infringed.

Name: Deleting contents of the web page

ID: BR #04

Description/rule: No user/viewer or advertiser can delete the contents of the web page. However, he can claim deletion if his or others write are infringed.

Name: updating the contents of the web page

ID: BR #05

Description/rule: No user/viewer or advertiser can update the contents of the web page. However, he may claim updating on his own advertisement/notice.

Name: confirming the contents of the web page

ID: BR #06

Description/rule: The task of confirming the contents of the web page is interface the designer.

Name: Format of the web pages

ID: BR #07

Description/rule: format of the website can be text, pictures and sound, videos and sound, animation and sound.

Name: Format/content

ID: BR #08

Description/rule: The content that should be submitted by the the advertiser must be:

- a) Text= specified by the designer.
- b) Sound= 320 bit/rate /MP3
- c) Video= HD (720 x 1280 px)/MP4.
- d) Animation= HD (720 x 1280 px)/MP4.

Name: payment for service

ID: BR #09/1

Description/rule: Payment for service done only if the advertisement/notice are confirmed.

Name: Amount of payment for service (pricing)

ID: BR #09/2

Description/rule: pricing shall be calculated as:

- a) Text=20 char= 0.50
- b) Sound=0.75
- c) Picture= 9,192 byte=1.00 Birr
- d) Video= 9,744,384 byte = 2.00 Birr
- e) Animation= 9,744,384 byte = 2.00 Birr

Name: proving payment

ID: BR #10

Description/rule: Payment shall be proved by receipt.

Name: Registering to the web site

ID: BR #11

Description/rule: Only advertisers or/and notices tellers may register on the website.

Name: power and duties

ID: BR #12

Description/rule: The website has full power to delete, update, edit, and suspend the content of the advertisement/notice when necessary.

Name: Content and Presentation of Advertisement

ID: BR #13

Description/rule: The following advertisement/notice should not be confirmed or displayed in the website:

- a) Contents contrary to the law or moral;
- b) Contents should be free from misleading or unfair statements;
- c) Respect the social and traditional values of the society and not infringe the legitimate interests of consumers.
- d) Describe the true nature, use, quality and other similar information of the product or service intended to be promoted.
- e) Not undermine the commodities or services of other persons.
- f) Protect the dignity and interests of the country.
- g) Respect professional code of conduct.

Name: Eligible to register

ID: BR #14

Description/rule: Any business that has legal personality and can engage in legal activities in the territory of Ethiopia shall be eligible for registration.

Name: Detraining eligibility to register.

ID: BR #15

Description/rule: Any business or person, with a legal document that proves its legal personality is eligible for register.

Name: Unlawful or Immoral Advertisement/notice

ID: BR #16/1

Description/rule: Advertisement that contains pictures, sound or comparisons that violates the dignity, liberty or equality of mankind in relation to language, gender, race, nation, nationality, profession, religion, and belief, political or social status cannot be posted on the web site.

ID: BR #16/2

Description/rule: Advertisement that violates the rules of good behavior or human dignity of individuals, nation, nationalities or peoples, and defames the reputation of an organization;

ID: BR #16/3

Description/rule: Advertisement that undermine the national or regional state's flag, emblem, national anthem or currency;

ID: BR #16/4

Description/rule: Advertisement that undermine the dignity or emotional feeling of physically disabled person or a person living with HIV/AIDS or suffering from other disease;

ID: BR #16/5

Description/rule: Advertisement that instigates chaos, violence, terror, conflict or fear among people;

ID: BR #12/7

Description/rule: Advertisement that instigate an action that could endanger the physical or mental health and security of the people.

ID: BR #12/8

Description/rule: Advertisement causing sound pollution through any sound magnifying machine, which does not comply with the sound limit set by the appropriate governmental body;

ID: BR #12/9

Description/rule: Advertisement with obscene written message, image, picture, film or similar presentation;

ID: BR #12/10

Description/rule: Advertisement using the name, image or photograph of a person without his consent, or artistic or creative works protected by the law without authorization by the concerned person;

ID: BR #12/9

Description/rule: Advertisement contrary to traffic safety or environmental protection;

ID: BR #12/10

Description/rule: Commercial advertisement presented by wearing defense force or police uniforms, decorations or insignia;

ID: BR #12/11

Description/rule: Advertisement with content or presentation prohibited by other laws or that promotes the violation of any law.

Name: **Advertisement Requiring Special Certification**

ID: BR #13/1

Description/rule: Prior certification by the appropriate body shall be required in order to promote products or services that have to meet mandatory standard requirements.

ID: BR #13/2

Description/rule: An advertiser who is required to obtain a certificate of competence or a business license may not advertise its product or service without obtaining such certificate or license from the appropriate body.

Name: **Advertisements Affecting Minors**

ID: BR #14/1

Description/rule: An advertisement that may harm the attitude, feeling or thinking of a minor.

ID: BR #14/2

Description/rule: An advertisement that may cause a minor to lose affection or trust in his family, guardian, tutor, teacher, society or country.

ID: BR #14/3

Description/rule: An advertisement that openly motivates a minor to require his parent, guardian, tutor or any other person to buy the advertised product or service.

ID: BR #14/4

Description/rule: An advertisement, which directly or indirectly provides a misleading price and gives impression to a minor that the product or service advertised is affordable to any family.

ID: BR #14/5

Description/rule: An advertisement causing inferiority complex to a minor that did not buy the advertised product or service, by portraying that the one who does is better than the one who does not.

ID: BR #14/6

Description/rule: An advertisement that demonstrates, through mixing of sounds, writings and pictures, a minor while doing any action contrary to law or moral, or being in a dangerous situation or place;

ID: BR #14/7

Description/rule: An advertisement that uses a minor as an advertisement presenter or actor without the consent of his guardian or tutor;

ID: BR #14/8

Description/rule: Any other advertisement having similar content or presentation

Name: Counter Advertisement

ID: BR #15/1

Description/rule: The advertiser, the advertising agent and the advertisement disseminator shall disseminate a counter advertisement in favor of the victim of any advertisement that in breach.

ID: BR #15/2

Description/rule: Unless otherwise contrary evidence is presented, the advertiser, the advertising agent and the advertisement disseminator shall be jointly and severally liable to cover the cost of the counter advertisement.

ID: BR #15/3

Description/rule: A counter advertisement shall be arranged and disseminated in the same method, duration and place as the original advertisement was disseminated.

Name: Prohibited Advertisement

ID: BR #16/1

Description/rule: Advertisement of any substance classified as narcotic drug by appropriate governmental body.

ID: BR #16/2

Description/rule: advertisement that encourage the direct use of any prescription medicine or medical appliance.

ID: BR #16/3

Description/rule: Advertisement of narcotic drug or psychotropic substance.

ID: BR #16/4

Description/rule: advertisement of weapon.

ID: BR #16/5

Description/rule: advertisement of gambling.

ID: BR #16/6

Description/rule: Advertisement of illegal product or service

ID: BR #16/7

Description/rule: Advertisement of usury.

ID: BR #17/8

Description/rule: Advertisement of witchcraft.

ID: BR #16/9

Description/rule: Advertisement of cigarette or other tobacco products.

ID: BR #16/10

Description/rule: Advertisement having political goals.

ID: BR #16/11

Description/rule: Other advertisements prohibited by law.

Name: Restricted Advertisement

ID: BR #17/1

Description/rule: Any advertisement of liquor with more than 12% alcoholic content may not be disseminated directly or indirectly through any means of dissemination.

ID: BR #17/2

Description/rule: Advertise that consumption of the liquor is good for health, brings about individual or social success, improves psychological or physical strength or provides healing power, or instigate its repeated consumption or over drinking;

ID: BR #17/3

Description/rule: undermine or oppose abstention from alcohol addiction;

ID: BR #17/4

Description/rule: Concentrate on minors, or use a minor as an advertisement actor;

Name: obligation of advertiser and advertisement disseminator.

ID: BR #18/1

Description/rule: To verify the correctness of an information provided to it by an advertiser;

ID: BR #18/2

Description/rule: To require the advertiser to make adjustments to an advertisement where it breaches the law if disseminated as presented.

ID: BR #18/3

Description/rule: Any advertiser shall have the obligation to submit evidence requested by an advertising agent or disseminator to verify the correctness of an information included in an advertisement.

Name: Cancelation

ID: BR #19

Description/rule: The website may cancel the contract concluded with the advertiser and claim damages if the advertiser is unwilling or unable to fulfill the requirement

Name: Record Keeping and Providing Information

ID: BR #20/1

Description/rule: the website shall have the obligation to make a copy of a disseminated advertisement and keep a record of it at least for six months.

ID: BR #20/2

Description/rule: The website, when requested by the Authority or the appropriate government body in connection with the enforcement of the law provide, at its own cost, a copy of an advertisement record kept.

Name: Fair Dissemination of Advertisements

ID: BR #21

Description/rule: the website shall disseminate impartially and fairly advertisements submitted to it by advertisers and advertising agents.

Name: Responsibilities of Advertiser, Advertising Agent and Advertisement Disseminator.

ID: BR #22

Description/rule: Unless proved to the contrary, any advertisement disseminated in breach of the law shall be presumed to have been conducted with the consent of the advertiser, advertising agent and advertisement disseminator, and they shall be jointly and severally liable according to their degree of responsibility.

4.4.2 Constraints

Constraint ID	Description
Con-01	Lack of funding
Con-02	Many competition in the market
Con-03	The system will only use the data provided from the internal database
Con-04	The system should be available at every given time

Table 20: Constraints

4.4.3 Change case

Change cases are used to describe new potential requirements for a system or modifications to existing requirements. Change cases can be identified throughout the course of our overall development efforts.

Below is a list of change cases regarding our system: -

Change case-01: The adverts/notices grow in number

Likelihood: Certain, a long term plan of the project (system)

Impact: Small, since this is a long term plan no new modification to the system will be made to the system in the near future.

Change case-02: The advertisement law change

Likelihood: Certain, in the future the countries law on advertisement will change

Impact: Small, since this is likely to happen in a long term the impact is most likely minimum.

Change case-03: Introduction of new technology

Likelihood: Certain, advancement of technology is moving on a very high pace

Impact: large, advancement of technology in a short period of time will make the system out of date and needs an update or even rethinking the whole design of the system.

5. Analysis System Models

5.1 System use case modeling

5.1.1 System use case modeling

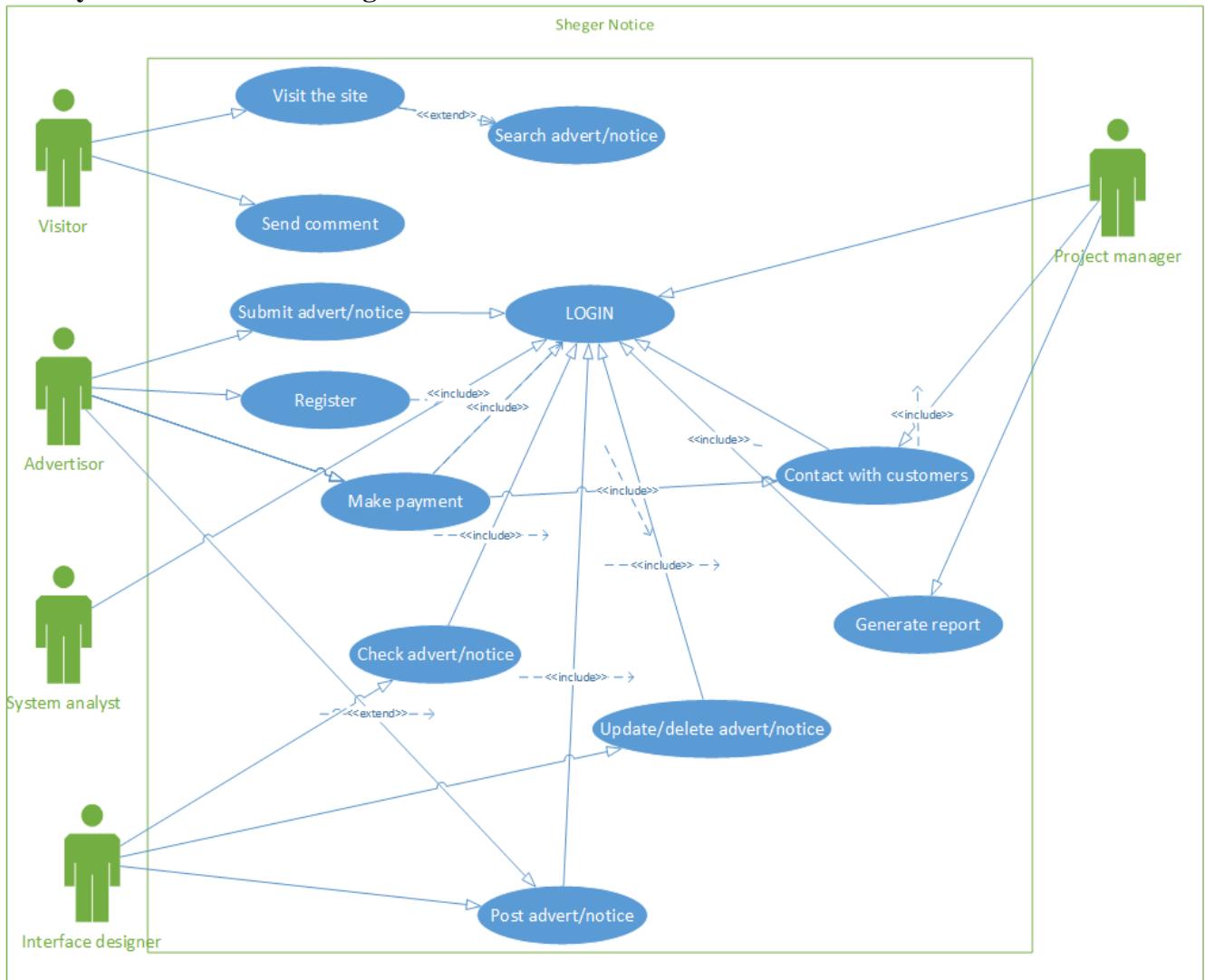


Figure 13: System use case

5.1.2 System use case documentation

<p>Name: Post advert/notice</p> <p>ID: FPSN-01</p> <p>Description:</p> <ul style="list-style-type: none">- The interface designer uses this use case to post advert/notice on the site <p>Preconditions:</p> <ul style="list-style-type: none">- The submitted advert/notice is in compliance with the standards of the company. <p>Post conditions:</p> <ul style="list-style-type: none">- Post the submitted advert/notice <p>Actors(s):</p> <ul style="list-style-type: none">- Interface designer, advertiser <p>Include(s):</p> <ul style="list-style-type: none">- Login <p>Basic course of action</p> <ol style="list-style-type: none">1. The interface designer checks the category of the advert/notice to be posted using the check advert/notice category UI.2. System returns the advert/notice category by fetching the category from the table.3. The interface designer checks the due date of the advert/notice (expiry date) using the check advert/notice due date UI.4. System returns the due date by fetching from the database.5. The interface designer posts the advert/notice according to the category, due date and size using the post advert/notice UI.6. System sends notification to the advertiser.7. The advertiser gets a notification via a message and view the message using the messages UI.8. Use case ends

Table 21: FPSN-01

Name: Check advert/notice

ID: FPSN-02

Description:

- The interface designer uses this use case to check the submitted advert/notice by the advertiser

Preconditions:

- Know the standards of the company
- Know the business rule of the company

Post conditions:

- Check advert/notice submitted by the advertiser

Actors(s):

- Interface designer

Basic course of action

1. The interface designer checks the advert/notice is in compliance with the company's standards using the check advert/notice UI.
2. The interface designer checks if the due date has been set using the check advert/notice UI.
3. The interface designer checks if the category is set using the check advert/notice UI.
4. The interface designer prepares the advert/notice for posting using the advert/notice UI.
5. Use case ends

Alternative course of action

Name:

- The advert/notice is not in compliance with the company's standards

A1. The interface designer notifies the advertiser by sending a message using the message UI.

A2. Use case ends

- The due date is not set.

A2. The interface designer notifies the advertiser and remind to set the due date or check for how long the advert is going to be displayed by sending a message using the message UI.

A3. Use case ends.

- The category is not set.

A3. The interface designer notifies the advertiser and remind to set the category by sending message using the message UI.

A4. Use case ends.

Table 22: FPSN-02

Name: Contact with customers

ID: FPSN-07

Description:

- This use case is used by the project manager to contact with the customers/advertisers.

Preconditions:

- Find the contact information of the customer.
- Go to the contact with customer's page.

Post conditions:

- Reach the customer by their address

Actors(s):

- Project manager

Basic course of action

1. The project manager puts the contact info of the customer using the contact customer UI.
2. The project manager sends message using the message UI.
3. Use case ends.

Table 23: FPSN-07

Name: Update advert/notice

ID: FPSN-05

Description:

- This use case is used by the interface designer to update/delete advert/notice

Preconditions:

- Login in to the site
- Go to the interface designers page

Post conditions:

- Update/delete advert/notice

Actors(s):

- Interface designer

Basic course of action

1. The interface designer gets any update info. or data from the advertiser about the advert/notice using the update UI.
2. The interface designer updates the submitted new data/info. from the advertiser using the update UI.
3. System shows confirmation message.
4. Use case ends

Alternative course of action**Name:**

- No update is received from the advertiser about the advert/notice

A1. No updating will be done

A2. Use case ends

Name:

- If an advert is incompliance with the standards of the company

A3. No deletion will be done

A4. Use case ends

Table 24: FPSN-05

Name: Generate report**ID: FPSN-06****Description:**

- This use case is used by the project manager for report generating purposes

<p>Precondition:</p> <ul style="list-style-type: none"> - Login to the site - Go to the administrator page <p>Post condition:</p> <ul style="list-style-type: none"> - Generate reports according to the performance of each departments <p>Actor(s):</p> <ul style="list-style-type: none"> - Project manager
<p>Basic course of action:</p> <ol style="list-style-type: none"> 1. The project manager checks if all the database tables are being filled as expected using the admin UI. 2. The project manager compiles each reports in to one. 3. The project manager makes sure the report is recorded for future reference 4. Use case ends.

Table 25: FPSN-06

<p>Name: Login</p> <p>ID: FPSN-11</p> <p>Description:</p> <ul style="list-style-type: none"> - This use case is used by Advertiser, programmer, database developer, system analyst, interface designer, project manager to login in to the site. <p>Preconditions:</p> <ul style="list-style-type: none"> - Register on the site <p>Post conditions:</p> <ul style="list-style-type: none"> - Login in to the site <p>Actors(s):</p> <ul style="list-style-type: none"> - Advertiser, system analyst, interface designer, project manager <p>Basic course of action</p> <ol style="list-style-type: none"> 1. Input username

2. Input password
3. System checks if username and password is correct
4. System redirects to the intended page.
5. Use case ends

Table 26: FPSN-11

Name: Make payment

ID: FPSN-09

Description:

- This use case is used by the advertiser to make payment for a submitted advert/notice

Preconditions:

- The advert/notice presented by the advertiser must be accepted by the Interface Designer.

Post conditions:

- Advertiser must get a formal receipt

Actors(s): Advertiser, Interface Designer, project manager

Basic course of action

1. The Interface Designer sends acceptance report about the advert/notice.
2. The advertiser will receive the amount to be paid.
3. The advertiser will pay the amount either by cash up front or using online banking.
4. Receipt will be issued to the advertiser.
5. Use case ends.

Alternate course of action

Name:

- The advertiser doesn't accept the payment methods
- A3. Contact with the project manager to come to an understanding of payment mechanism.
- A4. Receipt will be issued to the advertiser.
- A5. Use case ends.

Table 27: FPSN-09

<p>Name: Submit advert/notice</p> <p>ID: FPSN-13</p> <p>Description:</p> <ul style="list-style-type: none">- This use case is used by the advertiser to submit advert/notice <p>Preconditions:</p> <ul style="list-style-type: none">- Register- Login- Make sure the advert/notice meet the standards <p>Post conditions:</p> <ul style="list-style-type: none">- Successfully submit the advert/notice <p>Actors(s):</p> <ul style="list-style-type: none">- Advertiser
<p>Basic course of action</p> <ol style="list-style-type: none">1. The advertiser sends an already finished advert/notice using the submit advert/notice UI.2. System shows a confirmation message.3. Use case ends

Table 28: FPSN-13

<p>Name: Register on the site</p> <p>ID: FPSN-14</p> <p>Description:</p> <ul style="list-style-type: none">- This use case is used by the advertiser to register on the site <p>Preconditions:</p> <ul style="list-style-type: none">- Have an email account- Be over 18 years' old <p>Post conditions:</p> <ul style="list-style-type: none">- Successfully register on the site

Actors(s):
- Advertiser
Basic course of action
<ol style="list-style-type: none"> 1. The advertiser fills all the necessary fields on the register form using the register UI. 2. The advertiser agrees to the terms and conditions using the register UI. 3. System displays a successfully registered message. 4. Use case ends
Alternative course of action
Name:
<ul style="list-style-type: none"> - Not filling the necessary fields on the register form <p>A1. System notifies that all the necessary fields has not been filled.</p> <p>A2. Use case ends</p> <ul style="list-style-type: none"> - Not agreeing to the terms and conditions <p>A2. System notifies that in order to register he/she must agree to the terms and conditions.</p>

Table 29: FPSN-14

Name: Send comment
ID: FPSN-16
Description:
<ul style="list-style-type: none"> - This use case is used by the visitor to send comments about the site
Preconditions:
<ul style="list-style-type: none"> - Visit the site
Post conditions:
<ul style="list-style-type: none"> - Successfully submit a comment
Actors(s):
<ul style="list-style-type: none"> - Visitor
Basic course of action
<ol style="list-style-type: none"> 1. Go to the comment submission section 2. Fill the form 3. Enter comment

- | |
|--|
| <ol style="list-style-type: none"> 4. Send the comment 5. System displays sent message 6. Use case ends |
|--|

Table 30: FPSN-16

Name: Search advert/notice

ID: FPSN-18

Description:

- This use case is used by the advertiser and visitor to search for advert/notice

Preconditions:

- Go to the site

Post conditions:

- Successfully find the requested advert/notice

Actors(s):

- Advertiser, visitor

Basic course of action

1. Enter the keyword for the advert/notice to be searched
2. System returns search results.
3. Go through the fetched adverts/notices
4. Use case ends

Table 31: FPSN-18

Name: Visit the site

ID: FPSN-19

Description:

- This use case is used by the visitor to visit the site

Preconditions:

- Visit/browse the site

Post conditions:

- Successfully visiting the site without any hiccup

Actors(s):
- visitor
Basic course of action
<ol style="list-style-type: none"> 1. Go to the site address 2. Visit the site depending up on the interest of the visitor 3. Use case ends

Table 32: FPSN-19

5.2 Sequence diagram

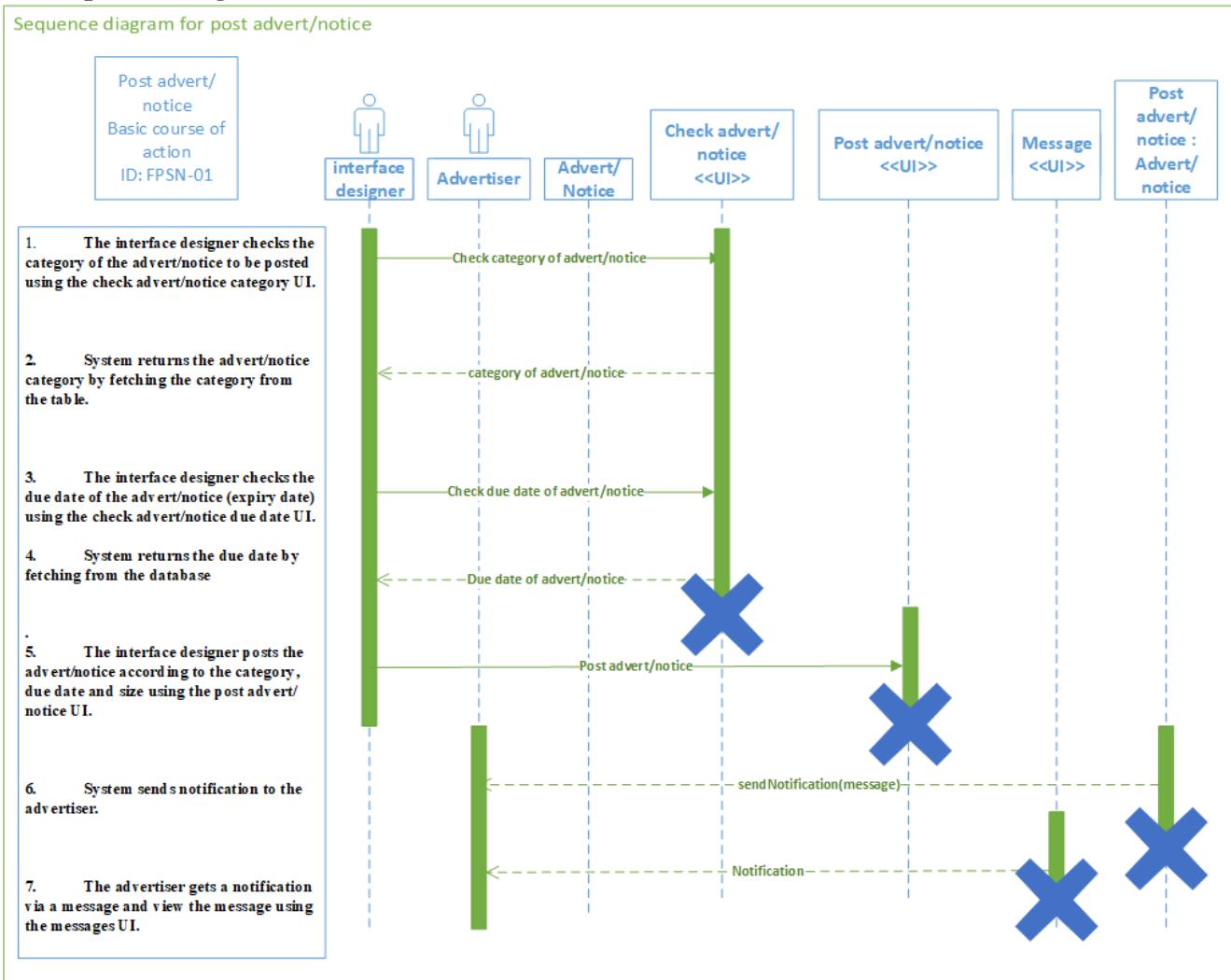


Figure 14: Sequence diagram for post advert/notice

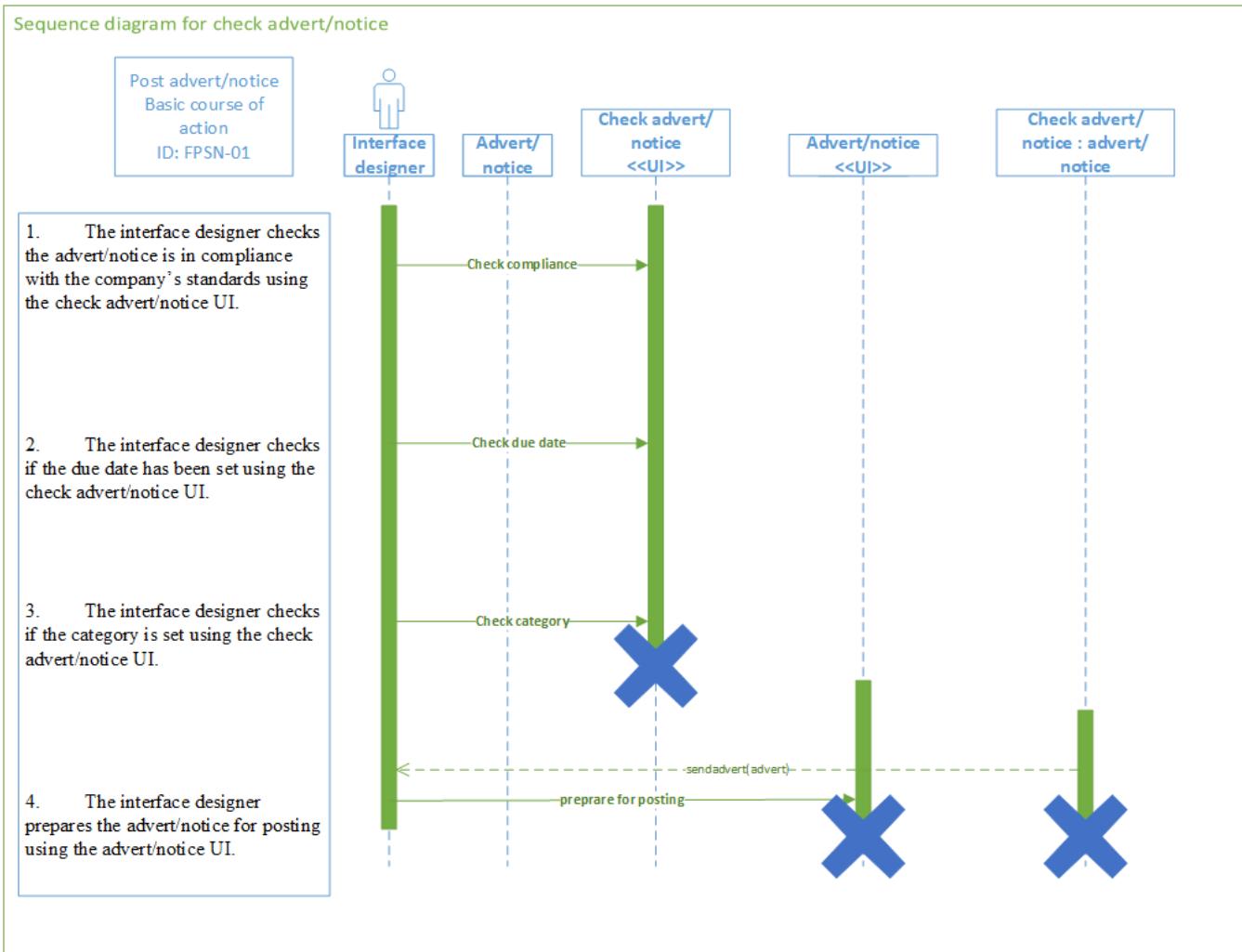


Figure 15: Sequence diagram for check advert/notice

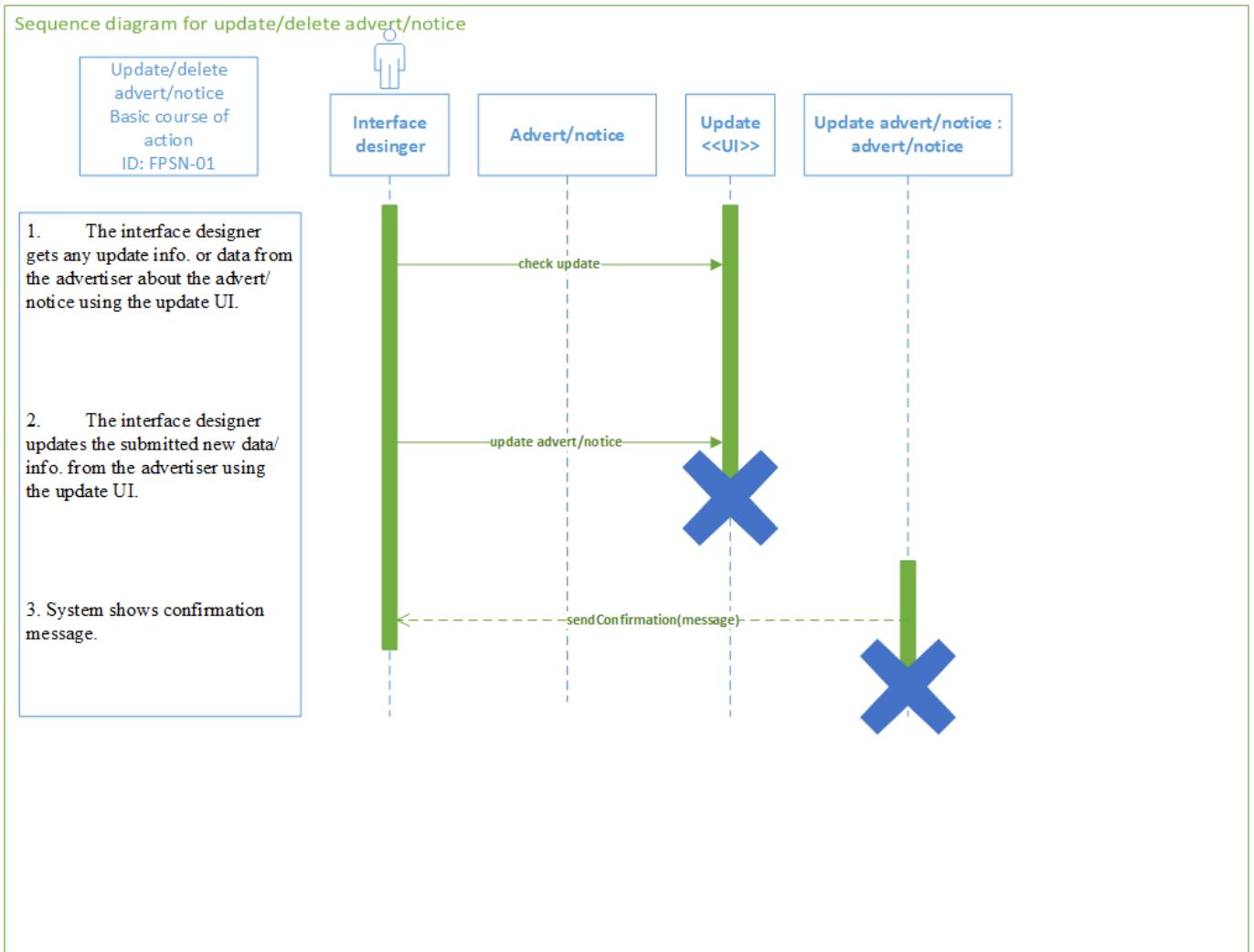


Figure 16: Sequence diagram for update/delete advert/notice

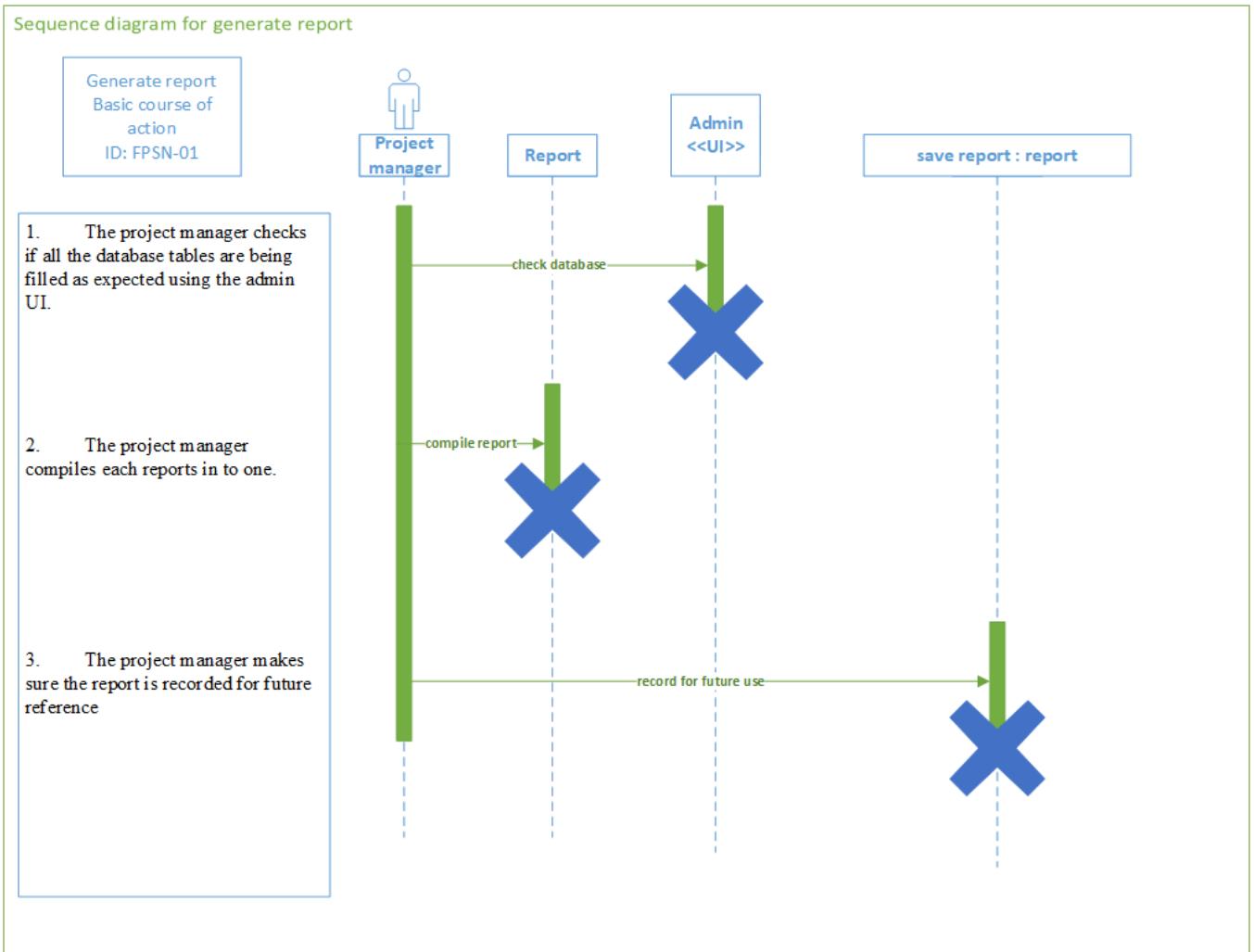


Figure 17: Sequence diagram for generate report

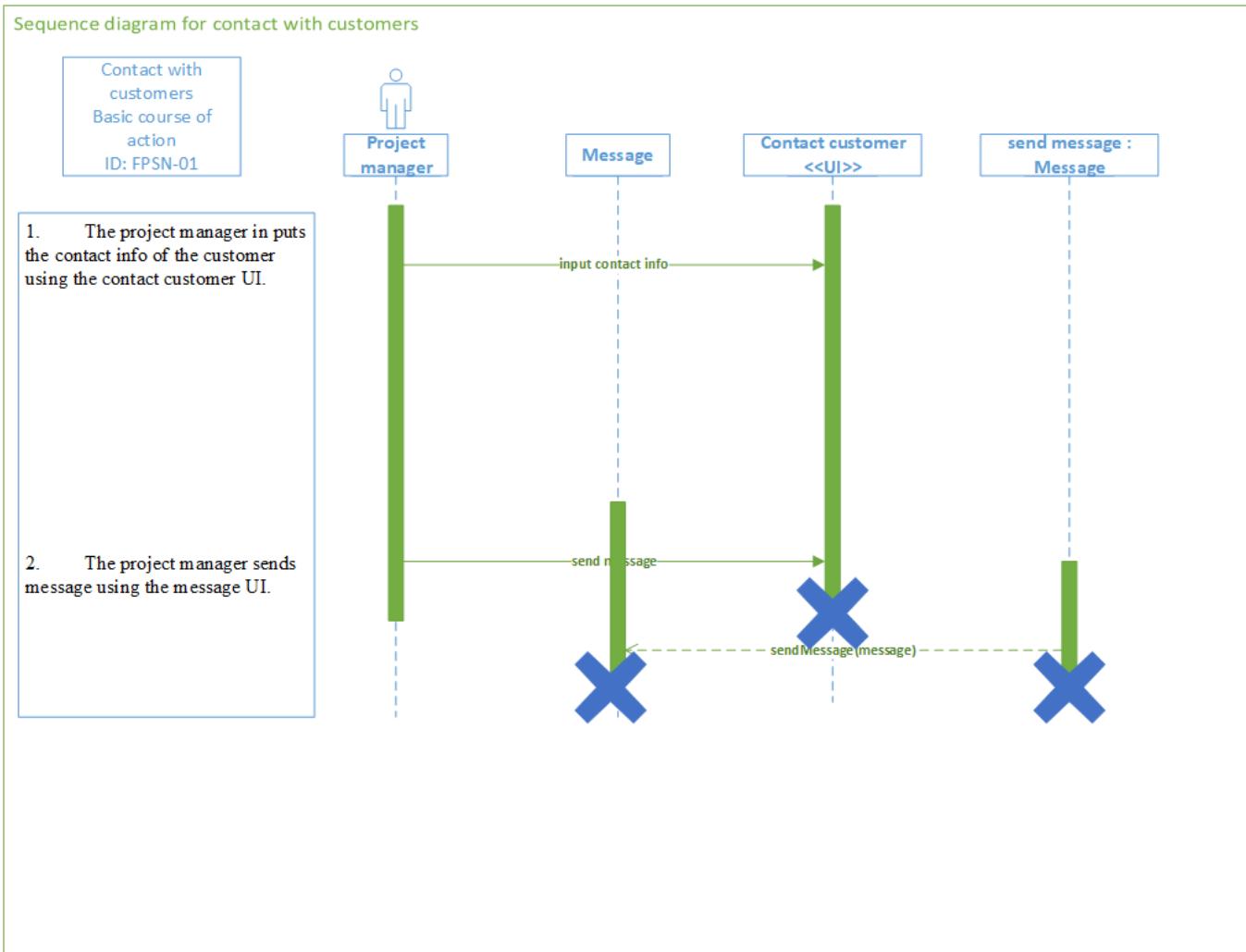


Figure 18: Sequence diagram for contact with customers

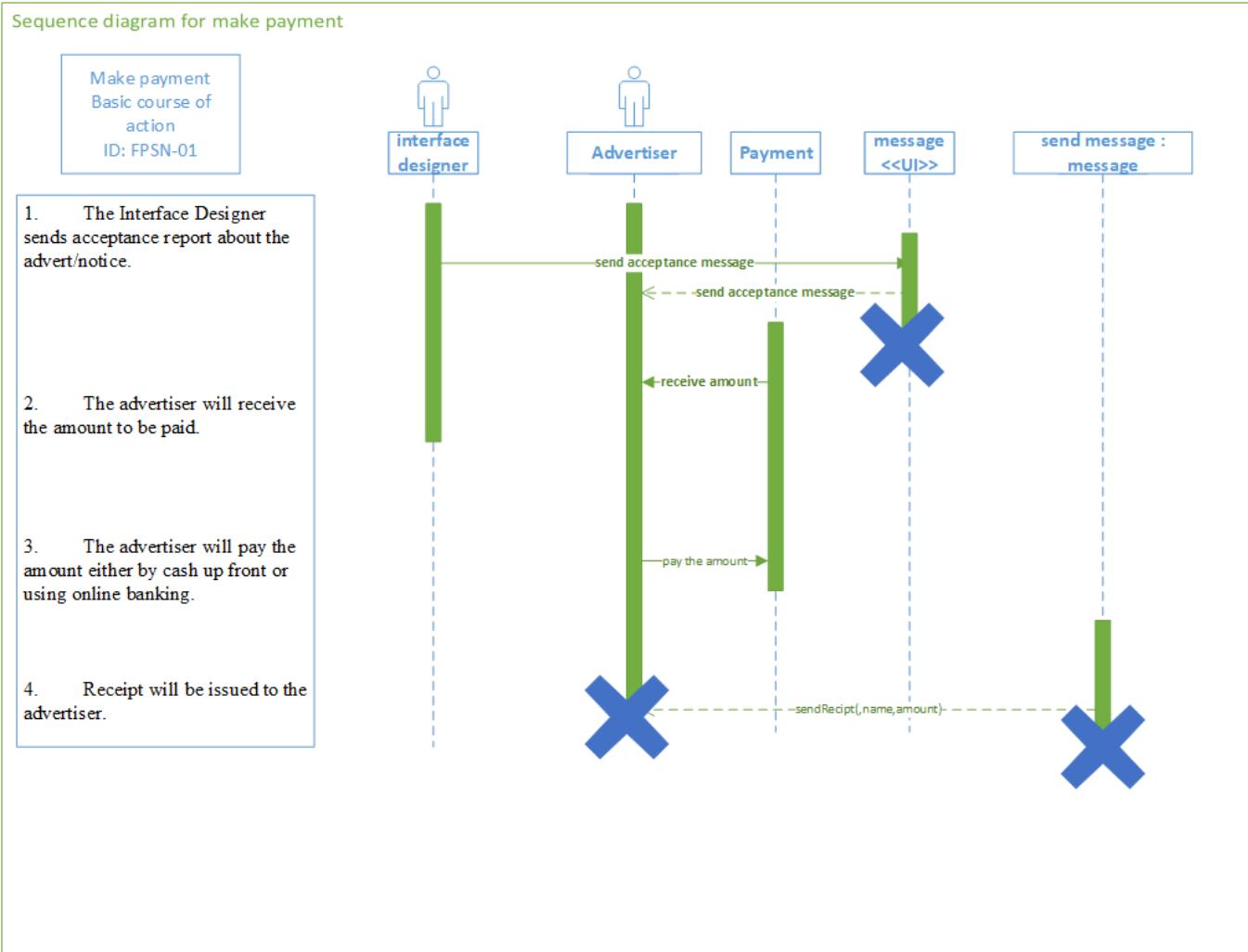


Figure 19: Sequence diagram for make payment

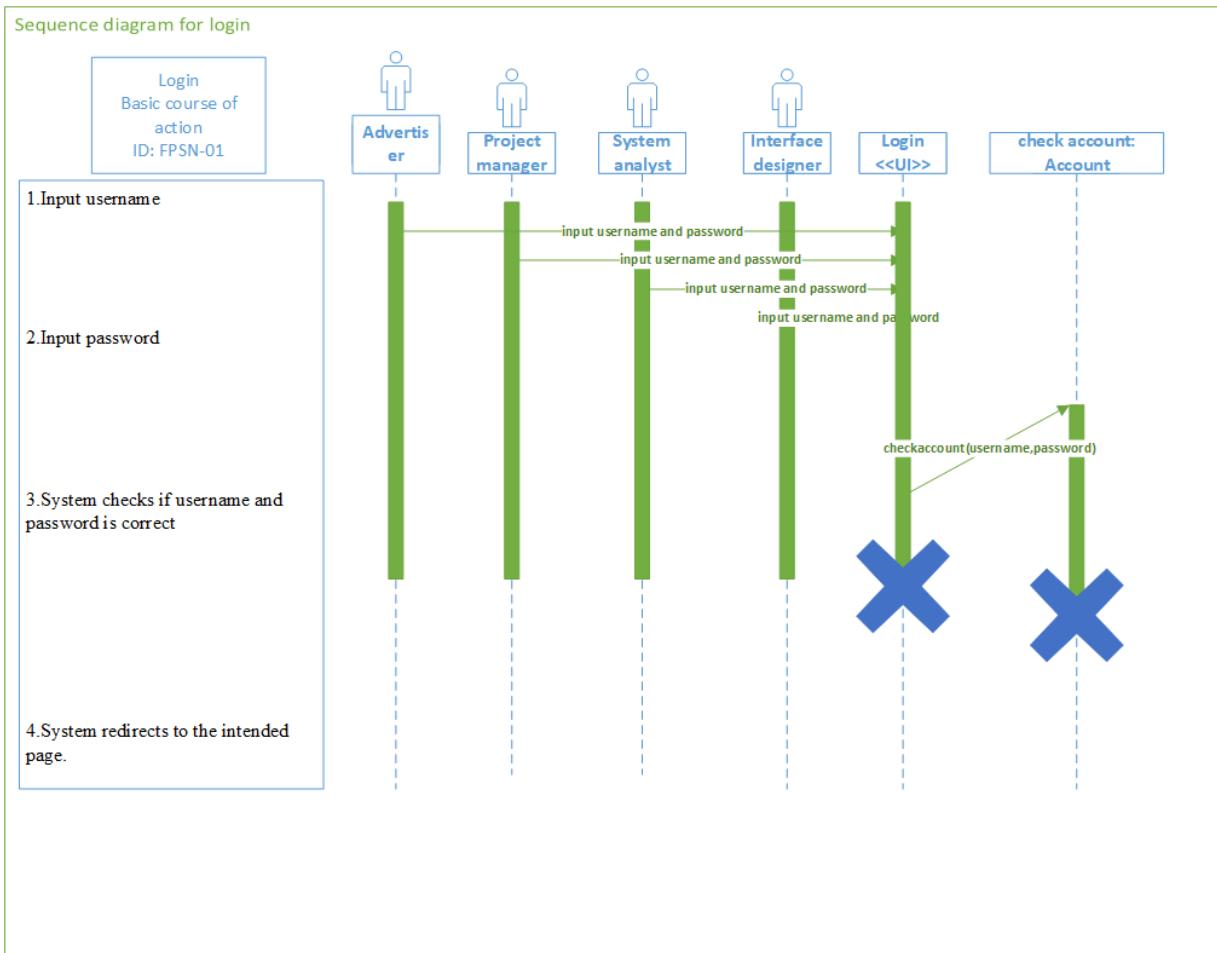


Figure 20: Sequence diagram for login

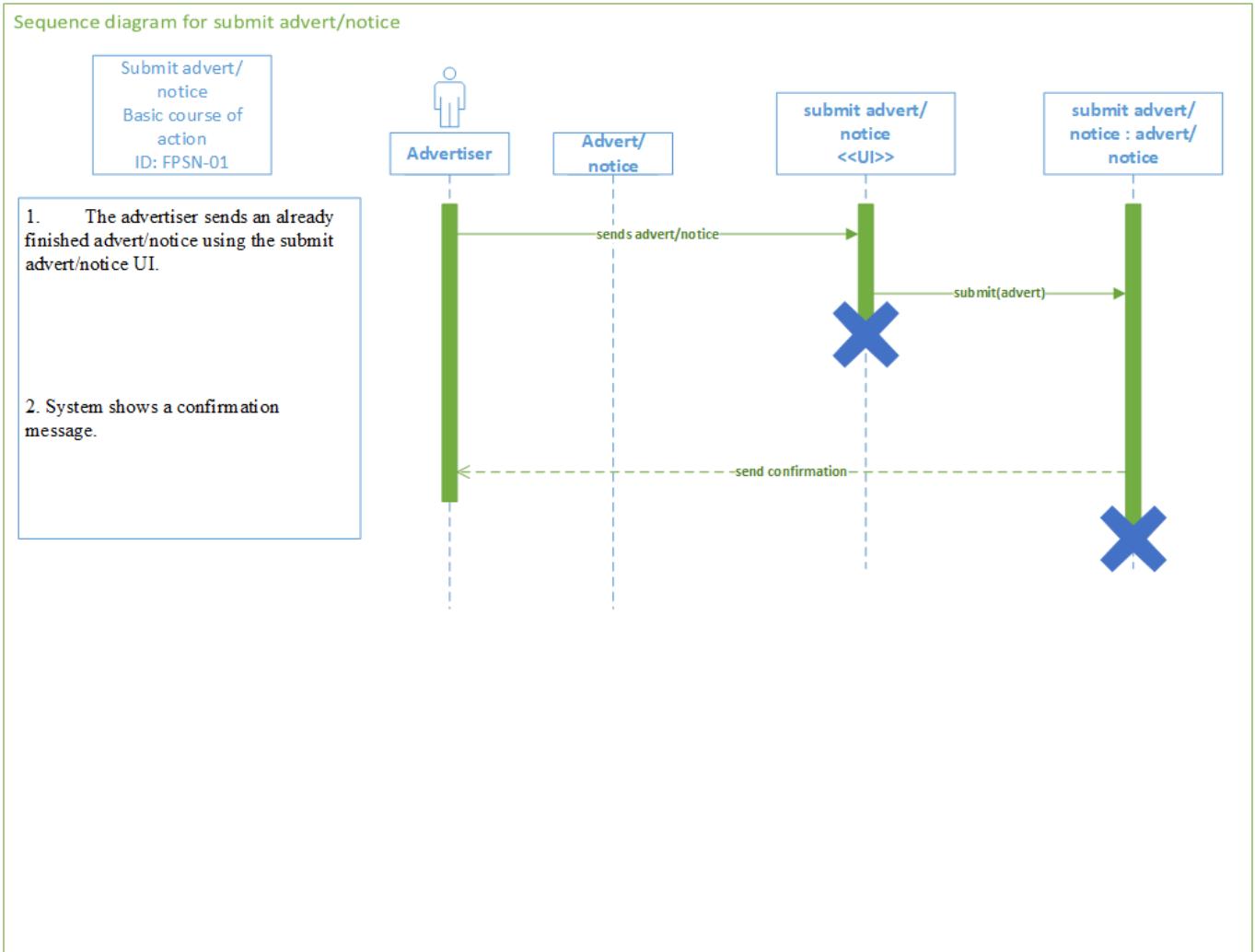


Figure 21: Sequence diagram for submit advert/notice

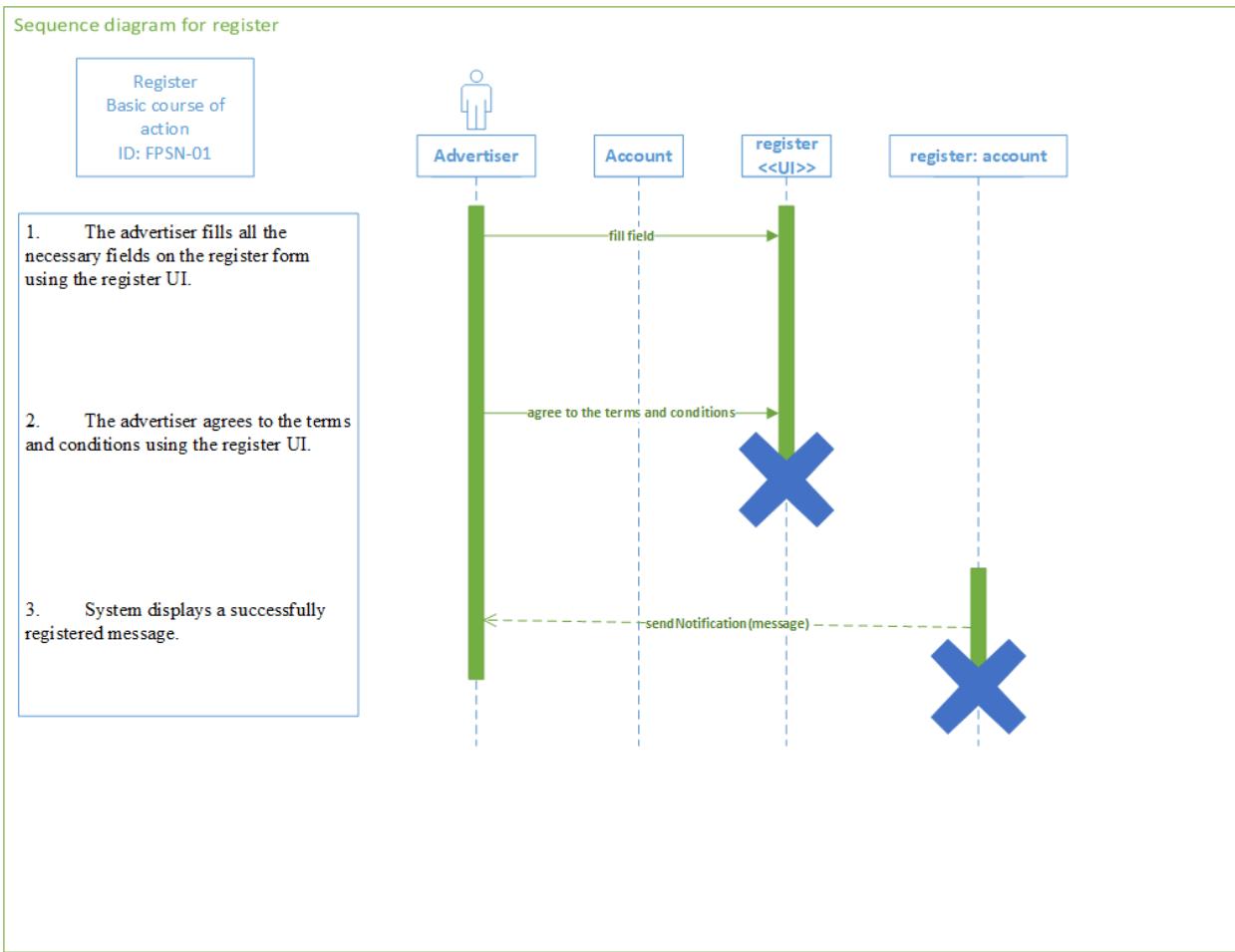


Figure 22: Sequence diagram for register

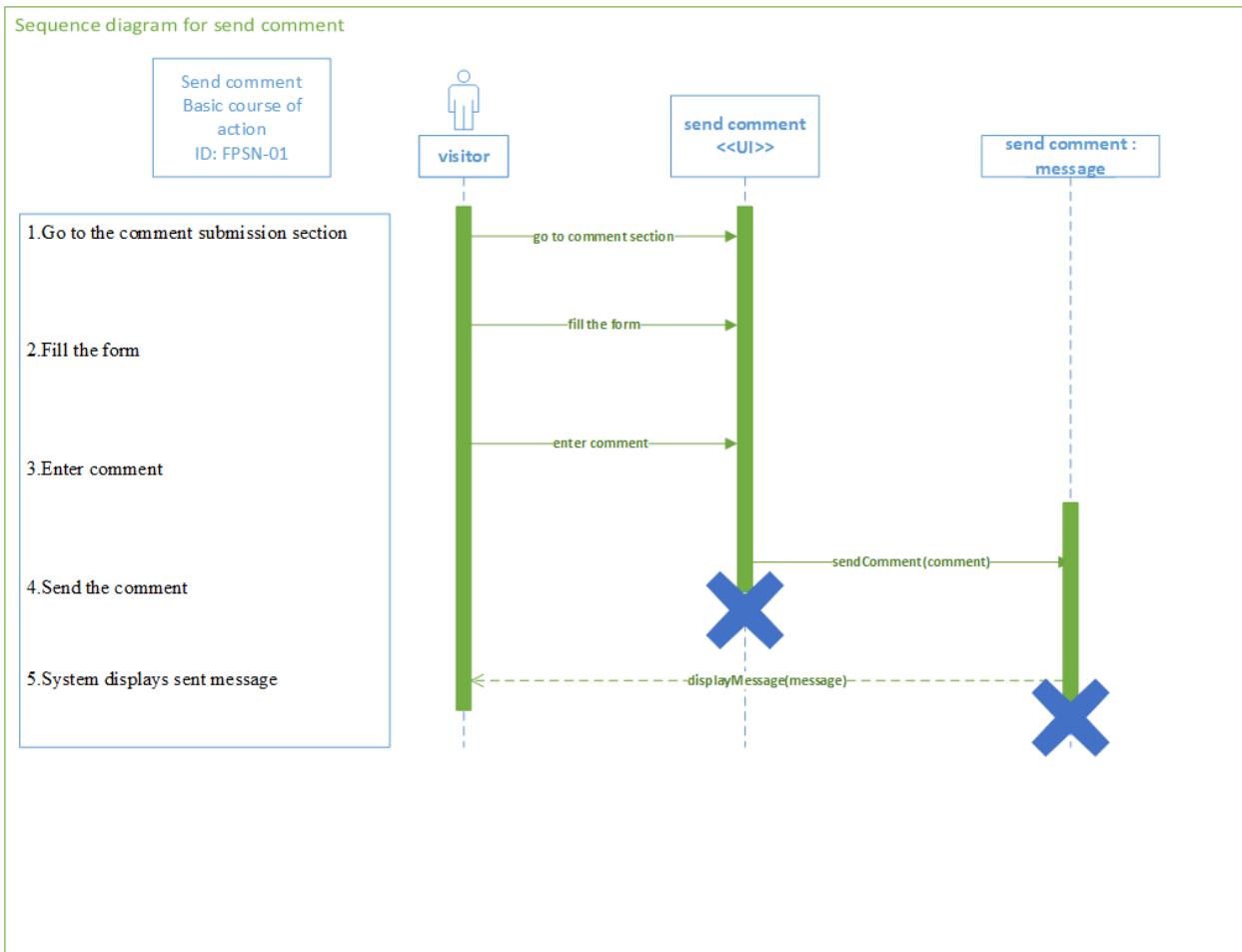


Figure 23: Sequence diagram for send comment

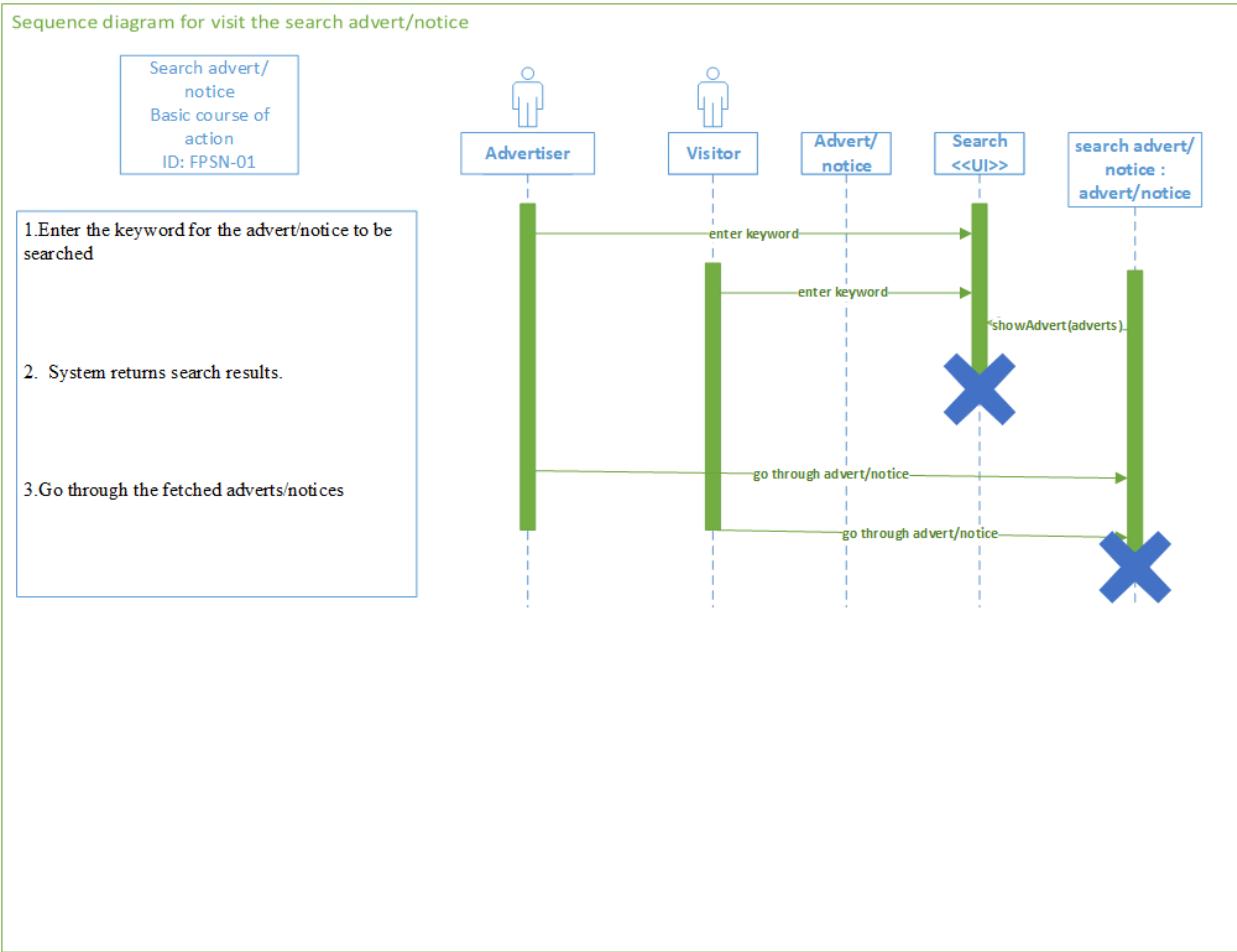


Figure 24: Sequence diagram for search advert/notice

5.3 Activity Diagram

Activity diagram for send comment

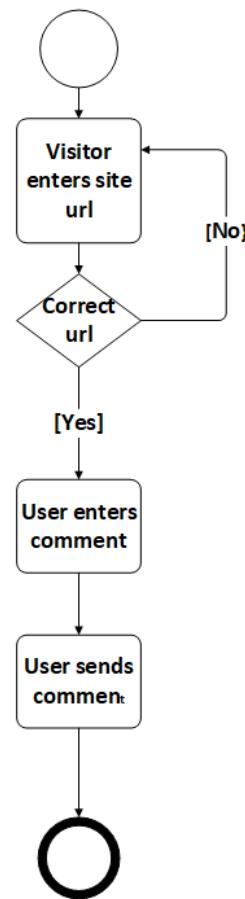


Figure 25: Activity diagram for send comment

Activity diagram for make payment

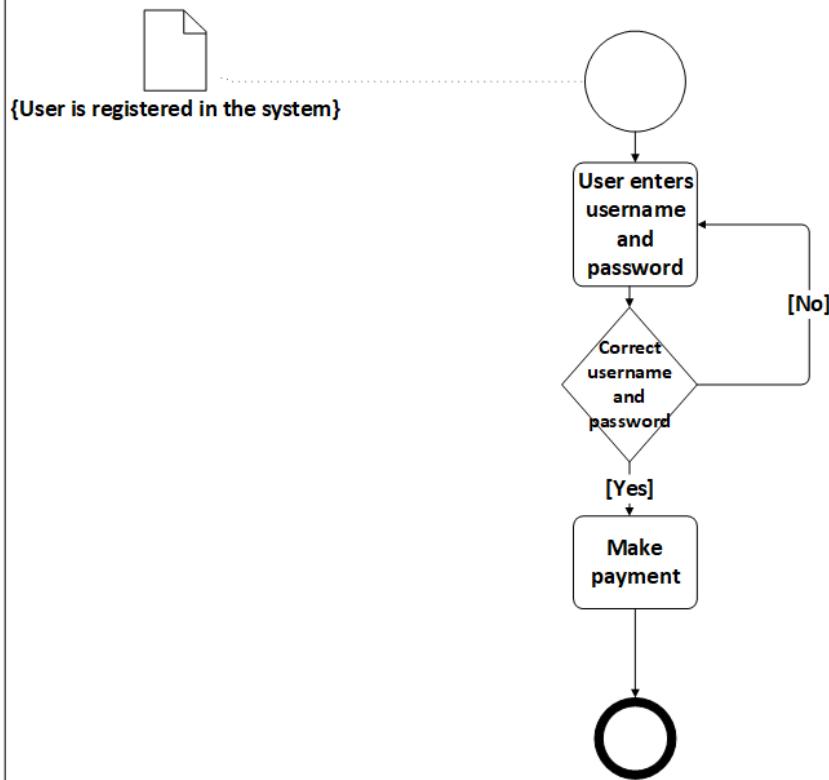


Figure 26: Activity diagram for make payment

Activity diagram for register

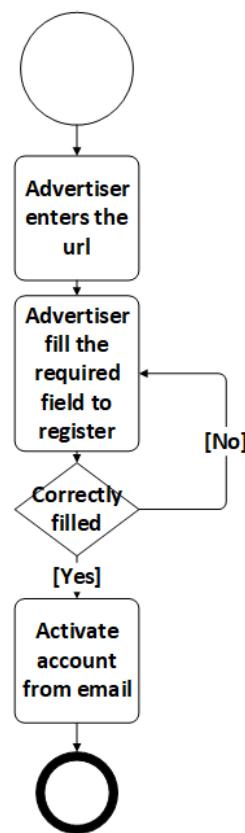


Figure 27: Activity diagram for register

Activity diagram for check advert/notice

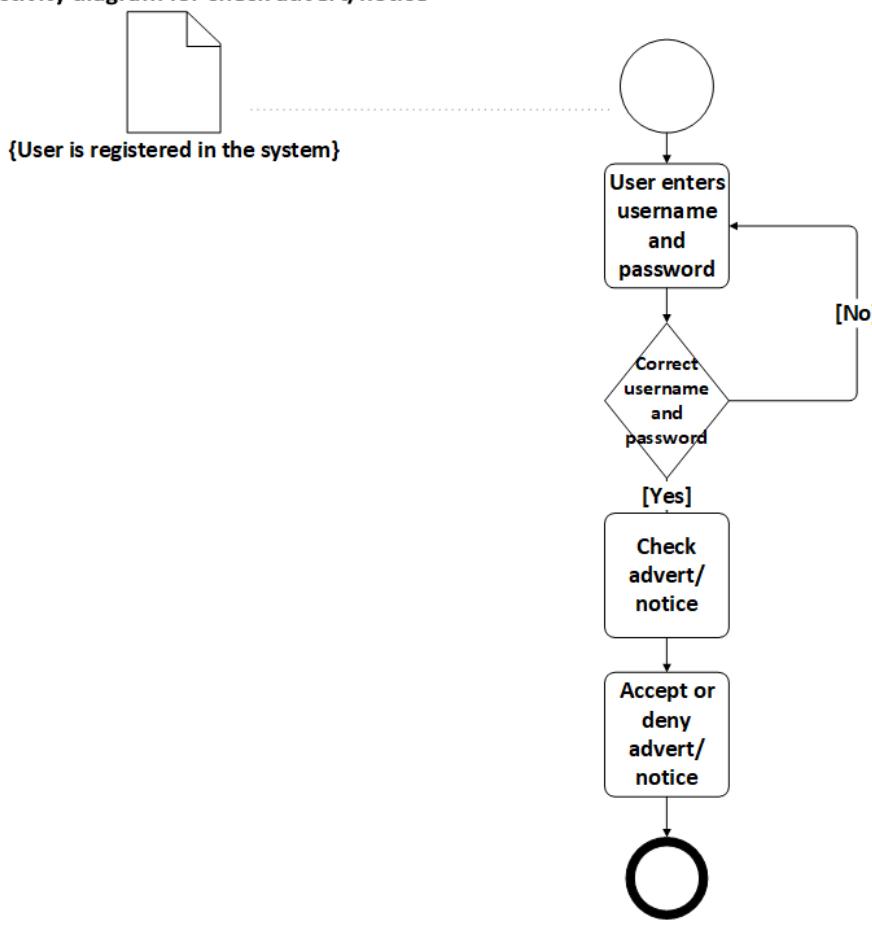


Figure 28: Activity diagram for check advert/notice

Activity diagram for post advert/notice

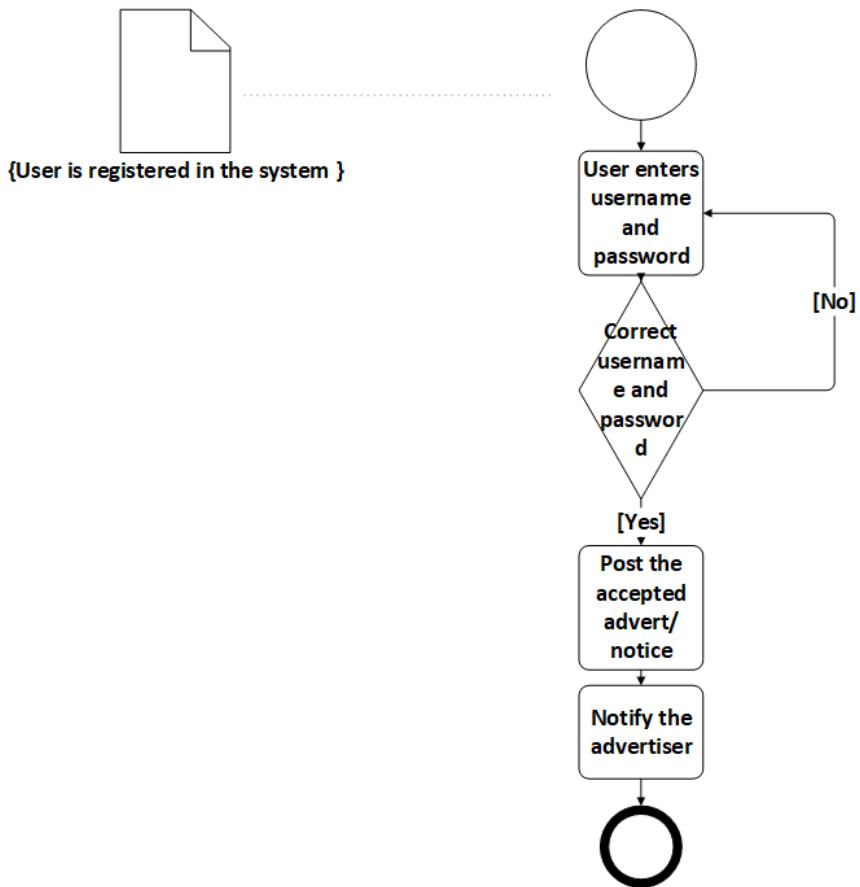


Figure 29: Activity diagram for post advert/notice

Activity diagram for search advert/notice

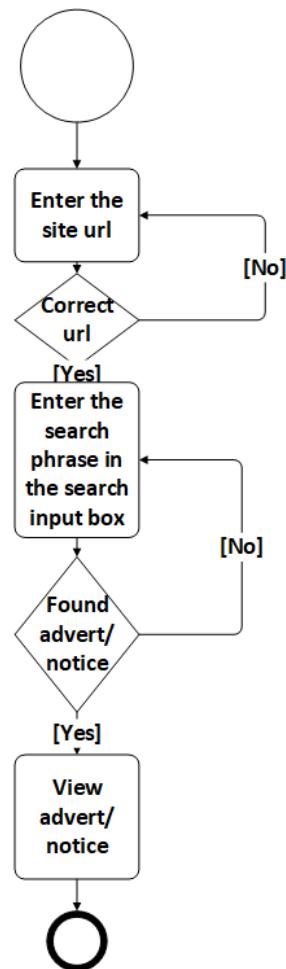


Figure 30: Activity diagram for search advert/notice

Activity diagram for contact with customers

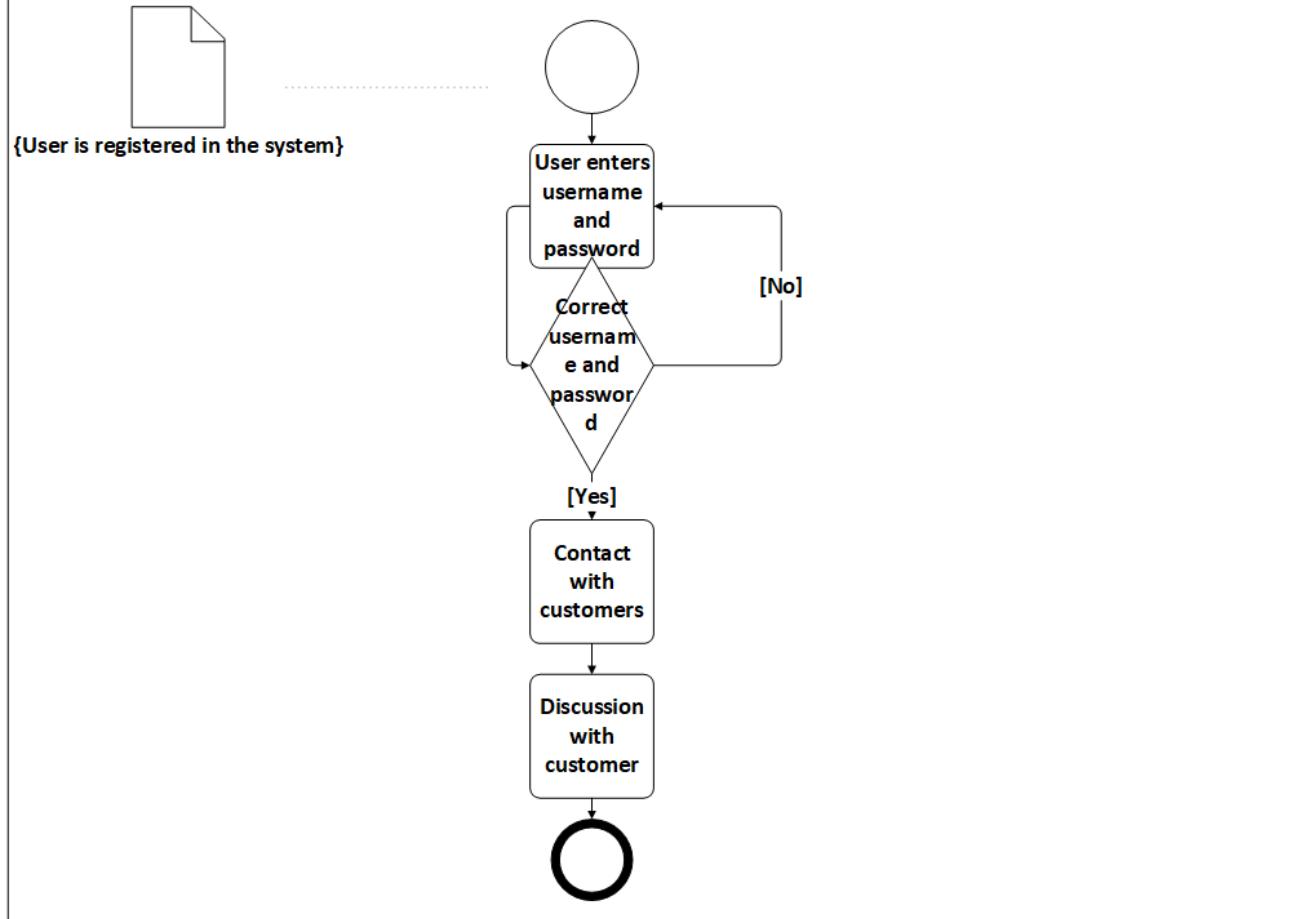


Figure 31: Activity diagram for contact with customers

Activity diagram for update/delete advert/notice

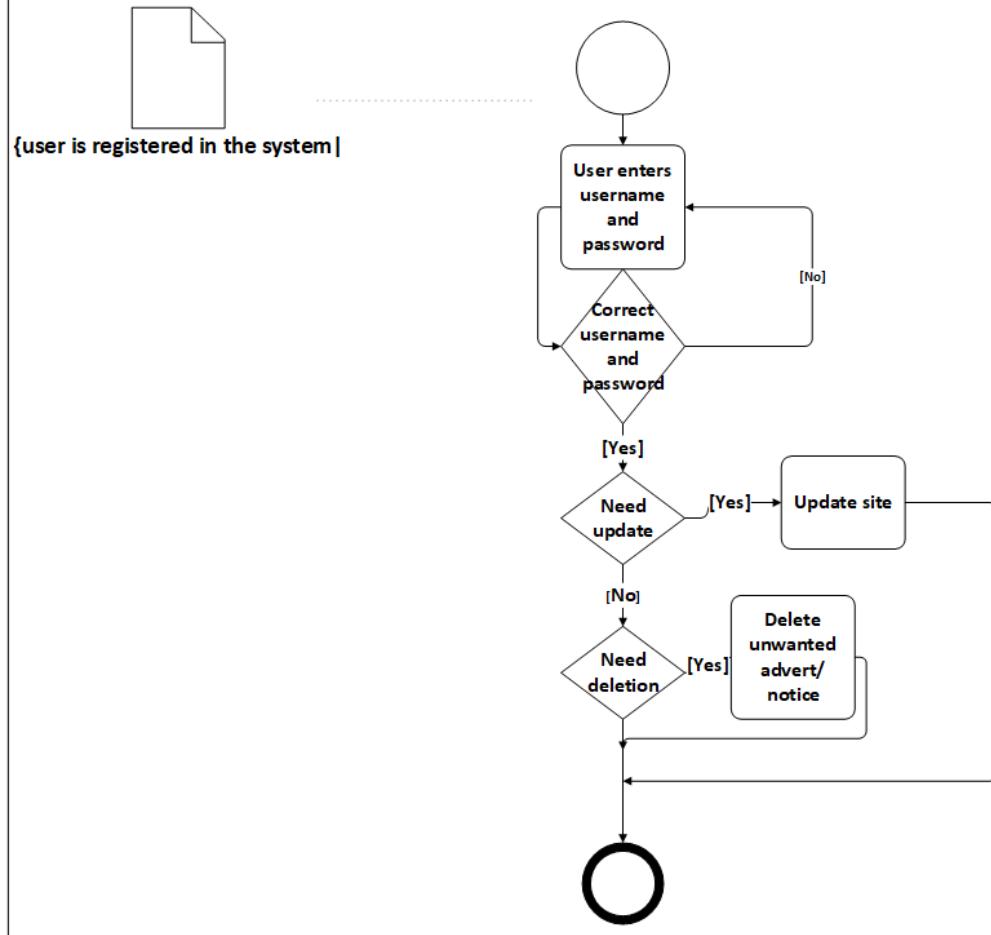


Figure 32: Activity diagram for update/delete advert/notice

Activity diagram for generate report

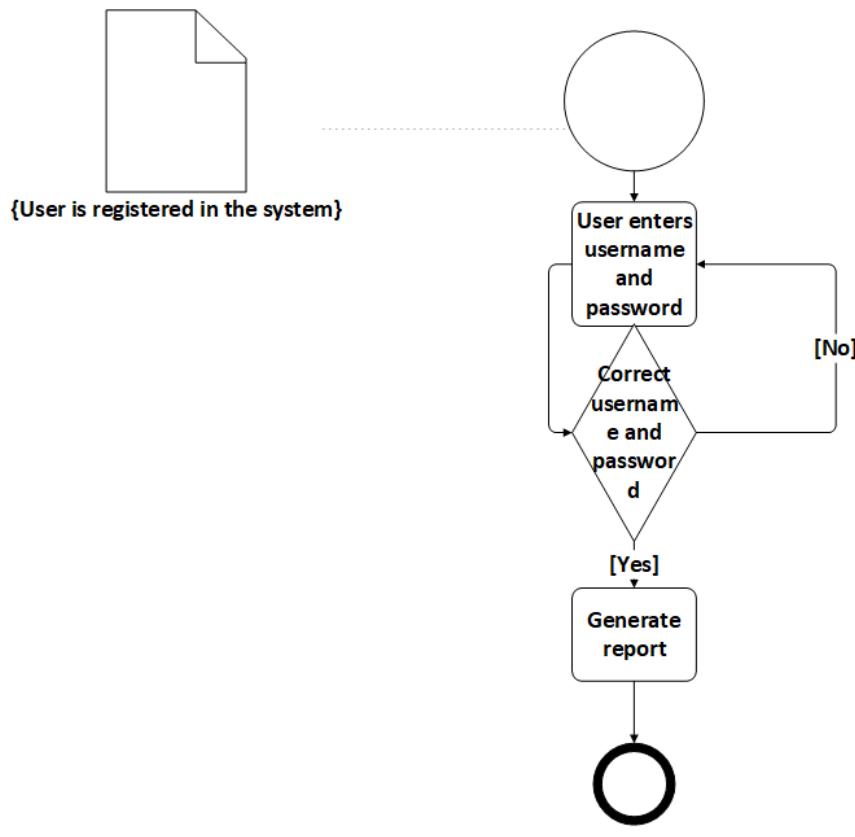


Figure 33: Activity diagram for generate report

Activity diagram for submit advert/notice

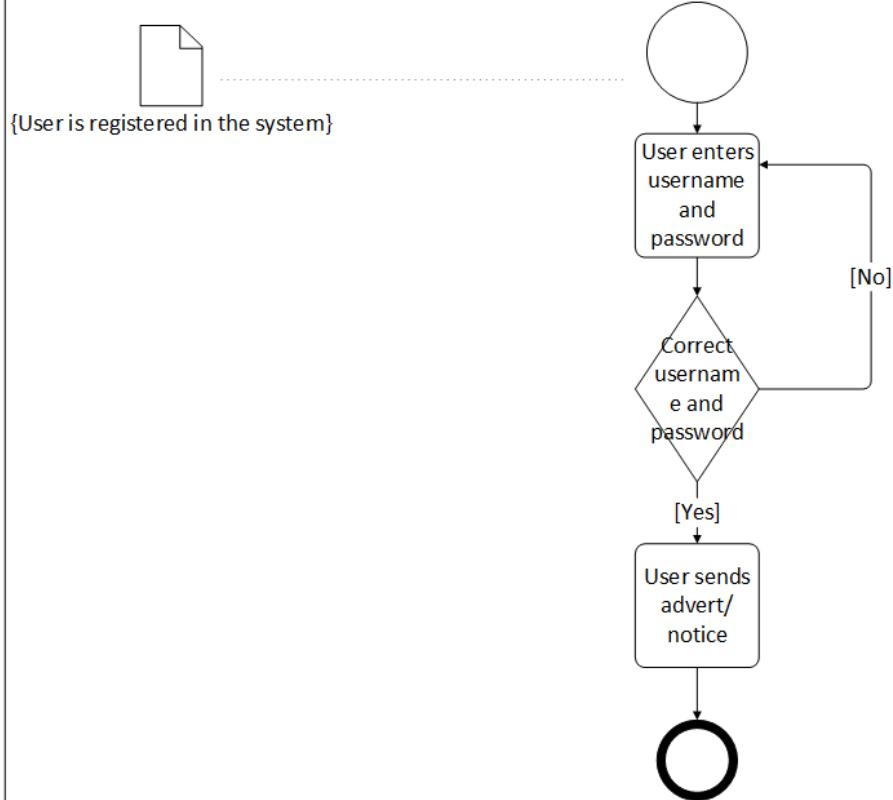
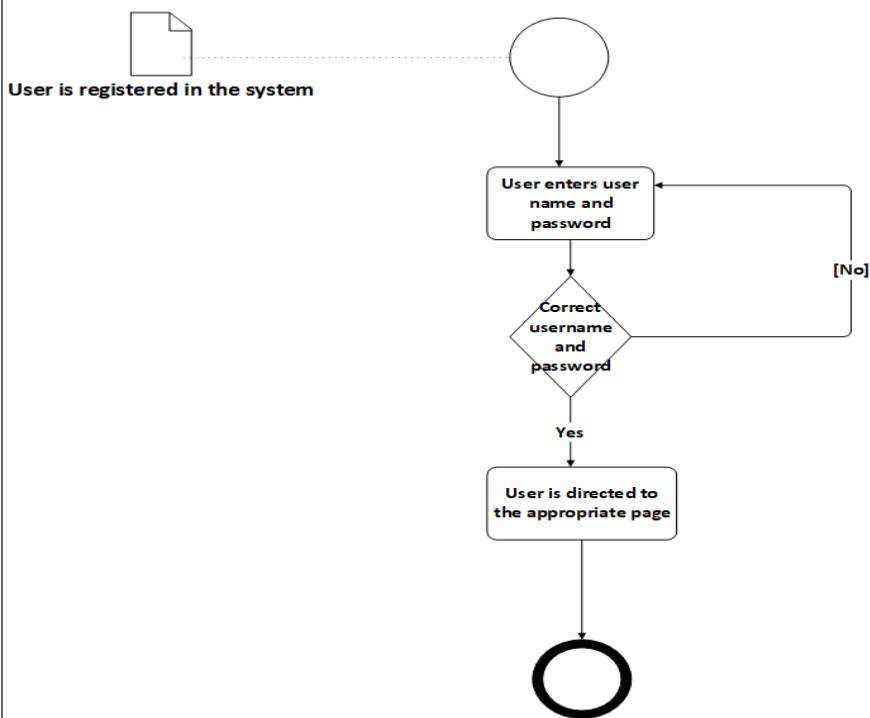


Figure 34: Activity diagram for submit advert/notice

Activity diagram for login



Activity diagram for visit site

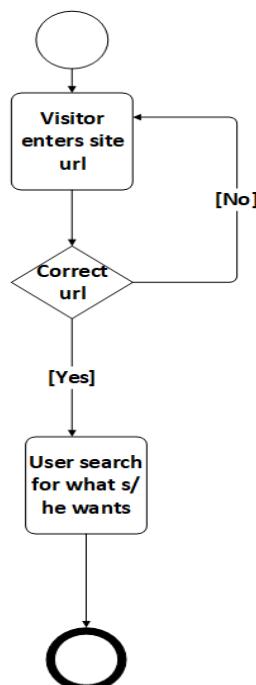


Figure 35: Activity diagram for login and visit

CHAPTER FOUR

SYSTEM DESIGN

1. Introduction

System design is the transformation of the analysis model into system design model. System Analysis focuses on the application domain while system design focuses on solution domain. The deliverable of this phase is a system design model which serves as a blueprint for the implementation of the system. The system design phase describes desired features and operations in detail, including screen layouts, process diagrams, and other documentation.

2. Design Goals

When we first start this project, all the members agree on is that we should use our maximum effort and potential. The design goal of this project should reflect this. As some reference describe the main standards of any web based site, should contain simplicity, consistency, identity, robustness, navigability, visual appeal, Aesthetic and compatibility. To describe some of them in the context of our project:

Simplicity

Simplicity is avoiding exhaustive content, extreme visuals, unpleasant animation, enormous Web pages, complex navigation, and so on. When web site is simple, the simplicity is not only how it is made, but also how it feels to the viewers. The interaction, and the experience the viewers enjoyed on the stay of the site.

Consistency

Content should be constructed consistently. In our case, consistency can be text, font, pictures, color, and graphics. These contents should be consistent throughout the site. Navigation mechanisms should be used consistently across all the platform elements. “Remember that to a visitor, a website is a physical place. It is confusing if pages within a site are not consistent in design.”

Identity

Sheger notice is a new platform different from other site; therefore, it should have its own identity. The visual, interface, and navigational design of a platform must be consistent with the advertisement/notice for which it is to be built. Therefore, a website for an advert/notice will undoubtedly have a different look and feel than a platform designed for a financial services company.

Robustness

Based on the identity that has been established, our web site should make grant to a user it is robust. The user expects robust content and functions that are relevant to the user's needs. From research, we understood if these elements are missing or insufficient, it is likely that the website will fail.

Navigability

Sheger notice is not for professionals only, keeping in mind that the web navigation should be designed in a manner that can be understood by anyone. In other words, it should be intuitive and predictable. That is, the user should understand how to move about the Web without having to search for navigation links or instructions. If navigation from one content to the other is obscure, the user will be frustrated.

Visual Appeal

Visual appeal is the look and feel of content, interface layout, color coordination, the balance of text, graphics, and other media, navigation mechanisms. These and other contents contribute to the visual appeal. Web applications are unquestionably the most visual, the most dynamic, and the most Artistic. Especially, when it is an advertisement/ notice it should attract visitors enough so as they are comfortable to spend their time on the site.

Compatibility

A web can be used in different hardware, Internet connection, operating systems, and browsers. These variety environments influence the compatibility of the web site. As much as possible we use different mechanisms to consider these and other compatibility issue during the design process.

Reliability

We will make sure Sheger notice will have the ability to function as intended, efficiently and without failure. The codes we use the hardware and the software will be upgraded, patched and well maintained to keep the reliability.

Maintainability

Sheger notice is a well-documented project; this means all aspects of it well known, this increase the ability to have repairs carried out quickly and efficiently if a failure occurs. It dramatically reduce the effort required to find and fix a fault

Reusability

The main objective of object-oriented programming is reusability. Choosing OOP for this project the extent to which the software (or a component within it) can be reused within some other software.

Good documentation

Our project design goal is to produce the best documentation because, first we would like it to be the stepping stone for others, second we like it to be the standard of all project, and third good documentation improves maintainability, and ease of use.

Well-defined interface

Web design is a science and an art. The look and the feel of a web site should be measured and logical, that is a science. Color combinations of each interface is different. Researching which color combination works with which interface is an art. A well-defined interface combines the science, and the art.

User friendliness

Sheger notice is for all. User friendliness works for all user, leman and professionals. Our site should be user friendly since it is which any user comfortably to visit and navigate through the web site.

3. Design tradeoff

System designers and developers are expected to make decisions of reducing or improving something at the expense of something else for the good of the overall system. This is what we refer to Design trade off.

Cheap & Fast Accessibility or Cheap Processing Hardware

Our goal is getting as much as daily users as we can. So, if we compress a video or photo file we can reduce time and internet data cost of our user at the expense of the processing power of the CPU when it compresses and decompresses the file. This way our users can access our site faster with less internet data usage although our processing power might be great, its necessary design trade-off.

Security or cost

We are at a time where it is very hard to secure our system and when improving our system security there are many expenses both in money and in time. To secure our system we need top of the line hardware and software plus a very time taking thro configuration and coding. So, this means in this trade off we're sacrificing our time and money for a better system security.

4. Sub system decomposition

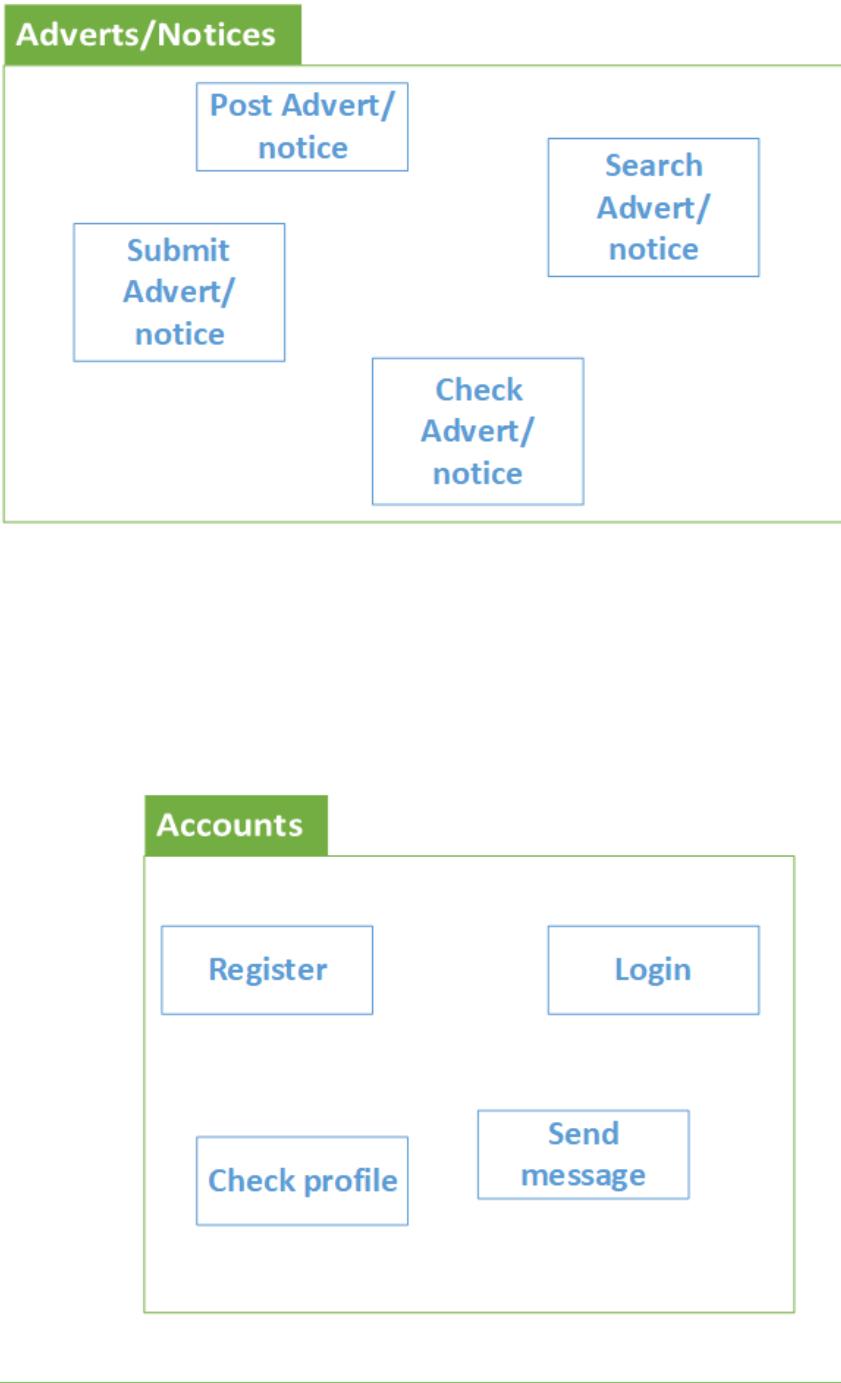


Figure 36: sub system decomposition

5. Class diagram

A class diagram is a static diagram, it's used to show the existence of the classes and their relationships in the logical view of the system.

It represents the static view of an application. Class diagrams are used for a wide variety of purposes, including both conceptual/domain modeling and detailed design modeling. During analysis we use class diagrams to indicate the common roles and responsibilities of the entities that provide the systems behavior. During design we use class diagrams to capture the structure of the classes that form the systems architecture.

The two essential elements of a class diagram are Classes and their basic relationships.

The major classes of our system are:

- Advert
- Notice
- Advertiser
- Interface Designer
- Project Manager
- Visitor
- Report

Interfaces

- Submit Advert/Notice
- Check Advert/Notice
- Make Payment

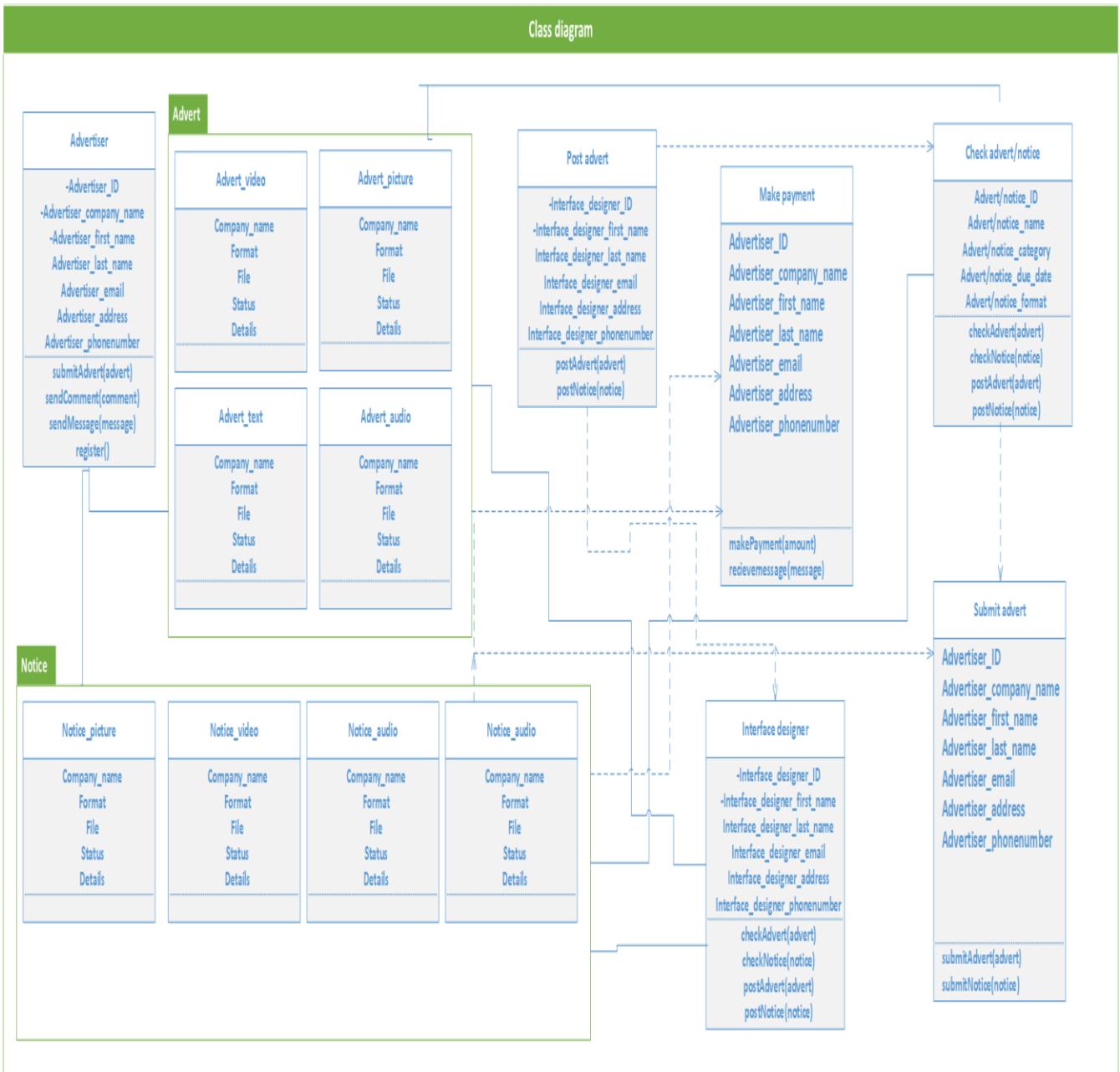


Figure 37: Class diagram

6. Persistent Model

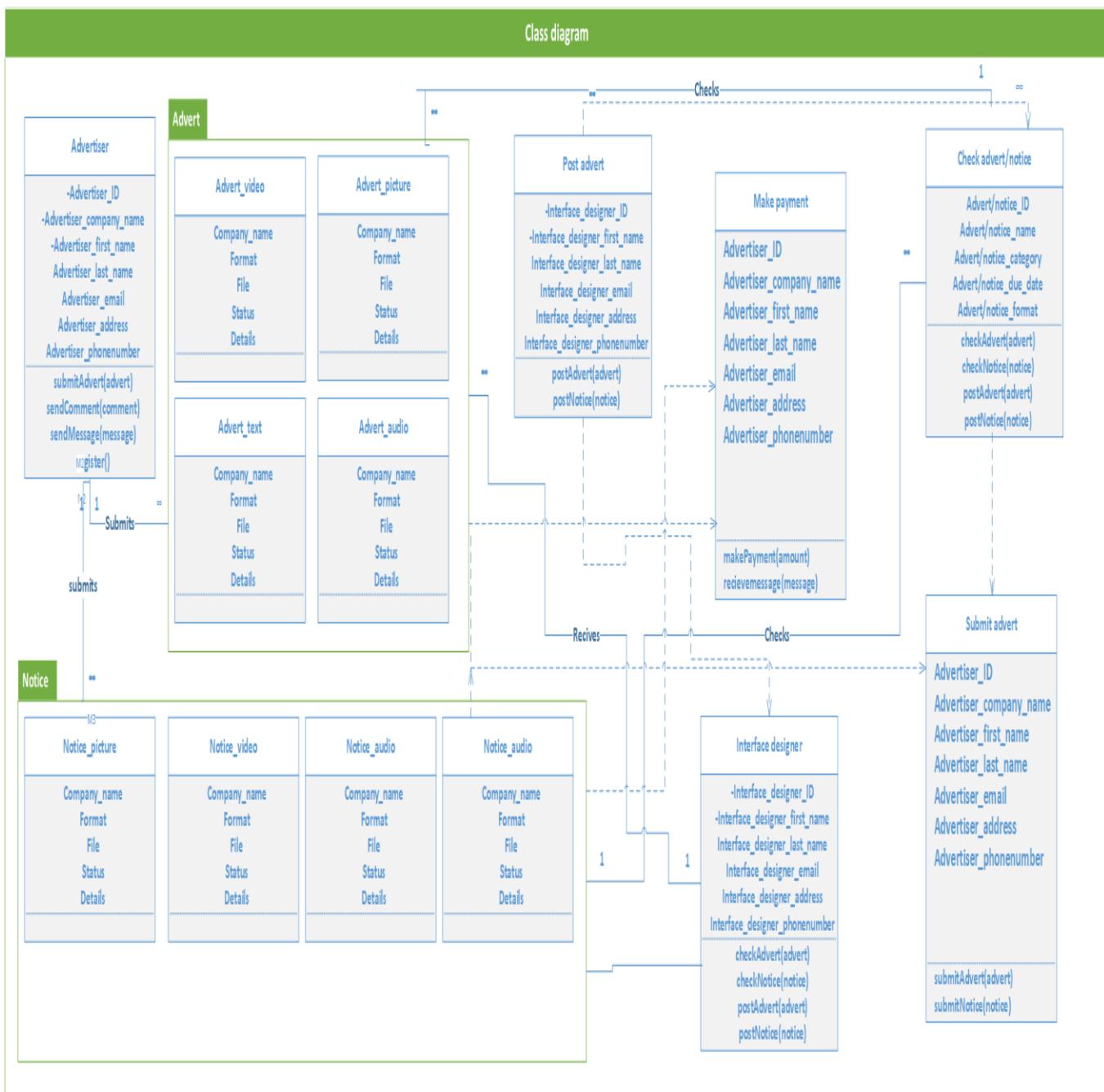


Figure 38: Persistence model

6.2 Normalization

Database normalization is a technique of organizing the data in the database. Normalization is a systematic approach of decomposing tables to eliminate data redundancy (repetition) and undesirable characteristics like insertion, update and deletion anomalies.

Normalization is used for mainly two purposes,

- Eliminating redundant (useless) data.
- Ensuring data dependencies make sense i.e. data is logically stored.

ID	Company	Format	Category	File	Details	Status
001	Hope entertainment	Video	Music album	Video.mp4	Producer Singer	Post
002	Flute entertainment	Picture	Music album	Music.mp3	Producer Singer	Post
002	Flute entertainment	Picture	Hotel	Hotel.jpg	Address Tel	Not post

Figure 39: Table to be normalized

1NF (First Normal Formal)

ID	Company	Format	Category	File	Details	Status
001	Hope entertainment	Video	Music album	Video.mp4	Producer	Post
001	Hope entertainment	Video	Music album	Video.mp4	Singer	Post
002	Flute entertainment	Picture	Music album	Music.mp3	Producer	Post
002	Flute entertainment	Picture	Music album	Music.mp3	Singer	Post
002	Flute entertainment	Picture	Hotel	Hotel.jpg	Address	Not post
002	Flute entertainment	Picture	Hotel	Hotel.jpg	Tel	Not post

Figure 40: 1NF

2NF (Second Normal Form)

ID	Company	Category	Details
001	Hope entertainment	Music album	Producer
001	Hope entertainment	Music album	Singer
002	Flute entertainment	Music album	Producer
002	Flute entertainment	Music album	Singer
002	Flute entertainment	Hotel	Address
002	Flute entertainment	Hotel	Tel

Figure 41: 2NF

ID	Format	File	Status
001	Video	Video.mp4	Post
001	Video	Video.mp4	Post
002	Picture	Music.mp3	Post
002	Picture	Music.mp3	Post
002	Picture	Hotel.mp4	Not post
002	Picture	Hotel.mp4	Not post

Figure 42: 2NF

3NF (Third Normal Form)

ID	Company	Format	Category
001	Hope entertainment	Video	Music album
002	Flute entertainment	Picture	Music album
002	Flute entertainment	Hotel.mp4	Hotel

Figure 43: 3NF

Format	File	Details	Status
Video	Video.mp4	Producer	Post
Picture	Music.mp3	Producer	Post
Video	Video.mp4	Singer	Post
Picture	Music.mp3	Singer	Post
Video	Hotel.mp4	Address	Not post
Video	Hotel.mp4	Tel	Not post

Figure 44: 3NF

7. UI design

User interface prototype is an iterative analysis technique in which users are actively involved in identifying the user interface of the system. It helps to explore the problem space as well as the solution space of the system at least from the point of view of user (Ambler. 2001).

Here are the major user Interfaces of our system:

Home page

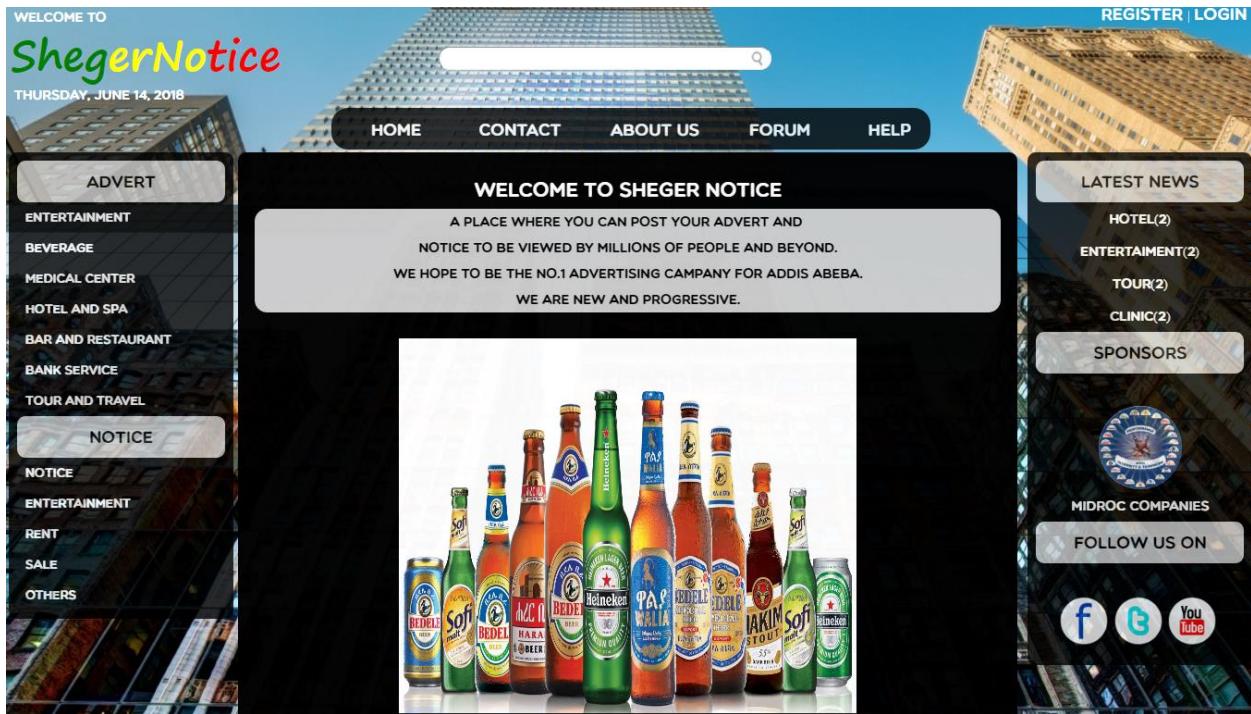


Figure 45: Home page UI

Login

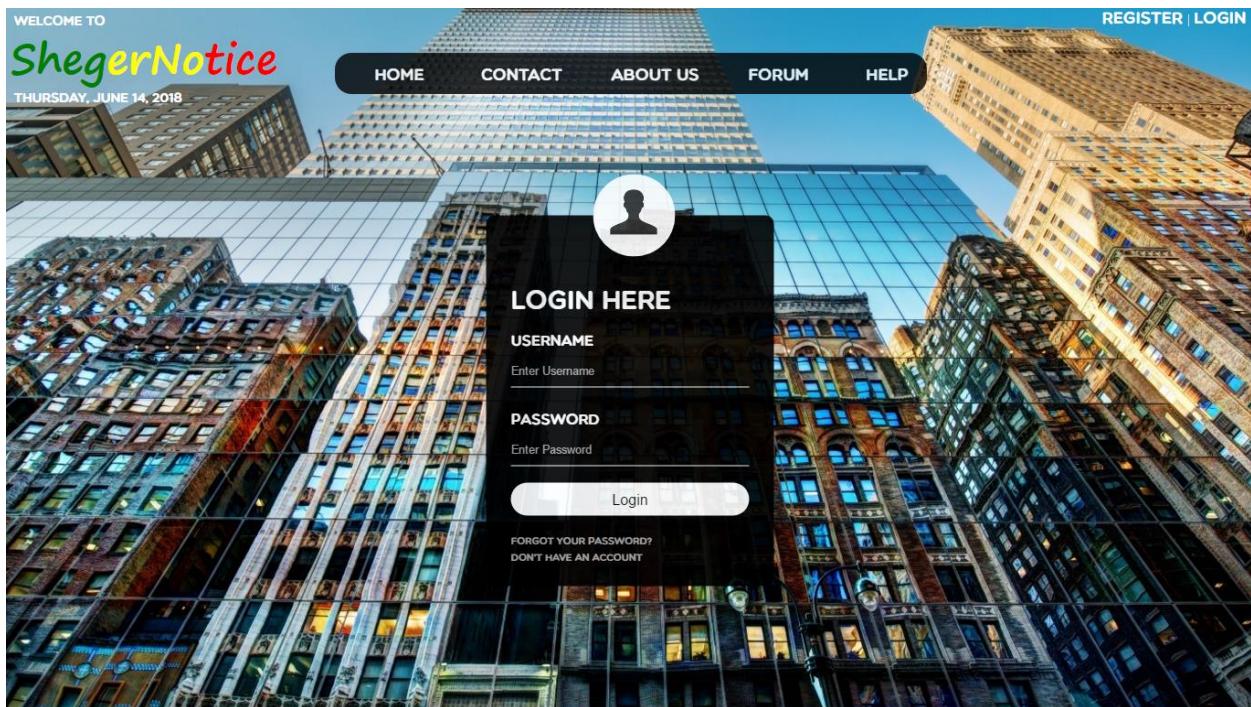
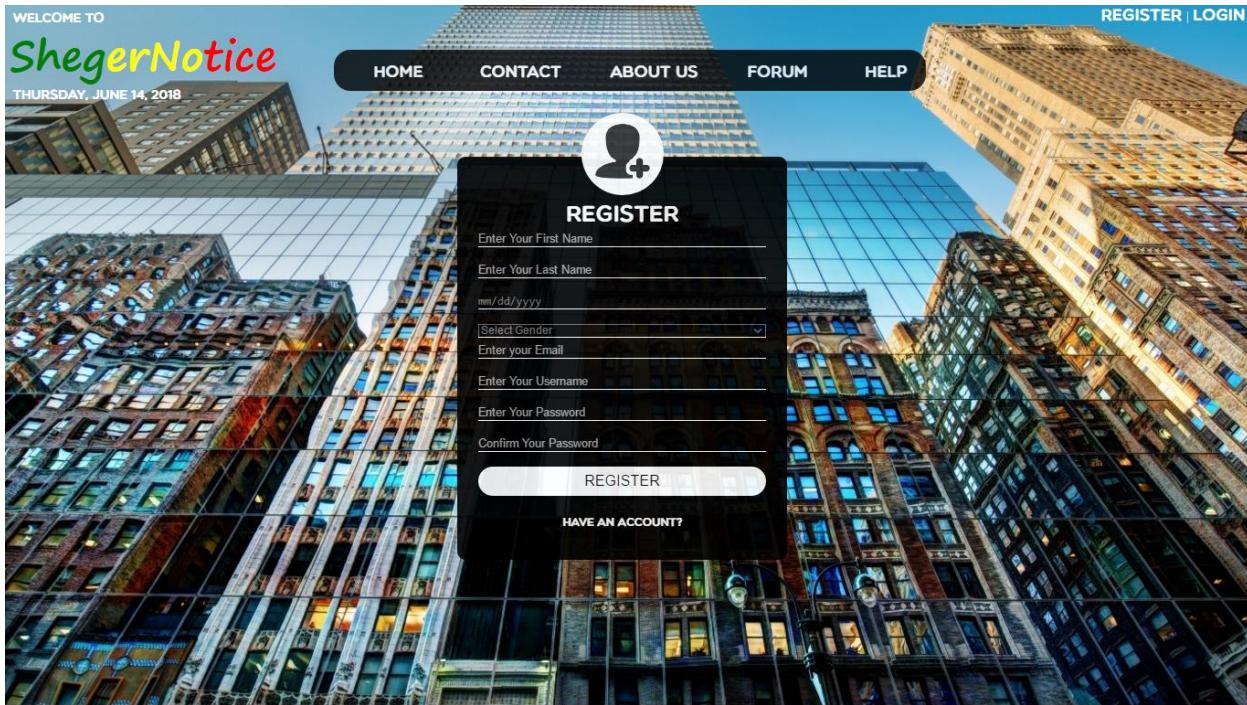


Figure 46: Login UI

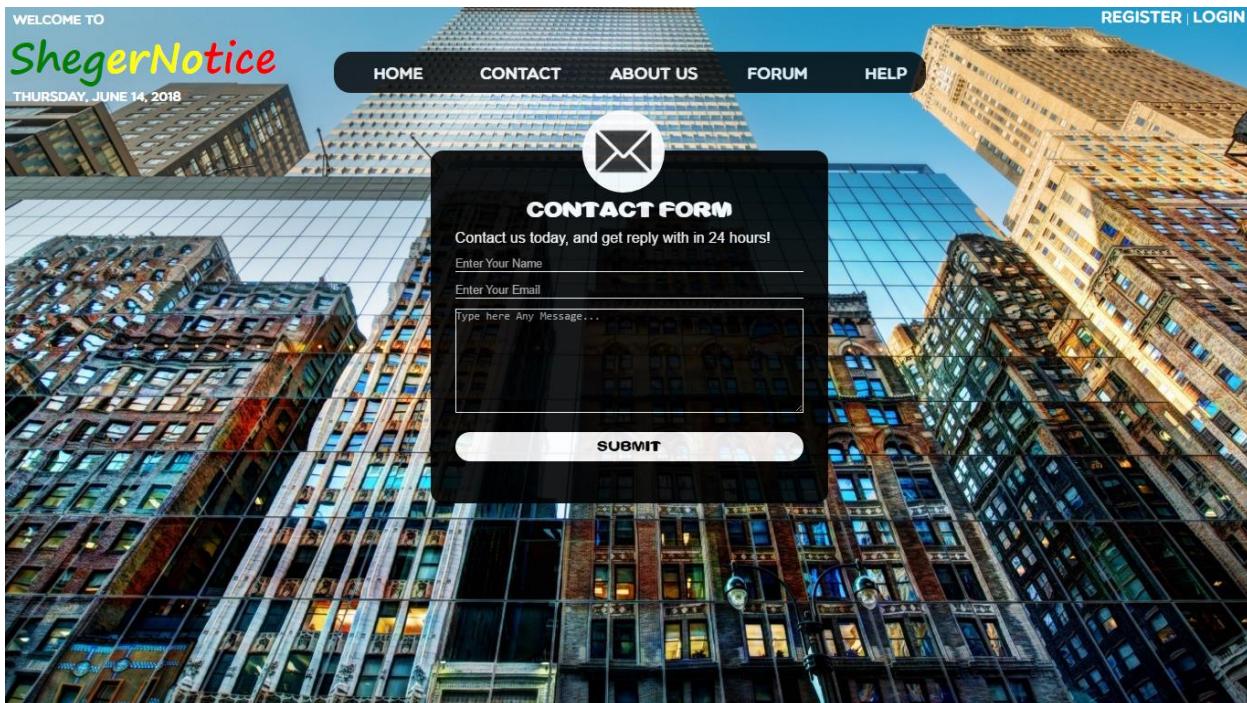
Register



The screenshot shows the ShegerNotice website's registration page. The background features a photograph of a dense urban skyline with many skyscrapers. At the top left is the site's logo "ShegerNotice" and the date "THURSDAY, JUNE 14, 2018". At the top right are "REGISTER | LOGIN" links. A navigation bar with tabs for "HOME", "CONTACT", "ABOUT US", "FORUM", and "HELP" is positioned at the top center. In the center of the page is a dark rectangular form titled "REGISTER". It contains fields for "Enter Your First Name", "Enter Your Last Name", "mm/dd/yyyy" (date of birth), "Select Gender" (a dropdown menu), "Enter your Email", "Enter Your Username", "Enter Your Password", and "Confirm Your Password". Below these fields is a large white "REGISTER" button. Underneath the button is a link "HAVE AN ACCOUNT?".

Figure 47: Register UI

Contact



The screenshot shows the ShegerNotice website's contact page. The background is the same urban skyline as the other pages. The top navigation bar includes the "ShegerNotice" logo, the date "THURSDAY, JUNE 14, 2018", and "REGISTER | LOGIN" links. The "CONTACT" tab is highlighted in the navigation bar. The main content area features a dark rectangular form titled "CONTACT FORM". It includes a message "Contact us today, and get reply with in 24 hours!" and two input fields: "Enter Your Name" and "Enter Your Email". Below these is a larger text area labeled "Type here Any Message..." with a scroll bar. At the bottom of the form is a large white "SUBMIT" button.

Figure 48: Contact UI

About us

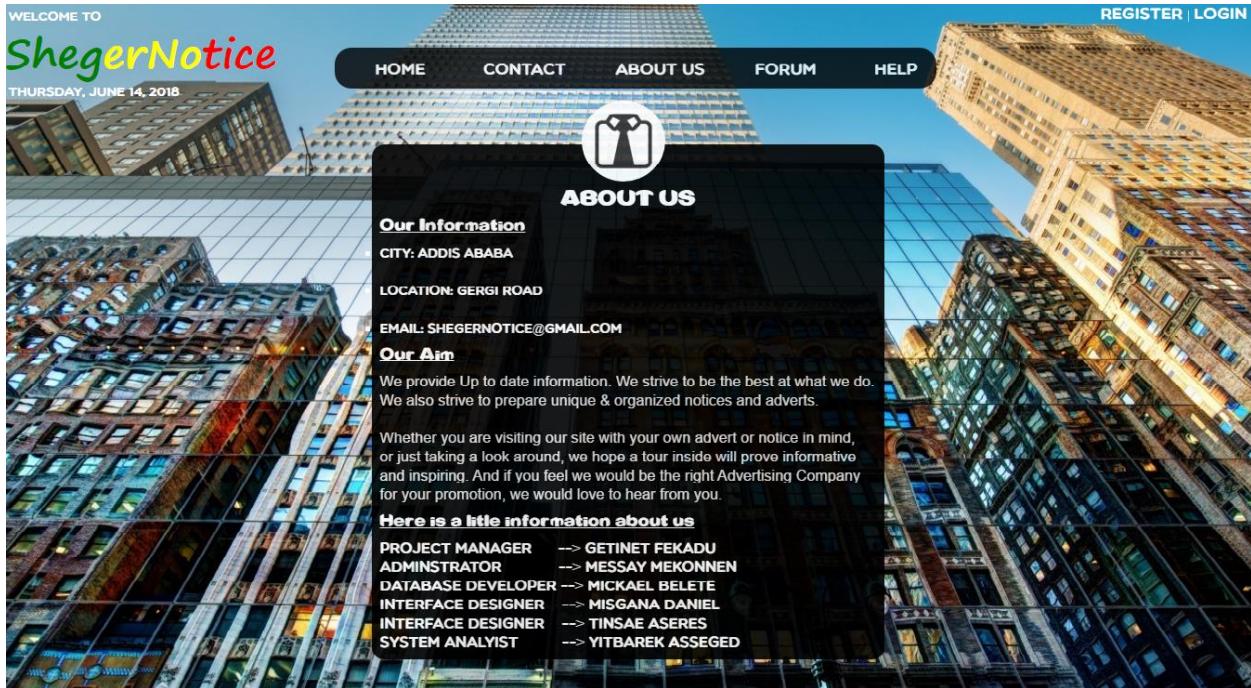


Figure 49: About us UI

Advert

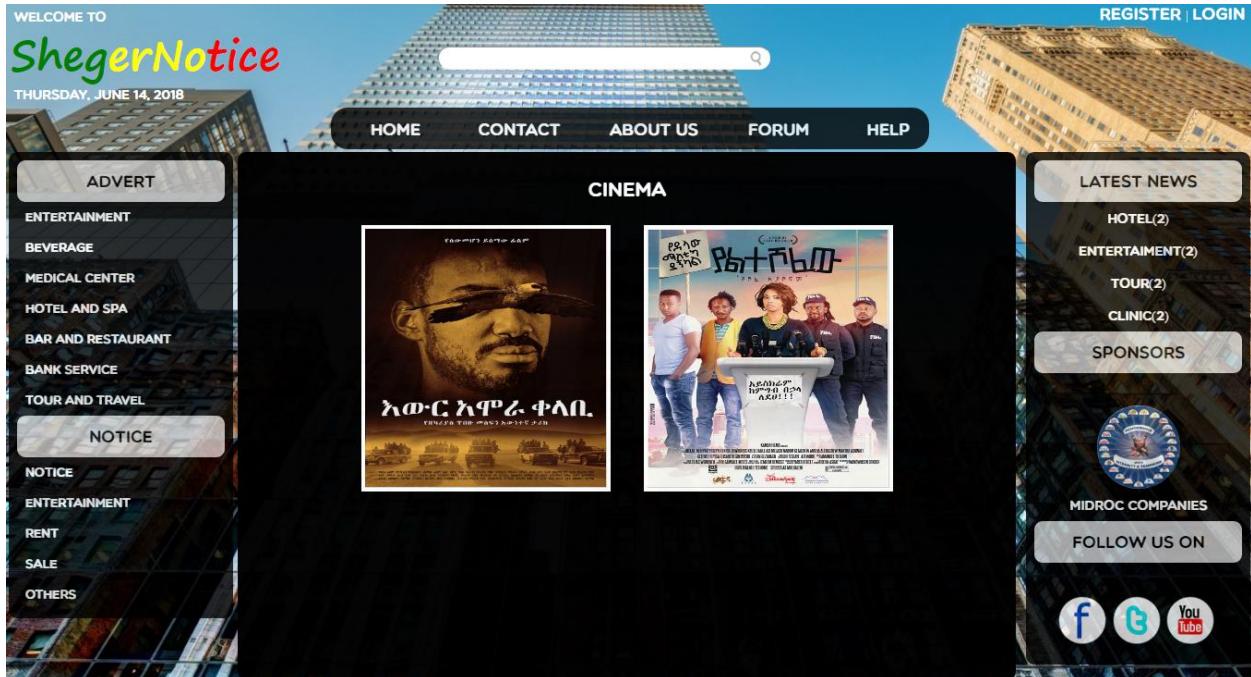


Figure 50: Advert UI

Advert

The screenshot shows the ShegerNotice website interface. At the top, there's a navigation bar with links for HOME, CONTACT, ABOUT US, FORUM, and HELP. On the left, a sidebar lists categories like ADVERT, ENTERTAINMENT, BEVERAGE, MEDICAL CENTER, HOTEL AND SPA, BAR AND RESTAURANT, BANK SERVICE, and TOUR AND TRAVEL. Below this is another sidebar for NOTICE, featuring links to NOTICE, ENTERTAINMENT, RENT, SALE, and OTHERS. The main content area displays an advertisement for a movie. The ad includes a title card with the movie's title, cast, director, writer, genre, and duration. To the right of the movie details is a small thumbnail image of the movie poster. On the far right, there are sections for LATEST NEWS (listing HOTEL(2), ENTERTAINMENT(2), TOUR(2), and CLINIC(2)), SPONSORS (showing a logo for MIDROC COMPANIES), and social media links for Facebook, Twitter, and YouTube. The background features a blurred image of a modern building.

Figure 51: Advert details UI

Advert

This screenshot shows the ShegerNotice website again, this time displaying video adverts. In the center, there are two video player boxes. The left one is for a soft drink advertisement featuring a hand holding a bottle with the brand name 'arki' visible. The right one is for a Pepsi advertisement with the text 'ENJOY THE NEW PEPSI BOTTLES'. Both videos have playback controls at the bottom. The rest of the page structure is identical to Figure 51, including the sidebar categories, news section, sponsors, and social media links. The background image of the modern building is also present.

Figure 52: Video adverts UI

Advert

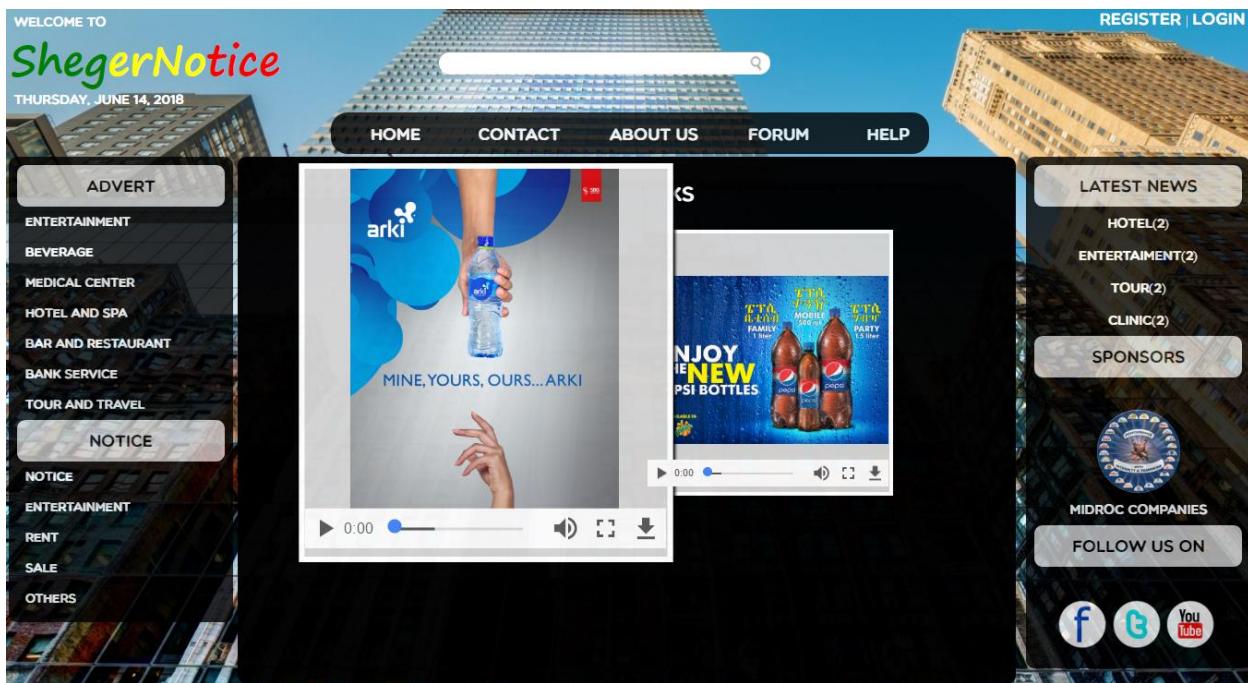


Figure 53: Advert video play UI

Notice

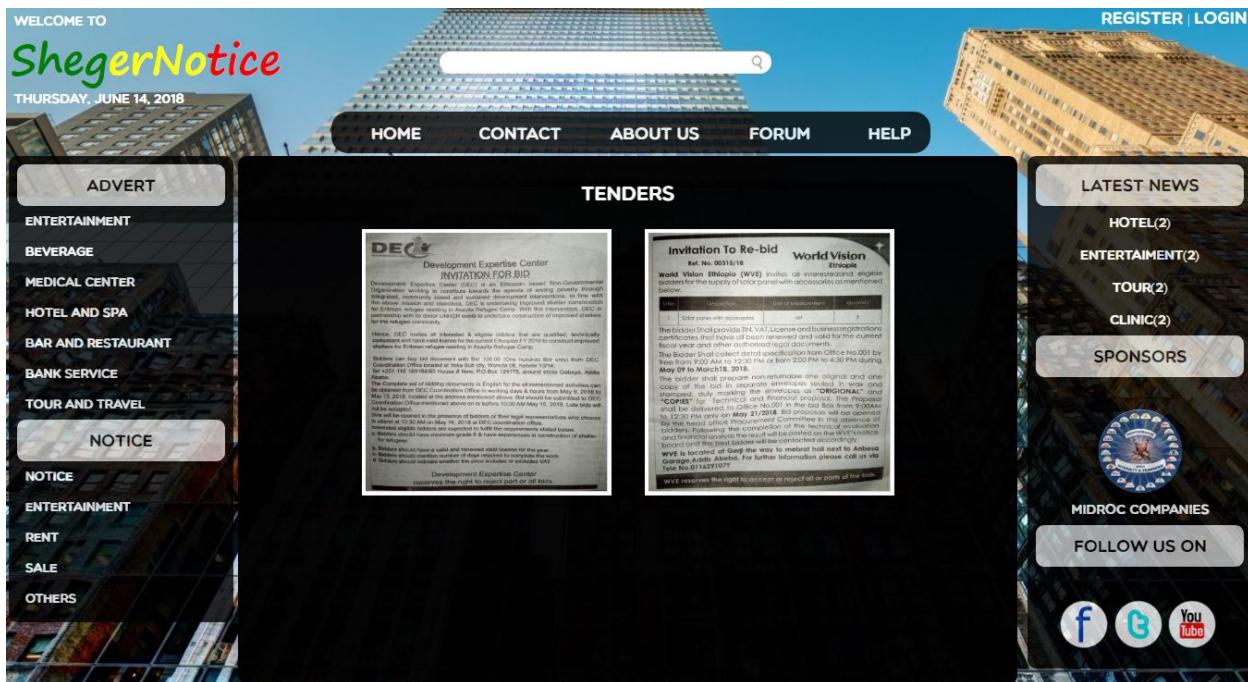


Figure 54: Notice UI

Notice

The screenshot shows the ShegerNotice website interface. At the top, there's a navigation bar with links for HOME, CONTACT, ABOUT US, FORUM, and HELP. On the right side of the header, there are 'REGISTER' and 'LOGIN' buttons. The main content area features a large image of modern skyscrapers. On the left, there's a sidebar with categories like ADVERT, ENTERTAINMENT, BEVERAGE, MEDICAL CENTER, HOTEL AND SPA, BAR AND RESTAURANT, BANK SERVICE, and TOUR AND TRAVEL. Below that is another sidebar for NOTICE, ENTERTAINMENT, RENT, SALE, and OTHERS. The central content area contains a detailed notice from the Development Expertise Center (DEC) regarding improved shelter construction for Eritrean refugees in Asayta Refugee Camp. The notice includes sections for INVITATION FOR BID, Bidders' qualifications, bidding process details, and a bid document price of Birr 100.00. To the right of the notice, there's a sidebar for LATEST NEWS (HOTEL(2), ENTERTAINMENT(2), TOUR(2), CLINIC(2)), SPONSORS (MIDROC COMPANIES logo), and social media links for Facebook, Twitter, and YouTube.

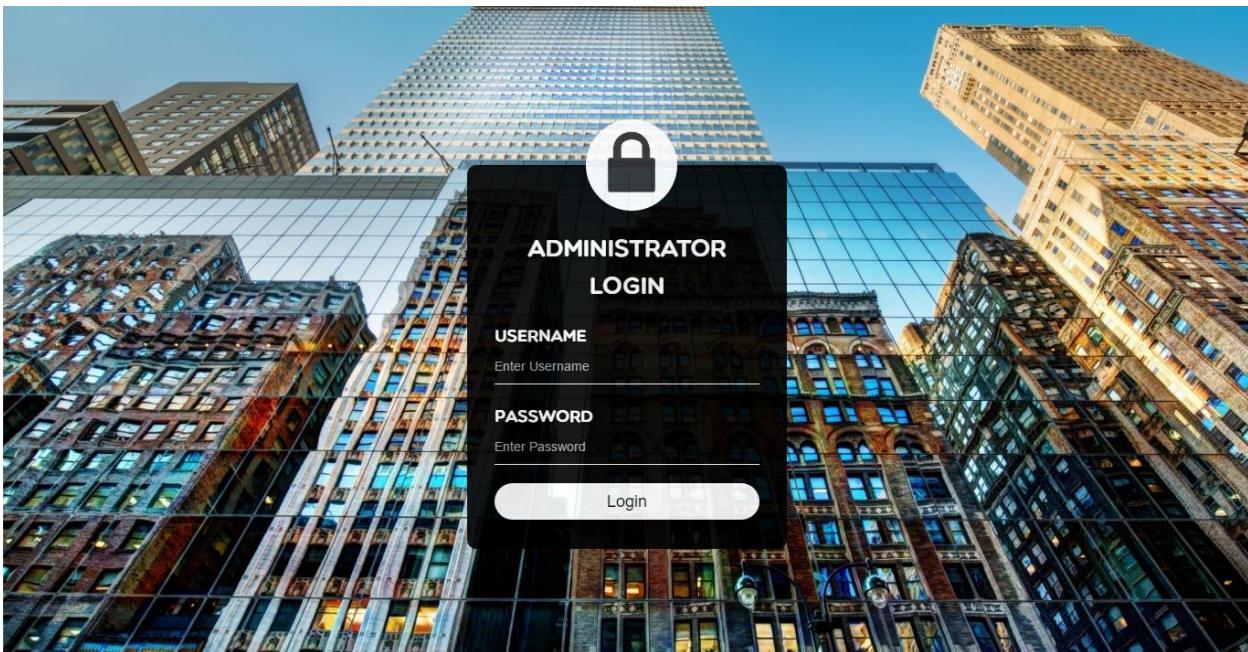
Figure 55: Notice details

Submit

The screenshot shows the ShegerNotice website with a 'Submit Advert/Notice' form overlaid. The form has a large envelope icon at the top. It contains fields for 'Enter Your Company name', 'Select Format', 'Which Category', and a file upload field labeled 'Choose file No file chosen'. A prominent 'SUBMIT' button is at the bottom of the form. The background of the page shows a cityscape of tall buildings.

Figure 56: Submit advert/notice UI

Admin login



Profile of admin

WELCOME TO ADMINISTRATOR PAGE MIKU

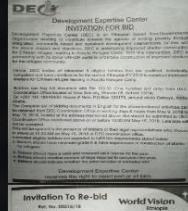
ShegerNotice

MONDAY, JUNE 18, 2018

LOG-OUT

HOME FEEDBACK SEARCH/UPDATE NEWS

ALL ADVERTS AND NOTICES

COMPANY	FORMAT	CATEGORY	FILE	DOWNLOAD	DETAILS	STATUS
DEC	NOTICE-PI	TENDER		DOWNLOAD	NONE	POST
WORLD VISION ETHIOPIA	NOTICE-PI	TENDER		DOWNLOAD	NONE	POST

8. Network Diagram

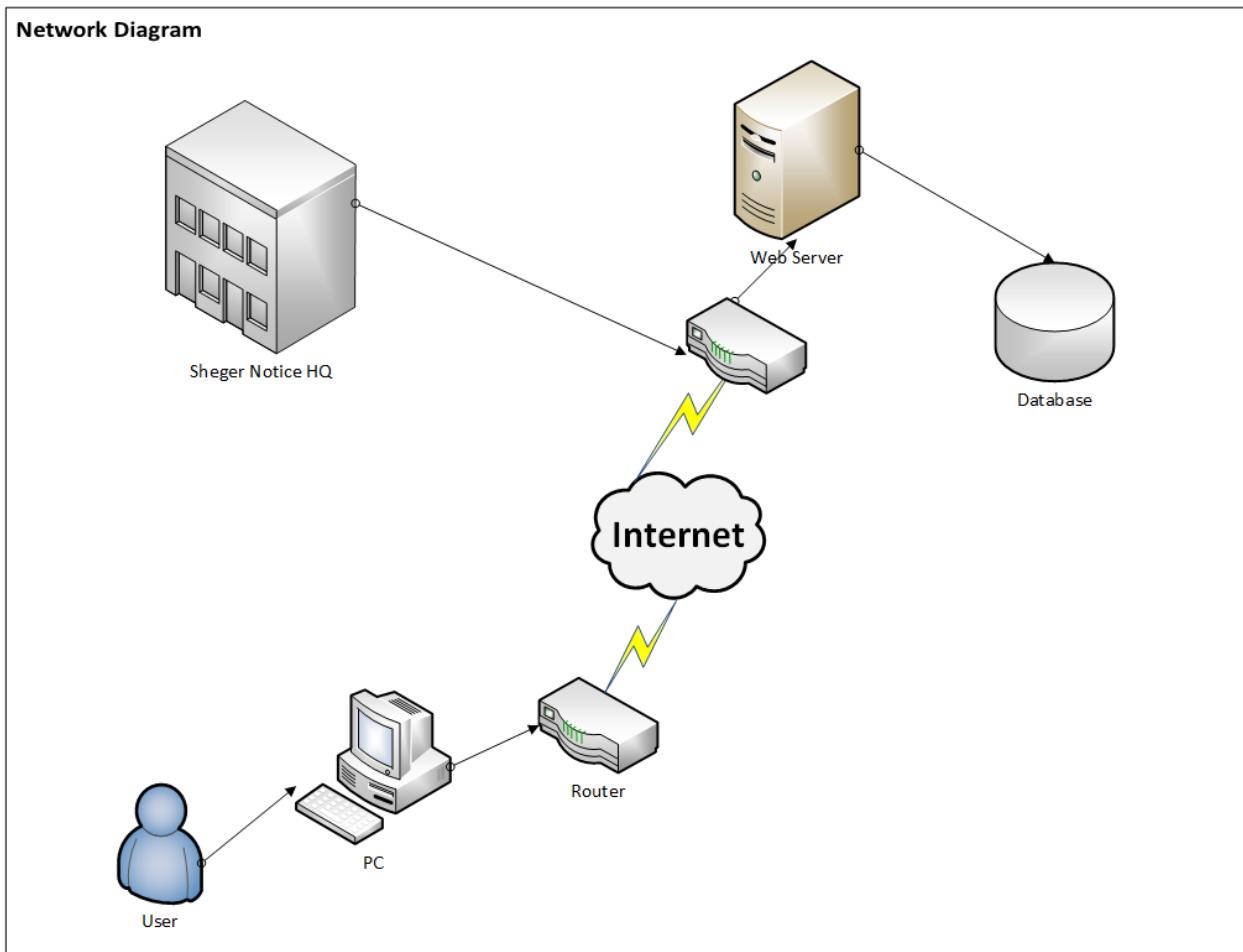


Figure 57: Network diagram

9. Deployment diagram

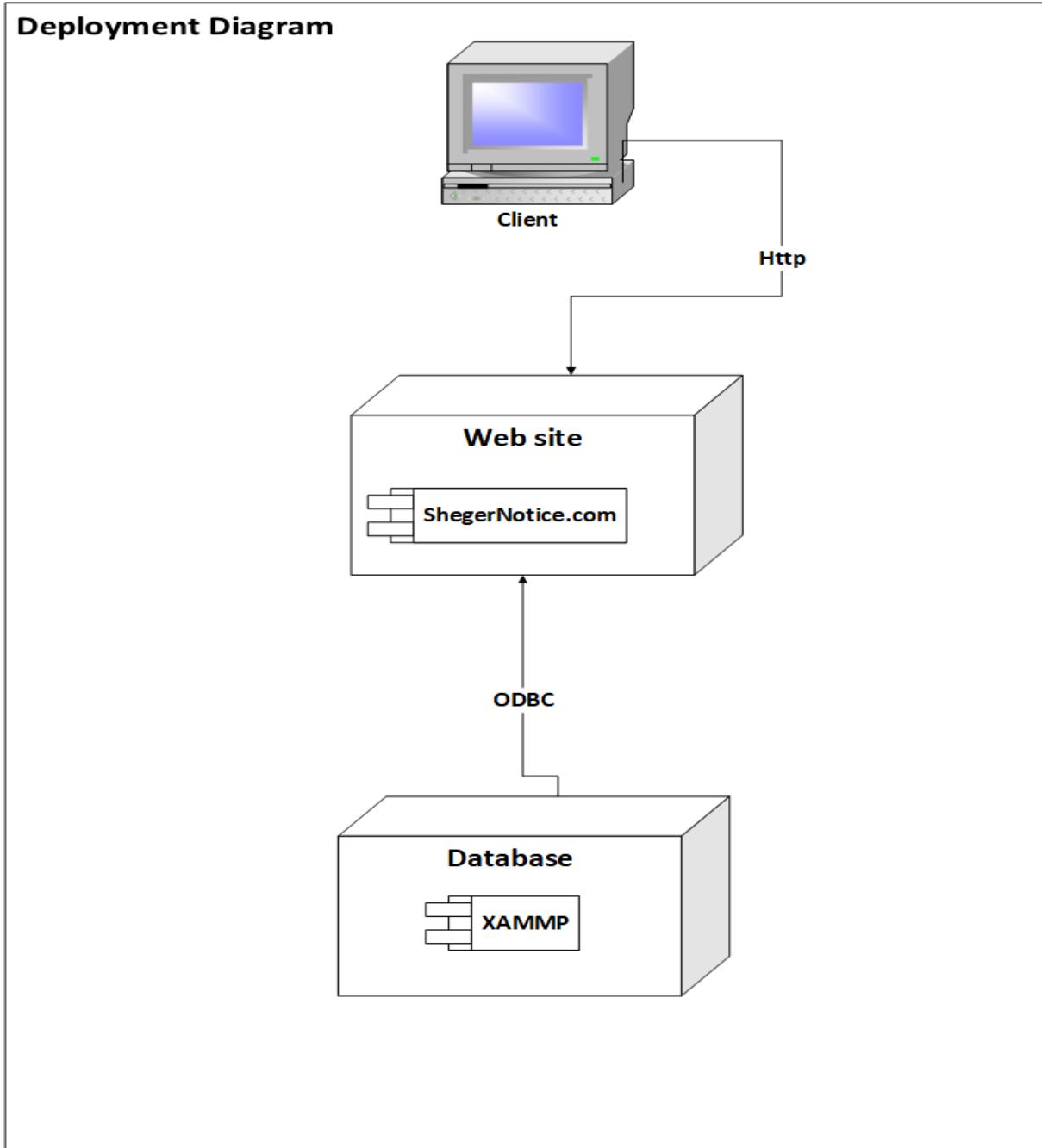


Figure 58: Deployment diagram

CHAPTER FIVE

IMPLEMENTATION

1. Introduction

On implementation, models are translated into source code. If all the above tasks worked properly, the implementation part will be easy. When we first start the project, we bet we make people's jobs, comforts, safety, entertainment, decisions, and their very lives on advertisement and notice would be different. Until now, all we did, starting from chapter one to four, are for bringing the bet to the ground. For choosing what is best, every decision made starting from what types of programming language, editor, coding style, and server type is to make the implementation better and to present a new experience to the user, the advertiser, and the developers as well. We have implemented our project using website developing tools and different programming languages that are related with website design. We did not use any content management tools (CMT)³. Rather every code is from the knowledge is acquired form during the staying of in the university, reference book, and internet-How to's. We tried to implement every knowledge we have. The website developing tools we have used are:

- Notepad++
- Sublime text

Programming languages used are:

- PHP-
- CSS
- JavaScript

The server used is:

- Apache

³ Content management tools (CMTs) are software's that are used to develop web site without any or little coding knowledge.

2. Sample code

Homepage sample code

PHP Code

```
<?php  
echo "<b>";  
echo "&nbsp; Welcome to";  
echo "</b>";  
?>
```

```
<!Doctype html>  
  
<html lang="en">  
  
<head><link rel="icon" href="pic/icon.png" />  
  
<meta charset="utf-8" />  
  
<title>ShegerNotice.com</title>  
  
<link rel="stylesheet" href="css/css.css" type="text/css">  
  
<script type="text/javascript" src="jscript.js"></script>  
  
</head>  
  
<body>  
  
<header>  
  
<a href="index.php"><h1>Sheger Notice</h1></a>  
  
<p><a href="register.php"> Register </a>|  
  
<a href = 'login.php'>Login</a></p><br>
```

```

<?php

$Today=date('y:m:d');

$new=date('l, F d, Y',strtotime($Today));

echo "<br> &nbsp; $new";

?>

<form name = "searchform" id = "formsearch">

<input type = "text" id = "searchtextbox">

<button id = "submit" type = "submit"><img src ="pic/search.png" alt="search logo" width=19></button>

</form>

</header>

<nav>

<ul>

<li><a href="index.php"> HOME </a></li>

<li><a href="contact.php"> CONTACT </a></li>

<li><a href ="aboutus.php"> ABOUT US </a></li>

<li><a href="help.php"> HELP </a></li>

</ul>

</nav>

<aside>

<h3>Advert</h3>

<ul>

<li><a href="">Entertainment</a>

```

```
<ul>

<li><a href="cinema.php">Cinema</a></li>

<li><a href="music_festival.php">Music Festival</a></li>

<li><a href="concerts.php">Concert</a></li>

<li><a href="music_album.php">Music Album</a></li>

<li><a href="books_magazines.php">Books and Magazines</a></li>

<li><a href="sport_events.php">Sport Events</a></li>

</li>

</ul>

<li><a href="#">Beverage</a>

<ul>

<li><a href="soft_drinks.php">Soft Drinks</a></li>

<li><a href="alcohol.php">Alcohol</a></li>

</li>

</ul>

<li><a href="Medicalcenter.php">Medical Center</a></li>

<li><a href="#">Hotel and Spa</a>

<ul>

<li><a href="starhotel.php">Star Hotel</a></li>

<li><a href="hotelspa.php">Hotel and Spa</a></li>

<li><a href="hotel.php">Hotel</a></li>

<li><a href="spa.php">Spa</a></li>
```

```
</li>

</ul>

<li><a href="#">Bar and Restaurant</a>

<ul>

<li><a href="bar.php">Bar</a></li>

<li><a href="restaurant.php">Restaurant</a></li>

</li>

</ul>

<li><a href="bank.php">Bank Service</a></li>

<li><a href="#">Mall</a>

<ul>

<li><a href="mallrent.php">Rent</a></li>

<li><a href="mallbuy.php">Buy</a></li>

</li>

</ul>

<li><a href="">Tour and Travel</a></li>

</ul>

<h3>Notice</h3>

<ul>

<li><a href="#"> Notice </a>

<ul>

<li><a href="tender.php">Tender</a></li>
```

```
<li><a href="jobs.php">Jobs</a></li>

<li><a href="education.php">Educations</a></li>

<li><a href="events.php">Events</a></li>

</ul>

</li>

<li><a href="#">Entertainment</a>

<ul>

<li><a href="cancelled.php">Cancelled </a></li>

<li><a href="venue_change.php">Venue changed</a></li>

<li><a href="price_cahnge.php">Entrance price changed</a></li>

<li><a href="schedule_change.php">Schedule changed</a></li>

</ul>

</li>

<li><a href ="#">Court</a>

<ul>

<li><a href="court_date.php">Official court date</a></li>

<li><a href="court_forclusures.php">Court foreclosures</a></li>

<li><a href="court_changed_date.php">Court changed date </a></li>

<li><a href="court_notice_board.php">Court notice board</a></li>

</ul>

</li>

<li><a href="#">Rent</a>
```

```

<ul>

<li><a href="houses.php">House Rent Notices</a></li>

<li><a href="shops.php">Shop Rent Notices</a></li>

<li><a href="cars.php">Car Rent Notices</a></li>

<li><a href="equipments.php">Equipment Rent Notices</a></li>

</ul>

</li>

<li><a href="#">Sale</a>

<ul>

<li><a href="sale_notice_houses.php">House Sale Notices</a></li>

<li><a href="sale_notice_car.php">Car Sale Notices</a></li>

<li><a href="sale_notice_equipments.php">Equipments Sale Notices</a></li>

<li><a href="sale_notice_cosmos.php">Cosmetics Sale Notices</a></li>

</ul>

</li>

<li><a href="bill.php">Bills</a></li>

<li><a href="Charity.php">Others</a></li>

</ul>

</aside>

<section>

<h2>Welcome To Sheger Notice</h2>

<p>

```

A place where you can post your advert and

notice to be viewed by millions of people and beyond.

We hope to be the No.1 Advertising campany for Addis Abeba.

We are new and progressive.

</p>

<center>

<button onclick="changepicturetoleft()" id ="left" >
</button>
<button onclick="changepicturetoright()" id ="right">
</button></center>

</section>

<aside class="right">

<h3>Latest News</h3>

Hotel(2)

Entertainment(1)

Tour(1)

Clinic(3)

<h3>Sponsors</h3>


```

<a href="http://www.midroc.com"><label>Midroc Companies</label></a><br>
<h3>Follow us on</h3>
<br>
<a href="http://www.fb.com"></a>
<a href="http://www.twitter.com"></a>
<a href ="http://www.youtube.com"></a><br>
</aside>
<footer>
    <p>Copyright © 2018 <a href="index.php">ShegerNotice.com</a></p>
    <center><i>(In Compliance with Advertisement Proclamation No.759/2012)</i></center>
</footer>
</body>
</html>

```

CSS Code

```

*{ margin:0px;
padding:0px; }

body{ background-image: url(..pic/body.jpg);
background-size:cover;
background-position:center;

```

```
background-repeat:no-repeat;  
font-family: Multicolore;  
line-height:2.0;  
color:white;}
```

```
header a { color:white;  
text-decoration:none;  
font-size:24px;}  
  
header a:link, header a:visited{ color: white; }
```

```
header p{ text-align:right;  
margin:-120px 10px 0px 0px; }
```

```
header p a{ font-size:20px; }  
  
header p a:link, header a:visited{ color: white; }  
  
header p a:hover{color:black;}
```

```
header a h1{ margin-top:-20px;  
text-indent:5px;  
font-family:Segoe Print;  
font-size:50px; }
```

```
button#submit{ position : absolute;
```

```
top : 6pt;  
left : 380pt;  
height : 15pt;  
border-radius :10pt;  
background-color : white;  
border : 0;}
```

```
#searchtextbox{ width : 300pt;  
height : 21pt;  
margin : 3pt 2pt 0pt 100pt;  
border-radius :10pt;}
```

```
#formsearch{ position : absolute;  
top : 35pt;  
left : 290pt;}
```

```
nav{ background:black;  
border-radius :15pt;  
text-indent: -20px;  
color:white;  
opacity:0.8;
```

```
text-align: center;  
width:680px;  
padding:5px;  
margin: 0px auto 0 auto;}  
  
nav li{ display:inline-block;  
padding-left: 65px; }  
  
nav li a{ text-decoration : none;  
font-size:20px; }  
  
nav li a:link,nav li a:visited{ color: white; }  
  
nav li a:hover{ color: black;  
background:white; }  
  
aside, section, footer{ margin:3px; }  
  
aside, aside.right{ padding:10px;  
line-height:2.5;  
background: black;  
opacity:0.8;  
color:white;  
border-radius :10px;  
width:220px; }
```

```
height:auto;  
float:left;}  
  
aside ul, aside ul li ul{ text-indent:10px;  
list-style:none; }  
  
aside ul li{ font-size: 15px; }  
aside ul li ul li{display:none; font-size: 12px; }  
aside ul li a, aside.right a{ text-decoration:none;  
color:white; }  
  
aside ul li a:hover,aside.right a:hover{ color:darkgrey; }  
  
aside ul li ul li a{ color:turquoise; }  
  
aside ul li ul li: hover a{ color:white;  
background:none; }  
  
aside ul li: hover ul li{ display:block; }  
  
aside h3 { font-size: 20px; }
```

```
text-align:center;  
border-radius :10px ;  
opacity:0.8;  
background-color: white;  
color:black;}  
  
  
aside.right{ float:right; text-align:center; }  
  
  
aside.right a img#small{width:65px; height:65px; }  
aside.right a img#big{width:150px; height:120px; }  
  
  
  
section { float:left;  
padding:10px;  
border-radius :10px;  
text-align:center;  
opacity:0.980;  
background-color: black;  
color:white;  
font-size:16pt;  
width:710px;  
height:auto; }
```

```
section p { text-indent:20px;  
border-radius :10px ;  
opacity:0.8;  
background-color: white;  
color:black;}
```

```
section p h2{font-size:20pt;}
```

```
section p.photo{ height:200pt;  
width:170pt;  
text-align: center;}
```

```
section button { position: absolute;  
top:700px;  
border :0;  
background: none;}
```

```
section img { display: inline-block;  
padding:10px;  
width:280px;  
height:310px;}
```

```
section img#a{float:middle;
```

```
width:700px;
```

```
height:800px; }
```

```
section button#left{ left:340px; }
```

```
section button#right{ left:830px; }
```

```
section img.l { width:40px;
```

```
height:40px; }
```

```
section img#imagesrc{ width:400px;
```

```
height:450px; }
```

```
section img#all{ width:400px;
```

```
height:500px; }
```

```
section span#y{font-family:sans-serif;
```

```
font-size:15pt; }
```

```
section video {float:left;
```

```
width:450px;
```

```
height:400px;}
```

```
footer{ clear:both;  
opacity: 0.8;  
padding:25px;  
border-radius :10px;  
background:black; }
```

```
footer p{ font-size:20px;  
font-family:Verdana;  
color:white;  
text-align:center;}
```

```
footer i { text-align:center;  
font-size:12pt;  
font-family:Arial;  
}
```

```
footer p a { text-decoration : none; }  
footer p a:link,footer p a:visited{ color: white; }  
footer p a:hover{color:darkgrey;}
```

JavaScript

```
var imagefiles = new Array("Concerts/1.jpg","cinima Pics/2.jpg","Concerts/2.jpg");

var i = 4;

function changepicturetright() {

    setTimeout(changepicturetright,9000);

    if(i >= imagefiles.length-1)

    {

        i = 0;

    }

    else

    {

        document.getElementById("left").disabled = false;

        i = i + 1;

    }

    document.getElementById('imagesrc').src = imagefiles[i];

}

function changepicturetoleft()

{
```

```
if(i >= imagefiles.length-1)

{
    i = 0;

}

else

{

    document.getElementById("left").disabled = false;

    i = i + 1;

}

document.getElementById('imagesrc').src = imagefiles[i];

}
```

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

1. Conclusions

The finding of the project has been presented and discussed as follow. The conclusion tries to see the way an advertisement and notice presented (platform), the contents of the advertisement and notice and on the ethics of advertisement and notice. The group member has drawn the following conclusion.

1. When we start the project we were focused on the cleanliness of the city, rather we find that the advertisement/notice ‘industry’ is unregulated and unorganized. The way an advertisement and notice are disseminated through the city reached to a dangerous level. You can distribute any advertisement through the city on broad day light or in disguise without any consequence.
2. There are a couple of advertisements/ notices boards around the city. We noticed that it is difficult to find a particular subject, if you find it you don’t know a particular subject matter due date passed or not, it has limited information, there is no categories, lack adequate lighting, unaccusable to handicap person, etc.
3. Why enact laws if we are not implementing it? There is advertisement law that is not fully implemented. The lack of ethics on both advertiser and advertisement agent emanates from this. Unimplemented laws and regulations is means of the problem by providing gap between the law and practice. If the city administrator implementing laws partially it is responsible with what happens to the other half of unimplemented laws. Directly speaking, the city administration lacks the capacity.
4. Addis Ababa considered to be the capital city of Africa, so optics is everything. Nevertheless, the city is not matching its name (new flower). If every walls and polls plastered with papers, it tells there is something unnatural optically. Additionally, behind that, it shows lack of commitment to regulate the advertisement industry.

5. None vetted advertisement and notices that are unlawful, immoral, and culturally wrong contents are rampant. The reason is that first, advertisers may want immediate high volume of sales rather than long run favorable image. Second, this may be due to lack of creative message design and presentations. If you sell a weight loss substance, you should have a permission to it. However, nowadays if you have a printer and know how to write on a computer or paid, you can poster it just by paying one Birr per sheet. Your advertisement/notice might be unlawful, immoral, wrong content culturally.
6. Even though, the industry has relatively professional employees in Marketing Development and Promotion section, still the marketing concept and practice are at infant stage. There is no strong regulation code of conduct at the government level. The practice, which is in working by the industry have not given attention to the problem of advertisement/notice ethics. The procedures followed by conducting advertisement/notice focused on revenue generation. There are unethical advertisements/notice such as exaggerating the quality and services of products. As long as you pay, you are entitled to your advertisement/notice.
7. As the content analysis of advertisement/notice disseminated in Addis shows, advertisements/notices have problem of imitation from the foreign language to direct local language. This shows that lack of consideration for the culture, language and norms of the society.
8. Lack of simplicity in advertising is at the very sentiment of the industry's misconception. We can see some of the advertisements behavior lack of simplicity. Like exaggeration, keywords does not directly relate to the advertisement content, lack clarity in communicating the features of the product, the service/distribution location and other customer service related matters, contain information which is totally irrelevant to customer's product knowledge, messages have no logical link with the product or products being communicated, and false claims.

2. Recommendations

1. The root problem of the advertising/notice industry is unregulated and unorganized advertisements and notices dissemination. Using digital means of dissemination of advertisement and notice is the best way because it can be managed easily, as we proposed in our system. Alternatively, making accountable everyone who disseminates advertisement and notice based on the contents of their advertisement and notice if possible.
2. Our system is the best way to find a particular subject, you know whether the due date is passed or not, there are multiple categories, you can adjust your own device lighting, and finally it is accessible to handicap person because it is displayed on computer screen.
3. If the city legislators legislate laws, the city executive branch has to enforce it. Otherwise, laws may be repealed by disuse. There must be an awareness campaign to what, and how to advertise and tell a notice to the public. As the citizen has right and responsibilities so as the administration has the responsibility to follow up how it is being executed. But, if our system implemented we can inspect every content whether it is immoral, unlawful, or against public moral.
4. The factor that the city is not clean is partly because the way the advertisement and notice are disseminated. If advertisers and notice tellers use our system there will be no residual that is outputted to the environment that affect the cleanliness of the city. Or There should be a standard display option or use our system and the commitment to keep our city clean.
5. Advertisements and notices that are unlawful, immoral, and culturally wrong contents is crime. If such advertisements and notices are found the advertiser/ notice teller and the advertisement agent must be liable to the extent of their damage. Being an agent must entail greater responsibility than selling high volume. If our system implemented it possess through many processes so that any unlawful, immoral, and culturally wrong contents doesn't appear on the screen.

6. We strongly recommend that advertisers/notice tellers to respect the culture and norms of the society. They should be frontier to break the misconception that whenever a white man appears on the adverts it is better quality than the rest of the product. If possible, local language, is the best advertisement language, ordinary people on ordinary situation must be presented than a superficial one. Otherwise, use simplicity.
7. Some advertisements are so complex that even the agent could not tell what the content of the advert is; rather disseminating simple advertisement and notice is best practice. Avoid exaggeration and misleading contents. Putting direct information about the product and service must be a best practice.

Bibliography

- Ambler, S. W., 2001. *The object primer- The Application Developer's Guide to object Orientation & the UML*, Cambridge: Cambridge University Press.
- Anon., 2012. *Advertisement proclamation No. 759/2012*. Addis Ababa: FDRE.
- Anon., 2016. *W3Schools.com*. [Online]
Available at: <http://www.W3School.com>
[Accessed 04 April 2018].
- Anon., 2017. *youtube.com*. [Online]
Available at: <http://www.Youtube.com>
[Accessed 05 November 2018].
- Bulger, J. \. a. B., 2011. *MySQL/Database Application* , CA: M&T Books.
- Gilorien, 2012. *Cascading Style Sheets,JavaScript Style Sheets,& JavaScripted Layers plus advancedJavaScript 1.2 & 1.3*, s.l.: Prentice Hall PTR.
- Grady Booch &Robert A. Maksimchuk&Michael W. Engle&Bobbi J. Young, P. C. A. H., 2007. *Object-Oriented Analysis and Design with Applications*, Boston: Addison wesely.
- Haverbeke, M., 2014. *Eloquent JavaScript A Modern Introduction to Programming*, s.l.: MIT.
- Nixon, R., 2015. *Learning_PHP__MySQL__JavaScript_With_jQuery__CSS__HTML5__4th_Edition*, CA: O'Reilly Media, Inc..
- Powell, T. A., 2010. *REFERENCE & CSS:The commplete reference*, NY: mcGrow-Hill.
- project, u. U. s. f., n.d. *web based education system*. Addis Ababa: unity University.
- R., R. S. &. B., 2015. *Software Engineering A Practitioner's Approach*, NY: mcGrow-Hill Education.
- Students, U. U. F. p., 2015. *Real State managment System for Gesher Costruction PLC*. Addis Ababa: Unity University.
- Tegarden, A. D. &. B. H. &. W. &. D., 2005. *System Analysis and Design with UML Version 2.0*, NJ: John Wiley & Sons.
- W.Ambler, S., 2004. *The_Object_Primer_- Agile_Model-Driven_Development_with_UML*, Cambridge: Cambridge University press.