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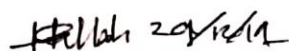
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APPROVAL

This Project titled “**Case Taking System**”, Submitted by **Nusrat Jahan Ima** ID No: 182-16-330 to the Department of Computing & Information Systems, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computing & Information Systems and approved as to its style and contents. The presentation has been held on 29-12-2019.

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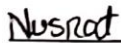
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Dedication

This is my academics project, so I want to dedicate this project to my well wishers. They are my inspiration for that I think they deserve this honor.

Executive Summary

This project is a law based system; it is about Case Taking Management System that will allow lawyers to accept case from their clients. This project is mainly for the people who are geographically distanced or so busy or for the people that don't have any known lawyer for their specific case to be handled.

In this project these people has focused because they often face difficulties in finding lawyers. Moreover, in existing system people have to go to court in order to find a lawyer which is very time consuming for a working people as they have to attend their own work.

So I have designed an application where people can easily find lawyer for their specific case and send case request as well as take appointment without working hour.

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Chapter 1 – Introduction

This system is developed for the people who are geographically distanced and don't have any known lawyer so that they can easily find lawyer for their specific case from the system. The focus of this system is to save time and energy of the Clients that they normally spend in existing manually system.

Chapter 2 – Initial Study

Project Proposal

The concept of the project is about a law based system that will be developed to minimize the troubles that basically people face while finding or choosing a proficient lawyer for the specific case. The system will be used by three types of users; one of is the client, lawyer and admin of the system. Before using the system these users have to be logged into the system. In order to log in Client and Lawyer have to create an account with their information on system. In addition to get access to the system successfully they have to validate their account by the confirmation code that will be sent to their email through system.

Client can search by Lawyer's name, search lawyer by specific case category, view lawyer's contact information, sends case request to specific lawyer with brief details of the case, give review to lawyers, make call through system.

Lawyer users will receive case request, decline or confirm case request sent from client, edit profile by giving short professional experience, upload photos, select category of case that they mostly handle, send further message or make call through system after accepting the case from client.

Admin user will have the whole control over the system. Admin can view and delete Client or Lawyer's account if any illegal actions done by them, add case category, delete or update category of cases.

Background of the project

Since I am developing this system for Bangladesh I did my research only on Bangladesh in order to have a clear idea about the background of existing system and after researching I have found out that case taking process of Bangladesh is done manually, Client use to find lawyer from their known reference or go to court to find lawyer, meet with the lawyer and then discuss or consult about the case face to face.

The proposed Case Taking Management system will be developed to cover up this section in a way which will focus to facilitate both clients and lawyers by providing the opportunity to clients who can find and consult about their specific case to the lawyer through online as well as to lawyer by allowing them to be known and take more case through online.

Problem Area

I have figure out some problems that the clients face while choosing lawyer through this existing system.

Basically here in Bangladesh if a person needs to consult with lawyer for his or her case, he or she choose lawyer from other reference or directly goes to court in order to find lawyer. Moreover in court there is no specific place from where client can find the list of lawyer for their specific case. For that he or she has to ask randomly to find lawyer for his specific case which is very time consuming.

As for geographically distanced client they face more difficulties as they have to sacrifice their one side of works in order to meet with lawyer additionally they have to maintain office hour for the first meeting with lawyer as they have to go to court to

search for lawyer. There is also no way to find out how much skilled the selected lawyer is! These things are more hassled for the clients.

Possible solution

In order to solve the above problems a web based system will be developed that will facilitate both lawyer and client users. The web based system will allow client to search or find for a lawyer by case category or by lawyer name for the specific case, it will more time saving process than the existing manual system.

Additionally process from lawyer searching till the acceptance of the client's case can be done through online which will be less hassled than the existing manual system, client can also take appointment for further meeting to discuss or consult about the case from lawyer through the online site.

Chapter 3 – Literature Review

This chapter will contain the review article of the project. Literature review refers to the current knowledge that includes substantive findings, as well as theoretical and methodological contributions of the project. Literature review is actually a basis for research about the project to be progressed forward. This chapter will cover up the problems and solutions that is based on published articles, comparison including advantages and disadvantages of the current existing systems and the new recommended approach as well.

Discussion on problem domain based on published articles.

✓ Internet availability all over the country

This project is mainly focusing on Bangladesh platform. And since the proposed project is going to be developed in order to make it available through online by which both lawyers and clients can be facilitated. Though there is high chance for both lawyers and clients to be facilitated but still there is a problem because of the availability of Internet all over the country. In rural places the connectivity of Internet is rarely used moreover the network of mobile operation in rural area is so much slow except for Grameen phone (GP); so the people who may be want to use the Internet through mobile data in most of the rural areas may face disturbance because of the slow speed of Internet network.

✓ Chance of Fake Lawyer

The proposed system is a law based system, where lawyers can be able to take cases from clients through online. Similarly Client can be able to find lawyers through online when needed any through online. As this process is going to be

managed and maintained via online there is a high chance that fake lawyer could sign up and cheat with the Clients in needs.

✓ **Not familiar**

After launching the system there is a possibility to earn discouragement because of unfamiliarity. As I have already discussed about the process or part on the previous point which is the main focus or purpose of the proposed system. But still there is also a problem exists and that is the familiarity, Since till now this process is done manually and again there is no online based system for this in Bangladesh both Lawyers and Clients might be unfamiliar with this kind of system. They may react negatively against using this kind of system after the very first launching.

✓ **Concern with Information**

As the system is about law based, it is clear that sensitive data could be handled by the site. So if the sensitive information goes to wrong person hand a very big problem could be occurs. Clients might feel uncomfortable to use this online web based platform system with concern of their valuable information.

✓ **Rules and regulation from govt side**

Since now in present this type of system is new here in Bangladesh. Govt rules and regulation or policies might not be created or handled properly. A very big problem could occur if this type of legal system is created without doing research about rules and regulations from government side.

✓ **Responsive site**

Since this system will be developed for people with all class in Bangladesh, if the site is not responsive enough for all types of devices users may criticize the system without using it.

Discussion on problem solutions based on published articles.

This part of literature review chapter will contain the discussion about the solution against the problem domain based on published articles.

- ✓ As for fake lawyers and Clients concern about their valuable information the system will be developed in a way to handle these types of problems occurrence. There will be a options of giving and providing review to the lawyers so that before sending case request clients can have a summarize idea about that lawyers.
- ✓ As for Internet availability all over the country this is actually the responsibility of government and mobile operator or other Internet service providers to make it faster and available in anywhere anytime. Bangladesh government should take step forward like other foreign countries.
- ✓ As for unfamiliarity of the system to users, it is a matter of time. The system has been developed in concern of user friendliness; that means the users who is new to the system will easily learn the use of the system quickly. So, after the launching or implementation of the system to real world if the users understand the purpose of the system and realize the helpful side of it, it could become familiar sooner.

- ✓ Right now the system is for academic purposes but if this system has to launch in real time then the system will be developed as a responsive site. Responsive site will be done for further development of the project.

Comparison of three leading solutions-

Here I am going to show 3 existing solution including Bangladesh and the best law based sites from other countries, their best features and also limitations. As my proposed project is for Bangladesh I am going to start from the Bangladesh's existing procedure for this Case taking System.

Solution 1:

In Bangladesh the case taking process is done manually, there is no online system existed. Normally Clients directly go to Court to find lawyer and discuss about their case face to face or collect contact number of a lawyer from their relatives as a reference or else takes help from middleman in the court who will introduce them to lawyer.

- Best features

The best about this is that clients can meet with their lawyer from the very beginning of their cases to be handled.

- Limitations

1. Hassled for geographically distanced clients
2. Time consuming: Might fail to find the required lawyer and need to come by multiple times to find best lawyer.
3. No specific place to search for a lawyer for the specific case.

4. May need to maintain the office hour if he or she has no reference for the lawyer.

Solution 2:

The screenshot displays the West Coast Trial Lawyers website. At the top, the logo 'WCTL WEST COAST TRIAL LAWYERS' is visible, along with the tagline 'Free Consultations / No Fees Until We Win' and a phone number '(888) 539-9582'. A navigation menu includes links for HOME, WHY WCTL?, OUR TEAM, PERSONAL INJURY, RESOURCES, and CONTACT US. A language toggle for 'ESPAÑOL' is also present. The main banner features a motorcycle accident scene with the text 'RANKED #1' and 'BEST FIRM IN LOS ANGELES'. On the left, a live chat window is open, showing a message from a user and a response from the website's support team. On the right, a contact form is displayed with fields for Name, Email Address, Phone Number, and a text area for 'Tell Us About Your Case'.

Figure 1 Case taking process in WCTL

This (West Coast Trial Lawyers) is the world ranked 1 law based site of Los Angeles, California (Gotter, 2018). Here the Case taking process is done by selecting the case category and then it redirect to a page where clients need to fill up the form that is shown on the above picture.

○ Best features

1. Case categories are well organized
2. Live chat facilities.
3. Lawyer Information is shown.
4. Review of the service of the site can be seen.

- Limitations

1. There is no way to chat or make voice call with the specific lawyers.
2. No way to view the review of specific lawyer.
3. No way to send the case details to a specific lawyer.
4. No options to search lawyers by case categories or by name.

Solution 3:



Figure 2 Case taking process of RUCD

The Site Named Roulston Urquhart Criminal Defence is the place where all types of criminal category cases are handled. This is the site for Canada.

- Best features

1. Information about each criminal category is detailed.
2. Options to view and write review about the site.
3. Well Designed
4. Lawyers Information is detailed with educational background,
5. Case handled by each lawyer is shown with case details

- Limitations

1. No option for chatting or making voice call with the specific lawyers.
2. No option to see or give review for specific lawyer.
3. In general message sending options regarding case details
4. Handle only criminal category cases.

Recommended approach

After doing analyze on the existing solution for case taking process I have understand that my proposed system is unique than the other solution described above, and the proposed system that is going to be developed is capable to cover up or solve the limitations that is figured out from the above existing system. The things that will be included in the proposed system are:

1. Clients will be able to chat or make voice call with the specific lawyers.
2. Client can see or give review for specific lawyer.

3. Clients can send Case request to the specific lawyer that they choose.
4. All types of case can be handled by lawyers under different category.
5. Client can search lawyers by name or by category without being hassled.

Chapter 4 – Methodology

For developing a system many methodologies are available such that; XP, Kanban, DSDM, SSADM, Scrum etc.

What to use

In order to develop the system using or following any methodology is a good practice and also helpful for completing the development successfully. Methodology helps the developers to develop the system in an appropriate planning.

Different methodology could be used. But it is very important to choose a methodology which is suitable for the project. As for this proposed system DSDM (Dynamic Systems Development Method) methodology is going to be used as it is the suitable methodology for this project. This methodology is based on the Agile Business Consortium. DSDM (Dynamic Systems Development Method) is beneficiary the system that is being developed iteratively.

Why to use

DSDM is the appropriate methodology for this project because the proposed system is a small sized system. As the proposed project is academic project it is very important to complete this project within deadline. The time for the project is limited so the researching and analyzing in order to gather requirements should be done properly, Since DSDM is one of the Agile methodology there is a chance to change the requirements if any requirements is gathered wrongly and it provides the facility to gather and prioritize the requirements by following the MoSCoW priority. Additionally the final solution will be more likely meet the real business need.

Sections of methodology

The stages that have been used for developing the proposed system by using DSDM are:

1. Pre-project: In this section the time, budget, initial requirements, possible problems and solutions for the project will be identified.

2. Feasibility

In this section the business case and plan will be established, will consider the technical solution as well as time and budget will also be estimated. This section will be used to identify the expected benefits of the business from the project.

3. Foundation

In this section is about establishing fundamental understanding on the business rationale for the project, the potential solution that will be created by the project, and how development and delivery of the solution will be managed. Here the technical implementation and quality assurance will be established by setting certain time period for the business and technical input.

4. Exploration

This is the iterative development section during which the requirements level will be demonstrate the functionality by using MoSCoW prioritization.

5. Engineering

It is the iterative development phase where the solution will be engineered to be deployable for release with the acceptance criteria.

6. Development

In this section the final completed product will be involved. Completed solution will be available or released to the real with its supportive documentation.

7. Post Project

The development of the system solution will be taken into this section and the benefits that are expected will be assessed.

(methodsandtools, 2018)

Implementation plans

It is the final part for any project. By following the DSDM's stages the system will be implemented to make it available to the users and to make it run to the real world; in order to fulfill or meet the actual purpose of the system for which the project is developed for. Implementation plan refers to the final release of the system. But before that the thorough testing will also be done to lessen the possibility of bugs.

Chapter 5 – Planning

Project Plan

Management Plan / Work Breakdown Structure (WBS)

WBS is the representation of the life-cycle of the whole project that will describe the functions and sub-functions of the project. The WBS of my proposed project is shown below:

	Task Name ▼	Duration ▼	Start ▼	Finish ▼
1	Introduction	1 day	Fri 9/20/19	Fri 9/20/19
2	Initial study	4 days	Fri 9/20/19	Wed 9/25/19
3	Literature Review	6 days	Thu 9/26/19	Thu 10/3/19
4	Methodology	1 day	Fri 10/4/19	Fri 10/4/19
5	Planning	5 days	Sat 10/5/19	Thu 10/10/19
6	Feasibility	3 days	Thu 10/10/19	Sat 10/12/19
7	Foundation	3 days	Sat 10/12/19	Tue 10/15/19
8	Exploration	3 days	Tue 10/15/19	Thu 10/17/19
9	Engineering	3 days	Thu 10/17/19	Sat 10/19/19
10	Deployment	20 days	Sun 10/20/19	Thu 11/14/19
11	Testing	3 days	Thu 11/14/19	Mon 11/18/19
12	Implementation	3 days	Mon 11/18/19	Wed 11/20/19
13	Critical Appraisal & evaluation	3 days	Wed 11/20/19	Fri 11/22/19
14	Lesson Learned	1 day	Fri 11/22/19	Fri 11/22/19
15	Conclusion	1 day	Sat 11/23/19	Sat 11/23/19

Figure 3 WBS

Resource Allocation

	Task Name ▼	Duration ▼	Resource Names ▼
1	Introduction	1 day	Analyst
2	Initial study	4 days	Analyst
3	Literature Review	6 days	Analyst
4	Methodology	1 day	Analyst
5	Planning	5 days	Analyst,User
6	Feasibility	3 days	Developer,Analyst
7	Foundation	3 days	Developer,Analyst
8	Exploration	3 days	Developer,Analyst
9	Engineering	3 days	Developer,Analyst
10	Deployment	20 days	Developer,Tester
11	Testing	3 days	Developer,Tester,User
12	Implementation	3 days	Analyst,Developer,User
13	Critical Appraisal & evaluation	3 days	Analyst
14	Lessons Learned	1 day	Analyst,Developer
15	Conclusion	1 day	Analyst

Figure 4 Resource Allocation of proposed project

Time Duration

It represents the estimation of how much time the proposed project will take to be developed successfully. It is important because for a project to be developed successfully time should be maintained properly. The time duration for my proposed project is shown below:

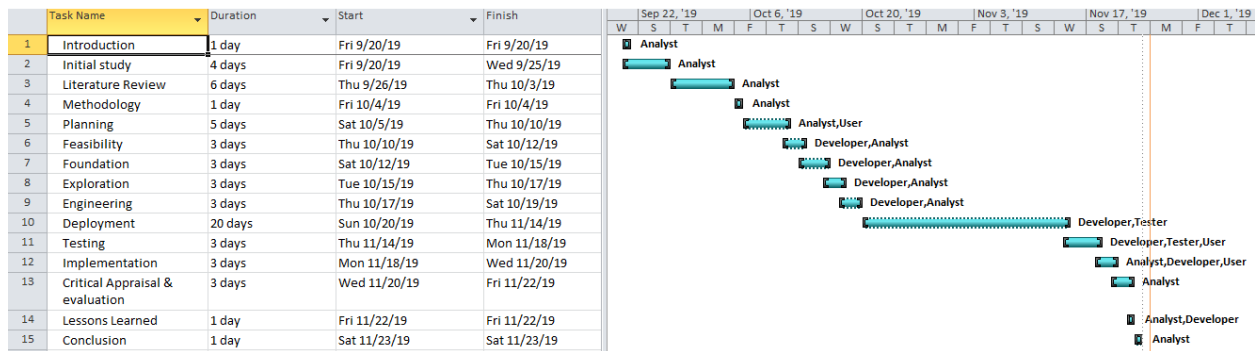


Figure 5 Time Duration For the proposed system

Activity Network

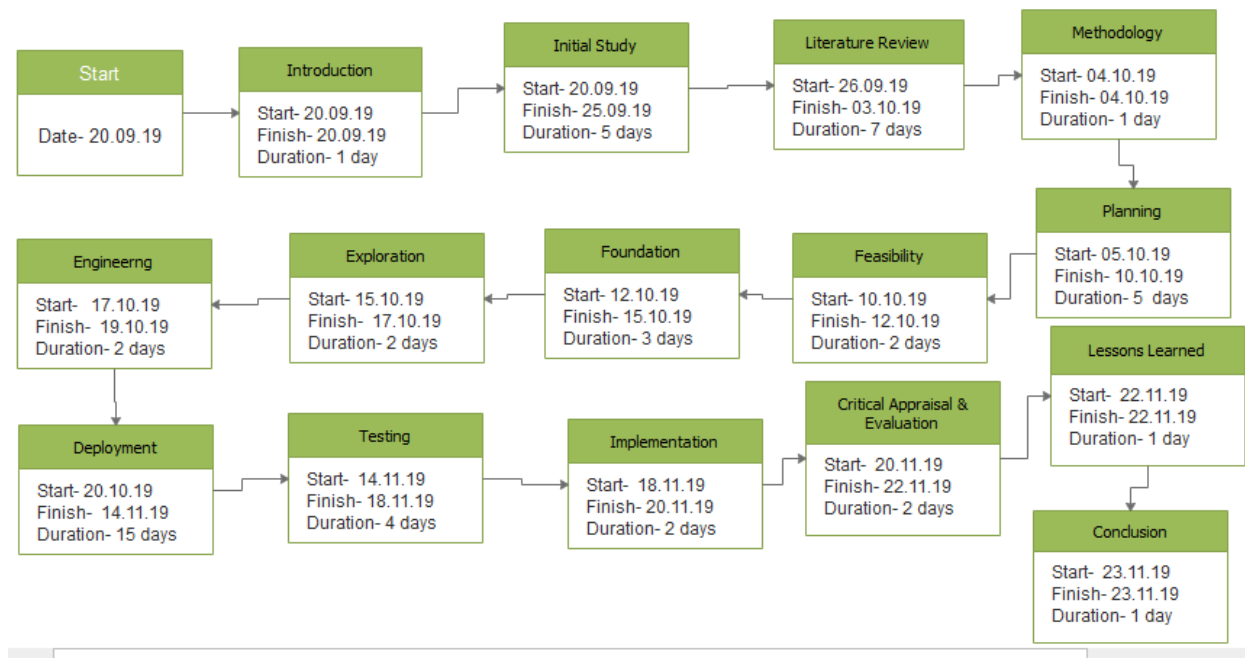


Figure 6 Activity Network

Gantt Chart

Gantt Chart is the representation of the duration of whole project. Gantt Chart shows each stage and their duration which will be include and followed for developing the whole system and implementing the system in real world.

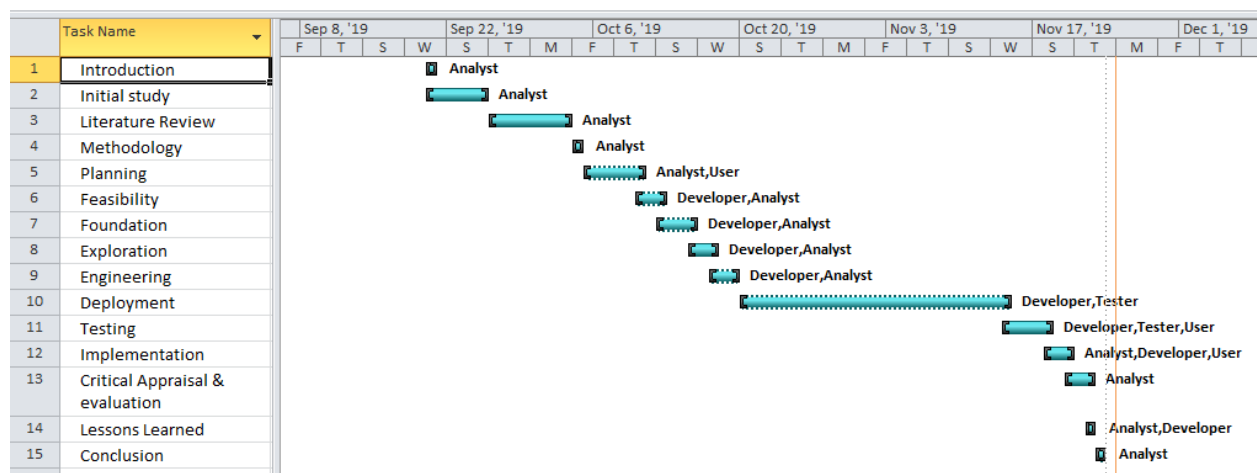


Figure 7 Gantt Chart

Test Plan

Testing or test plan is a vital part in Software development. It is the checking whether the actual result is matched with the expected result. By testing one can measure how much success the project is for the purpose.

Required tests

There are some common and popular testing that is used to measure the system efficiency and effectiveness. Some of those testing will be used in this proposed system are:

- **Unit Testing:** in this testing system's individual task or module will be tested. For doing this testing one should have detailed knowledge about the internal code and design of the program, which means this type of testing is done by the system programmer.
- **Integration Testing:** It basically refers to the testing where individual tasks or modules are combined together to be tested as a group. This testing is held after the unit testing of the system.
- **Module Testing:** It is the testing that refers to evaluate the business requirements. This type of testing is held after the integration testing.
- **Acceptance Testing:** This testing is done by users to verify whether the system can able to perform the functionalities and features as per the expectation of business requirements and can fulfill the needs of the end-users.
- **Security Testing:** Here the testing will be done measure how much safe and secure the system is from the external and internal threats.
- **Usability Testing:** This testing will be used to measure the user-friendliness of the system. By doing this testing it can be cleared whether the new user can easily understand the use of the system or not.

(softwaretestinghelp, 2019)

Test Case

Test Case contains the information about the testing that is done to measure the system, its expected result, actual result, and what actions has been taken to solve the failure.

Test Case No			
Test Type			
Test Description			
Test Steps	Expected Result	Actual Result	Comment

Figure 8 Test Case for the proposed System

User acceptance test plan

This is the last testing, after this testing the system is confirmed to be ready for the production release or made it implemented to work in real world.

Test Case No		User Name	
Test Type		Role	
Test Title			
Pre-condition			
Test Steps	Expected Result	Actual Result	Comment

Figure 9 Test Case of User Acceptance

Risk Management

Risk management helps to indentify the risks or threats such that uncertainty of financial data, management strategic errors that has the possibilities to affect the system in fulfilling user expectation. It includes the following steps:

- **Risk identification**

In this step the possible risks of the future system are being defined or identified. There are some risk that could be occur while developing, they are; business, technical, methodological and security risk. To identify those risks properly some steps should be followed properly:

- ❖ Finding out the risk that has highest possibilities to be occurred and can cause huge damage.
- ❖ Proper document of the risk with probable reason.
- ❖ Listing out risk that occurs frequently.

- **Risk assessment**

In this step the occurrence of the identified risk will be measured.

Risk assessment for the identified risk of the proposed project is shown in a table below:

Possible Risk	Reason	Likelihood	Impact
Business Risk	Fail to meet the business needs or purpose.	Unlikely	High
Methodological Risk	Wrong or unsuitable Methodology could be chosen for the project,	Likely	Medium
Technical Risk	Poor maintainability.	Unlikely	High
	Using old technology or the used technology being	Likely	Medium

	update		
Security Risk	Fail to ensure information security or system hack.	Likely	High

Risk precaution

It's better to take pre action to prevent the risk before occurrence; the actions to prevent the identified possible risk are given below:

Possible Risk	Reason	Likelihood	Impact	Precaution
Business Risk	Fail to meet the business needs or purpose.	Unlikely	High	Doing proper market research and identifying business feasibility.
Methodological Risk	Wrong or unsuitable Methodology could be chosen for the project,	Likely	Medium	Proper analyzing on methodology.

Technical Risk	Poor maintainability.	Unlikely	High	Keep updating with the technology.
	Using old technology or the used technology being update	Likely	Medium	
Security Risk	Fail to ensure information security or system hack.	Likely	High	Developing the system by keeping in mind its safety and security.

Steps taken for possible risks

Steps that have been taken for the identified risk that could be occurs are shown below:

Possible Risk	Reason	Likelihood	Impact	Steps Taken
Business Risk	Fail to meet the business needs or purpose.	Unlikely	High	Analyzed the current existing system to

				identify the correct business needs and purpose.
Methodological Risk	Wrong or unsuitable Methodology could be chosen for the project,	Likely	Medium	Analyzed the existing methodologies before using on the project.
Technical Risk	Poor maintainability.	Unlikely	High	Updated technology is used.
	Using old technology or the used technology being update	Likely	Medium	
Security Risk	Fail to ensure information security or system hack.	Likely	High	Developed the system by ensuring and continuous

				checking of security issues.
--	--	--	--	------------------------------

Change Management

Factors that might cause change

There could be some factors that can cause change to the proposed project, those possible factors are:

- ❖ Changes in technologies that is used.
- ❖ Changes in Time Duration.
- ❖ Changes in Govt policies.
- ❖ Changes in features and functionalities because of changes in User's requirements.

DSDM Atern welcomes change

As DSDM is a iterative methodology it welcomes changes iteratively. *This methodology enables change* through iterative development by regular reviews through ensuring what is being developed and what the business really needs. *Changes in project requirements* result a better understanding and which *DSDM* expects and plans for it as well.

Considering business priority

Considering business priority is one of the key principles in DSDM methodology. Business priorities can be changed along with the time, facilities and technologies which need to be considered. The changes in business priority will change the requirements priority of the proposed project. In order to consider business priority of the proposed project the following things has been considered:

- Analyzing Current business priority and give priority through MoSCow prioritization.
- Establish business priority through the perspective of business need.
- Match business case with the projects goals and priorities.

Change workshop

One of the key practices of DSDM facilitates workshop. Workshop refers to communications among stakeholders, users and developer, by doing workshop requirements can be changed iteratively. As for the proposed project it is a law based project, so the users should be those who have knowledge in law, the project will be developed by communicating with the user who have law background, and by communicating with user through workshop requirements could be changed iteratively.

Changes that are allowed

Though DSDM welcome changes but there is also some rules that will allow the project to be changed according the requirements. The changes that are contract or agreed

between users and developer are allowed to be changed as users' satisfaction and user friendliness.

As DSDM works by time boxing changes are allowed only for the time fixed by the time box.

Key Decision takers of change

In order to change the requirements of the project decision takers who have the right to decide about changes in their perspective area. The decision takers of this proposed project could be analyst, developer or tester.

Quality Management

It is about managing the quality of project properly so that it can fulfill its purpose and can be accepted by the users. Quality management has some following objective:

- Determine the quality level of system acceptance
- Assure quality of the system activity.
- Assure bug free system.
- Follow correct rule for maintaining the system quality.

Rules applied to maintain quality

There are two following rules to maintain quality of the proposed project:

- **Quality Control:**

The process of testing the standards and performance of the product to ensure that it meets the quality criteria is defined in this rule. It controls the procedure so that the new

system can be error free; the development of the system can be standard and do better performance by ensuring the proper requirements to be followed.

- **Quality Assurance:**

It is about ensuring that the proposed system maintains the actual requirements which are predefined along with the customer's expectation. It helps to define the process in designing of the product.

DSDM Atern standard quality measures

To measure the system quality DSDM atern follows to standard these are:

- **Solution Quality:**

It is about fulfilling users' requirements depending on both business need and user's satisfaction. Here time boxing and MoSCoW prioritization is strictly followed. In solution quality ensures that the defined tasks are completed within the fixed deadline along with maintaining the quality properly.

- **Process Quality:** it is about ensuring the standard quality of the system. It focuses on all activities and steps used to achieve a maximum acceptance of the system.

Quality Plan and measuring meter

Quality plan refers to the documents that specify quality standards, practices, resources, specifications, and the sequence of activities that are relevant to the proposed project.

Quality plan for the proposed project:

- Fulfill the objectives that are highly needed.
- Do proper testing and document the result of the system.
- In case of changing proper documentation and guideline will be submitted.

Chapter 6 – Feasibility

All possible type of feasibility

Here I will research about the operational, technical, economic, and do market research analysis based on the feasibility factors of my proposed system so that I can identify and estimate the benefits and risks to make a solution against them before starting my project.

Operational Feasibility

The proposed system will be web based; as a result users don't have to install the system or don't have to worry about the space of their device in order to use it. Users of the system can easily use it if they have internet connection. In addition operating system here operating system is not the fact; so, the system can be used from any device with any browser that the users want to. Customers won't need to log in for searching their specific lawyer. Without having an account Client user can check either their specific Lawyer has an account on the system by simply inserting the name on search field. And with log in search lawyer by specific case category, view lawyer's contact information, sends case request to specific lawyer with brief details of the case, give review to lawyers, make call through system.

On the other hand Lawyer users can receive case request thorough online, decline or confirm case request sent from client, edit profile by giving short professional experience, upload photos, select the category of case that they mostly handle, send further message or make call through system after accepting the case from client, give appointment to the client for further meeting.

Technical Feasibility

To run the system some technical things are mostly needed, which are;

PC: 1Pc for admin to use and manage the website, like adding and modifying category, control users and others security based issues.

Domain: In order to host the website online a domain name is necessary and to be uniquely identified as well as to make it easier to remember for users.

Internet: As this system is web based Internet connection is required for using the system.

Server: 1 server to connect with MySql and for storing data on database.

VPN & Firewall: These two things is required to ensure secure connectivity to the Internet and to protect data from various types of attack.

Router and switch: These will be used to connect the system with network.

Economic Feasibility

This section shows the financial aspects in order to make the project successful, here the cost is being shown comparing to the benefit with the project:

Component Name	No of Component	Cost	Total Cost
PC	1	20,000 tk	2,24,400 tk (approximate)
Server	1	60,000	
Design & Architecture		1,30,000 tk	
Domain		1,400 tk	
Hosting		3000 tk	

Maintenance		10,000 tk	
-------------	--	-----------	--

Cost Benefit Analysis

It is about determining the system cost against its benefits. It is a vital part of the system as it helps to measure the benefits for a certain amount of cost spending for the project.

The estimation of cost and benefits analysis for the proposed system is shown below:

Expenditure	Year 1	Year 2	Total (Approximate)
Hardware (PC)	20,000 tk	-	20,000 tk
Server	60,000 tk	40,000 tk	100,000 tk
Design & Architecture	1,30,000 tk	-	130,000 tk
Domain	1,400 tk	1,400 tk	2,800 tk
Hosting	3000 tk	3000 tk	6000 tk
Maintenance	10,000 tk	10,000 tk	20,000 tk
Total	224,400tk	54,400	278,8000tk

DSDM – good or not for this project

The method DSDM is an iterative process and strict to abide by the rules. It also involves users thorough all the stages of the project. Additionally it welcomes changes iteratively and focuses on user's satisfaction. These things helps any project to be developed successfully and worked effectively and efficiently to meet the purpose of the project properly. So, I think DSDM is good for this project.

Chapter 7 – Foundation

Problem Area Identification

Finding or identifying the problems of the existing system or the proposed system helps to develop the project successfully. Several tools and techniques can be used to identify the problem areas, some of these are:

Interview

It refers to the way of gathering information and system requirements from the core users who will be going to use the system. Here some predefined questions is asked to the users to gather information about what need to be done.

Some common information that will be gathered for the proposed system in interview session is:

- List of various requirements that are based on user role.
- Records the interest of users from the system.
- Find out the problems that users face in the existing system.

Observation

It is about gathering information by observing a group of users who are the participant of the existing system. Some common information that will be gathered for the proposed system from observation is:

- Understanding the whole process of the existing system.
- Making clear idea about how each user do their task.

- Understanding how the Case taking system can be developed so that users can performs their task more easily and quickly than the existing system.
- Determining the business requirements in Case Taking field.
- Determining the problems and lacking of the existing system.

Questionnaires

In this technique a set of specific questions is given to a group of users of the existing system to understand the thinking of the users. It is used when there are a large number of users. The below information will be gathered by questionnaires for the proposed case taking project:

- Understanding the problem area that client users face.
- Knowing the lawyer users point of view for the new system.
- Statistical analysis of the problems and reason.

Rich Picture

Here the rich picture of my proposed system is shown below:

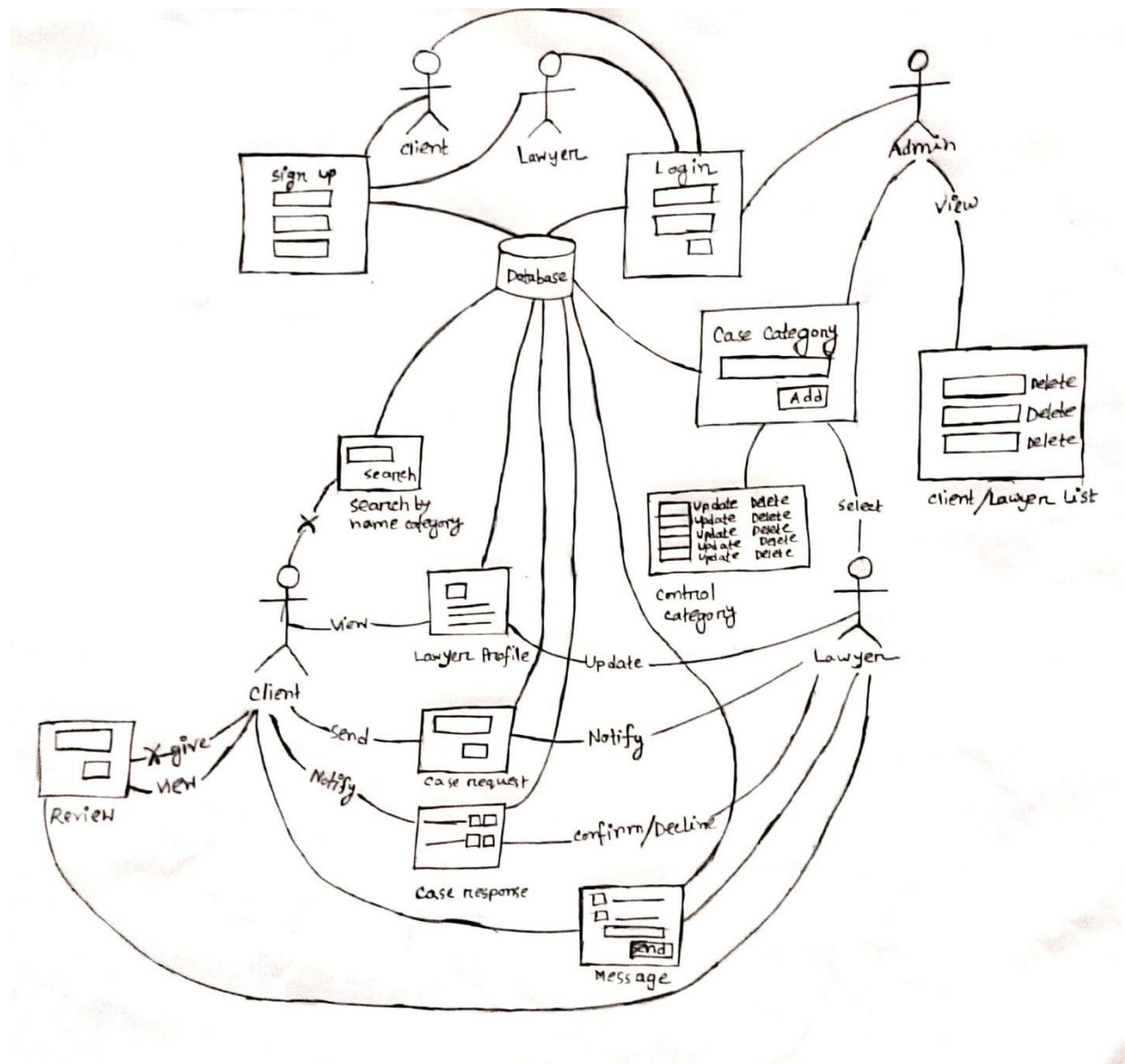


Figure 10 rich picture of Case Taking system

Rich picture's Legends



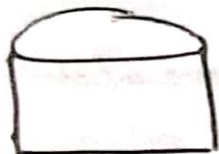
Actor



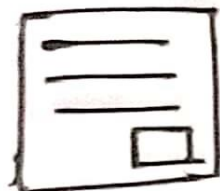
Conflict



Connection



Database



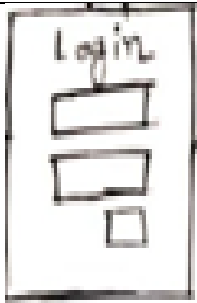
Form/process

Key actors of the rich picture:

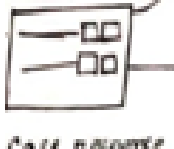
As for the system there are three types of actors;

- Admin
- Client
- Lawyer

Description for the rich picture

	Store all the information from the system including client, lawyer and as well as data from different form of the system.
	This picture indicate to sign up process, the client and lawyer both should singed up on the system.
	This picture indicate log in process, all users including admin, client and lawyer must be logged in to the system in order to get access.
	This picture is to indicate admin. Admin has whole control over the system including adding case category, controlling

	case category and other users.
	This picture is to indicate lawyer users. They can confirm/decline the case request from client and chat with their client, update profile.
	This picture is to indicate client users. They can search lawyer, view lawyer's profile, view lawyer's review, send case request and can view their case response from lawyer, chat with their lawyer on the system
	This picture is to indicate search process. Client can search for a lawyer either by their name or by case category.
	Lawyer can update his profile, and client can view lawyer's profile after searching.
	This picture is to indicate review. Client can view and give review, lawyer can also view their own review.

	This picture is to indicate case request process, where client will send case request to lawyer and lawyer will be notified when receive request.
	This image is to indicate the case response process where after confirming or declining the case request by lawyer, client will be notified.

Specific problem area identification and description

Some specific problem areas have been identified in the existing system; these are given below with description:

- **Availability of online system:** In Bangladesh there is no existing online system for the case taking process.
- **Hassled for geographically distanced clients:** As they have to come to court for finding lawyers for their cases from distance places required more time; they also have to maintain the office hour and they might have to sacrifice their other works in order to come to court physically
- **Place to search for lawyer:** There is no specific place to search for a lawyer at the court from where client can view a list of lawyers under case categories.

- **Hassled without reference:** If client is in need for a lawyer without any reference they have to come to court physically. Moreover they might need to communicate with brokers which could be more costly.
- Clients might face difficulties in finding skilled lawyer for their cases.

Possible Solution

The possible solutions for the above identified problem are listed below:

- A web based online case taking system will be developed where clients can be able to send case request to lawyer and lawyer can accept it.
- Availing online system for case taking process clients from all distance can communicate with lawyers without physically coming to the court which will solve the problem of geographically distanced lawyers.
- Proposed system will provide a platform to clients by which they can search lawyers by name and category of case and can communicate anytime with lawyers directly that will solve the problem of facing hassle without reference.
- With proposed system clients can view review for a specific lawyer which will help them to understand how much skilled the specific lawyer is.

Overall Requirement List

There are different requirements based on user level that are shown under functional and non-functional requirements:

Functional Requirements:

Admin user -

- Add Case Category.
- Modify Case Category

- View and delete users' account including lawyer and client if required.

Client users –

- Search by Lawyer's name.
- Search lawyer by specific case category.
- View lawyer's contact information.
- View review of specific lawyer to make decision for selecting.
- Send case request to specific lawyer with brief details of the case.
- Receive case confirm Notification.
- Give review to lawyers.
- Make call through system.

Lawyer users –

- Receive case request Notification from client.
- Can decline or confirm case request sent from client.
- Edit profile by giving short professional experience, upload photos, select category of case that they mostly handle.
- Send further message like giving appointment for meeting.
- Make call through system after accepting the case from client.
- Can view own review

Non-functional Requirements:

- **Validation & Verification** - After creating account users will receive code through email for account verification. The system will provide log in facility so only validated and verified users can use and get access to the system.

- **Maintainability** – System will be capable to prevent unexpected working condition.
- **Availability** - As it is a Web base system the system will be always available and can be used 24*7 anytime from anywhere through if users connect with the Internet.
- **Usability** – The system will be designed by following the design standard so that users won't have to search through the web pages for specific action and can easily learn the use of it by own self.
- **Efficiency and Effectiveness** – The system is capable to meet up the purpose successfully, that the system has been developed for.

What Technology to be implemented (Client/Web/Standalone)

There are different types of technologies available by which the proposed system could be implemented. As for the proposed system the most usable technologies are:

- **Web Application**

It refers to an application program that stores on the remote server and can be accessed through web browsers with Internet connections (techtargat, 2019).

This type of system can be run with any web browser. Its features are:

- ✓ URL driven and required Internet connection to be run
- ✓ Easy to access as no installation required
- ✓ Supports by all browsers.

- **Client Server App**

It refers to a piece of software that runs on a client machine and makes requests to a remote server. It usually run locally on a client computer or through Terminal

Server, Citrix, or VNC, can work closely with the underlying OS by providing a rich, powerful, robust, easy to use interface (toastytech, 2019). The features of Client Server App are:

- ✓ Required installation
- ✓ Can't service large number of users at the same time.
- ✓ Robust and easy to use interface.

Recommendations and Justifications

As for the proposed system, I will recommend Web Application to be implemented as it is more suitable for this project. The justification is given below:

- ✓ There is a possibility that too many users will access to the system at the same time and web app can able to support large number of users at the same time unlike client server app.
- ✓ It is cost effective whereas client server app is more costly.
- ✓ It can run on different OS regardless of OS and device.
- ✓ It does not require installation which can save space or memory of the device.

Chapter 8 – Exploration

Activity Diagram

As the main feature of this project is sending case request to lawyer by client I am going to show the activity diagram of this feature:

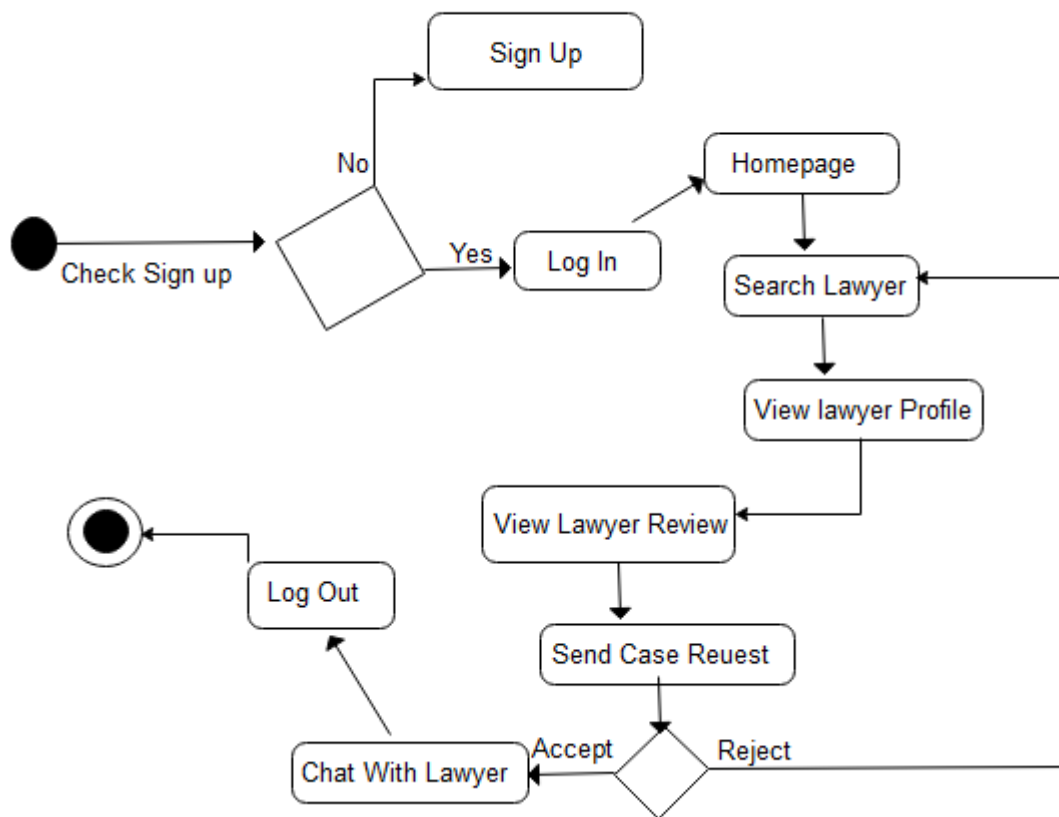


Figure 11 Activity diagram of sending case request.

Full System Use Case

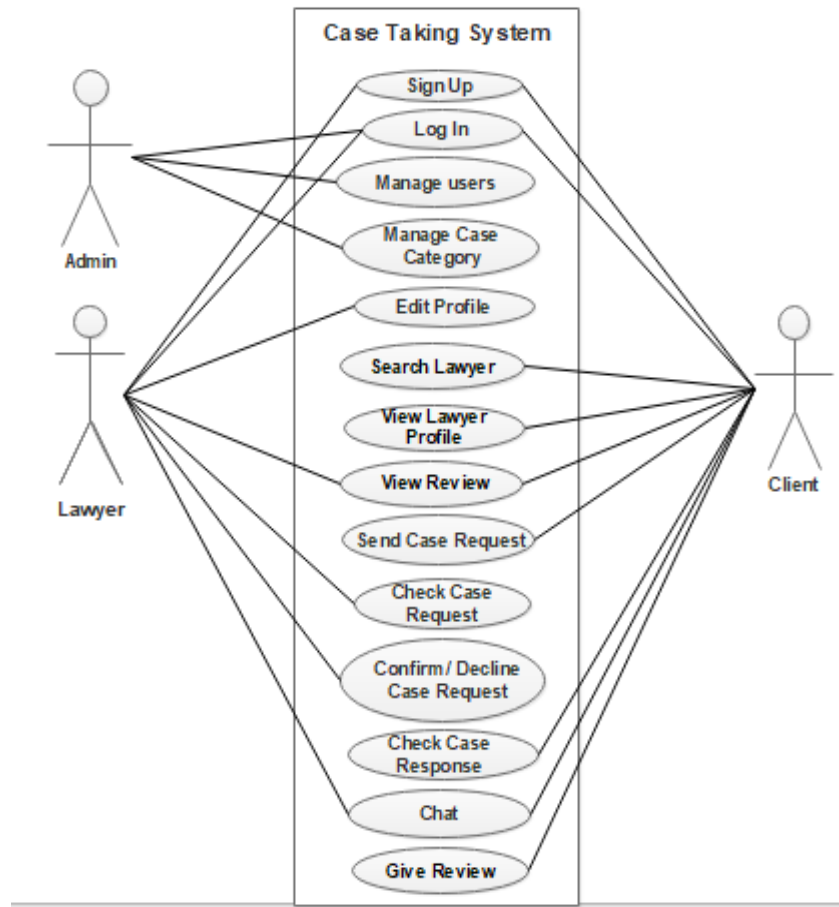


Figure 12 Use Case of Case Taking System.

Full System Activity Diagram

Activity Diagram for Client:

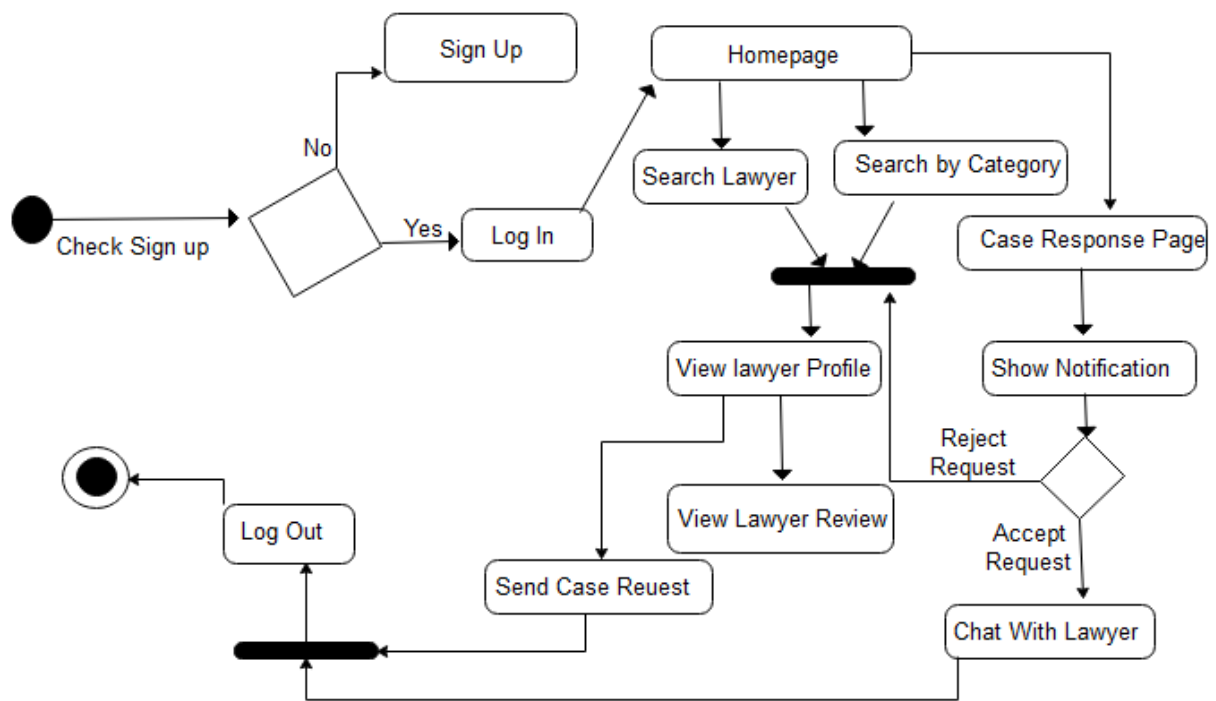


Figure 13 Client's Activity Diagram

Activity Diagram For Lawyer users:

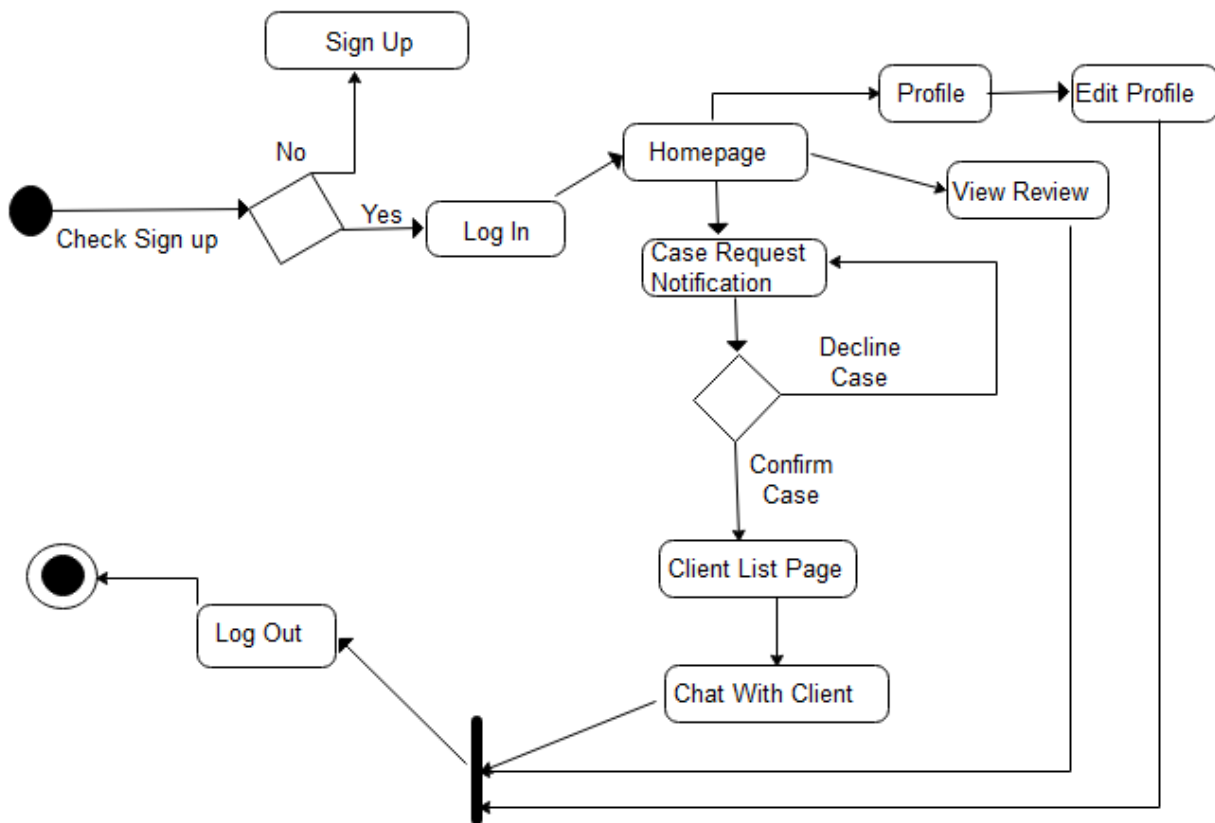


Figure 14 Lawyer Activity Diagram

Activity Diagram for Admin user:

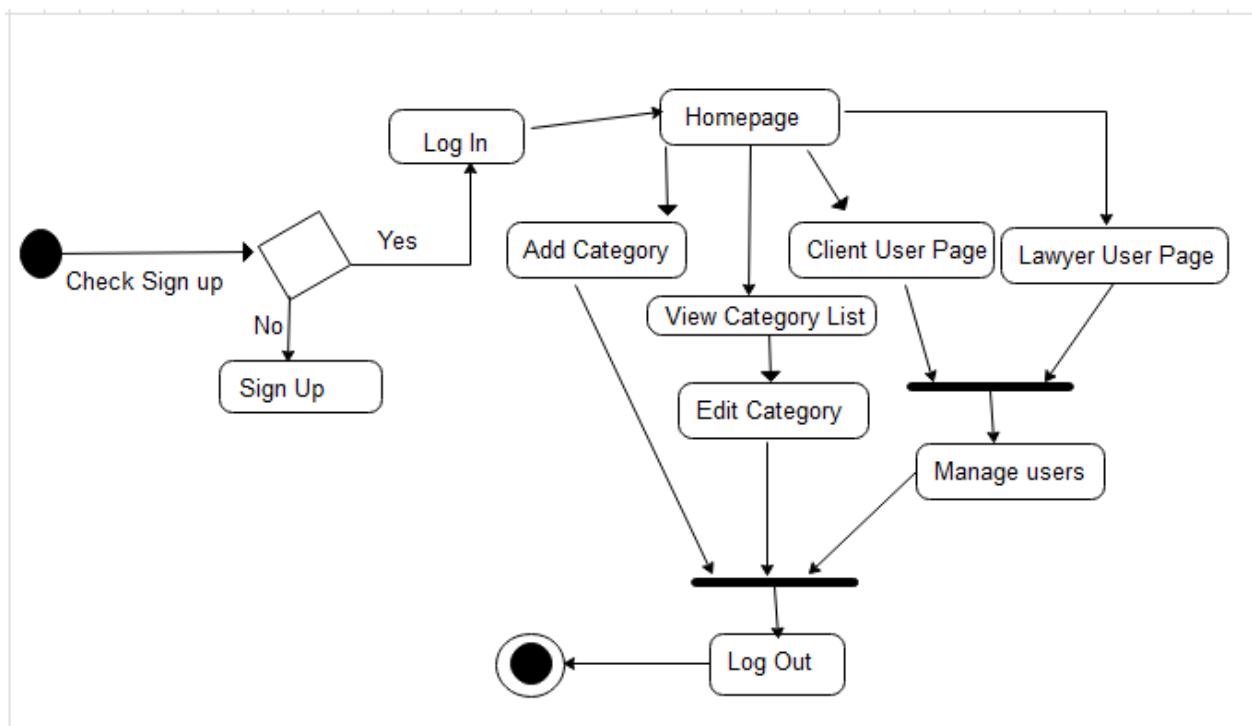


Figure 15 Admin Activity Diagram

Requirement Catalogue

The requirement catalogue for the proposed system is given below:

Requirement catalogue for sign up/ login:

Source:	Sign off:	Priority:	Requirement Id:
Users	All users	Must have	CT-01
Functional requirement: Login for user Users should sign up if not have account (except Admin) or login to the website to access to the system.			
Non functional requirement:			
Description	Target value	Acceptance range	Comments
Sign up/ log in per day	20 per day	20-30 per day	User id will be generated automatically.

Requirement catalogue for Add Case Category

Source:	Sign off:	Priority:	Requirement Id:
Admin	Admin	Must have	CT-02
Functional requirement: Add Case category Admin should be allowed to add case category.			
Non functional requirement:			
Description	Target value	Acceptance range	Comments

Adding case category per day.	20 per day	20-30 per day	Category Id will be generated automatically.
-------------------------------	------------	---------------	--

Requirement catalogue for Search Lawyer

Source:	Sign off:	Priority:	Requirement Id:
Client	Client	Must have	CT-03
Functional requirement: Search lawyer Clients should be allowed to search lawyer by name or case category.			
Non functional requirement:			
Description	Target value	Acceptance range	Comments
Show search result	20	20-30	

Requirement catalogue for Send Case Request

Source:	Sign off:	Priority:	Requirement Id:
Client	Client	Must have	CT-04
Functional requirement: Send case request Clients should be allowed to send case request to lawyers on the system.			
Non functional requirement:			
Description	Target value	Acceptance range	Comments
Sending Case	70 per day	70-100 per day	Case details will be

requests per day.			stored in database.
-------------------	--	--	---------------------

Prioritized Requirement List (PRL)

The requirements of the system have been prioritized by following the rules of MoSCoW from DSDM methodology. The prioritized requirements with MoSCoW of the proposed project are listed below -

Must have:

- Allow Lawyer and Client users to create account before using the service of the system.
- Log In system for every user level Admin, Client and Lawyer
- Allow Admin to add and modify case category.
- Allow client to search lawyer by specific case category or by their name
- Allow client to send case request to specific lawyer with brief details of the case.
- Allow client to view lawyer's contact information.
- Allow client to Receive case confirm Notification.
- Allow Admin to view users of the system
- Allow lawyer to receive case request Notification from client.
- Lawyer can decline or confirm case request sent from client
- Lawyer can update profile by giving short professional experience, upload photos, select category of case that they mostly handle.
- Lawyer can send further message to client like giving appointment for meeting.

Should Have

- Receiving verification code through mail after creating account.
- Allow Admin to delete users from the system.
- Allow Client to Give and View review
- Lawyer can view own review
- Allow client to search by Lawyer without log In

Could Have

- Allow voice call to Client and Lawyer users

Won't Have

- Doing Video Chat
- Sending verification code to mobile number after creating account.

Prototype of new system

The Prototype of how the proposed system will be look like after the development is shown below,

Prototype for Client Users –

Prototype of the homepage of client users after log in.

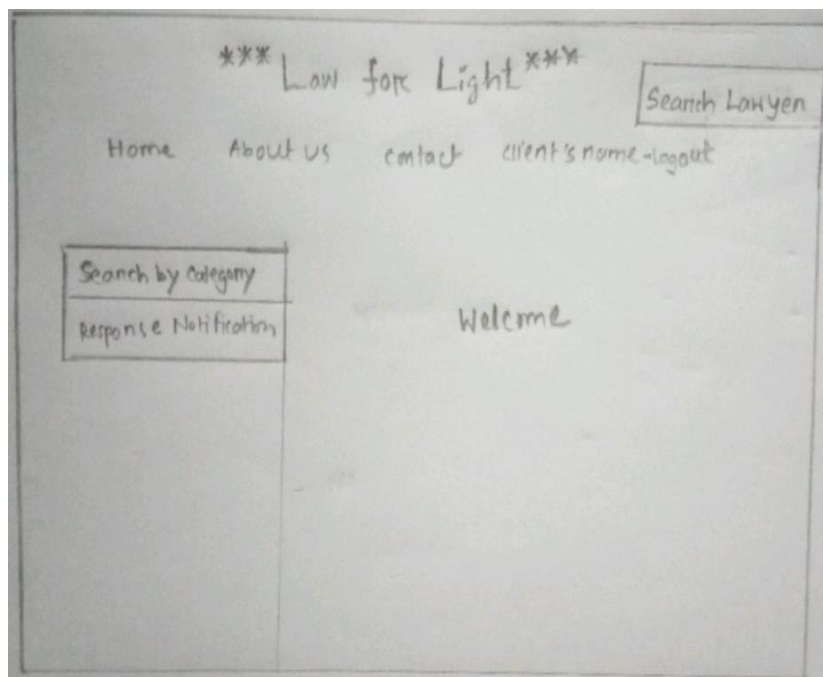


Figure 16 Client Homepage

Prototype to search lawyer by category

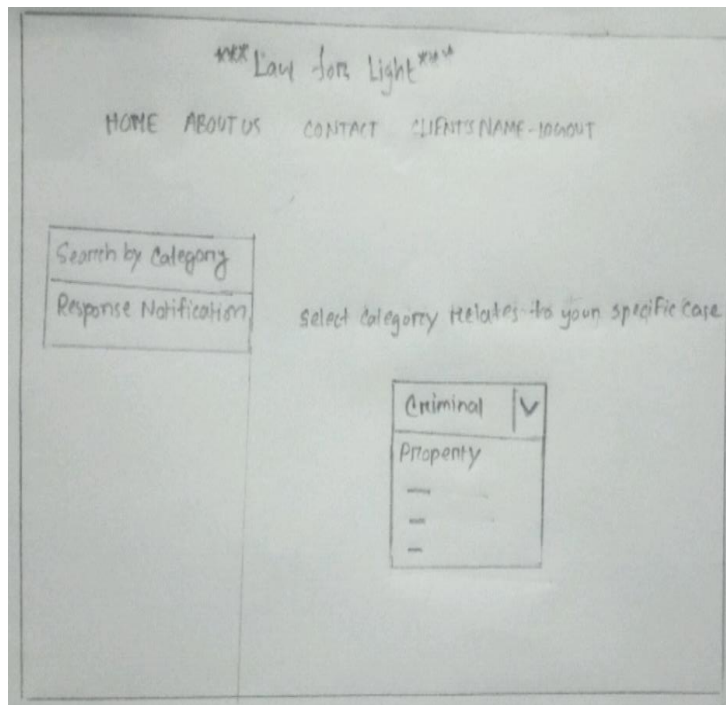


Figure 17 Select category

Prototype of viewing notification of update about Case request.

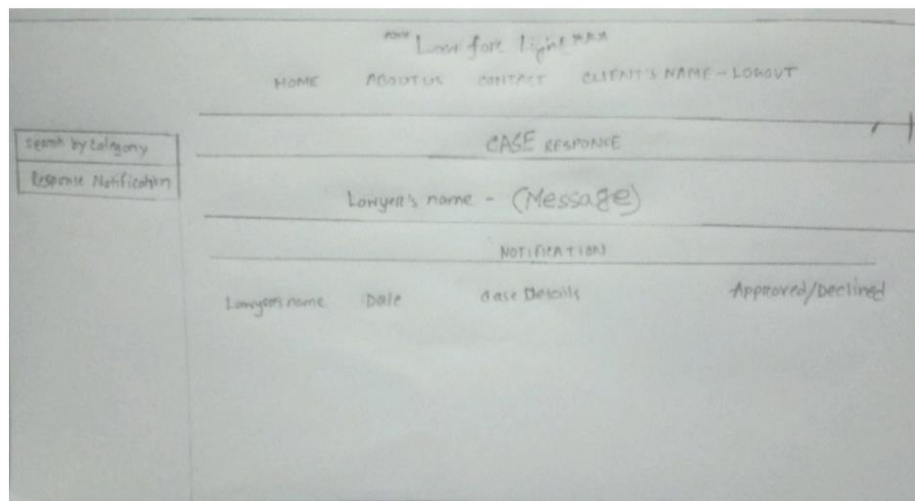


Figure 18 Notification page

Prototype for Lawyer user –

Prototype to edit lawyer profile

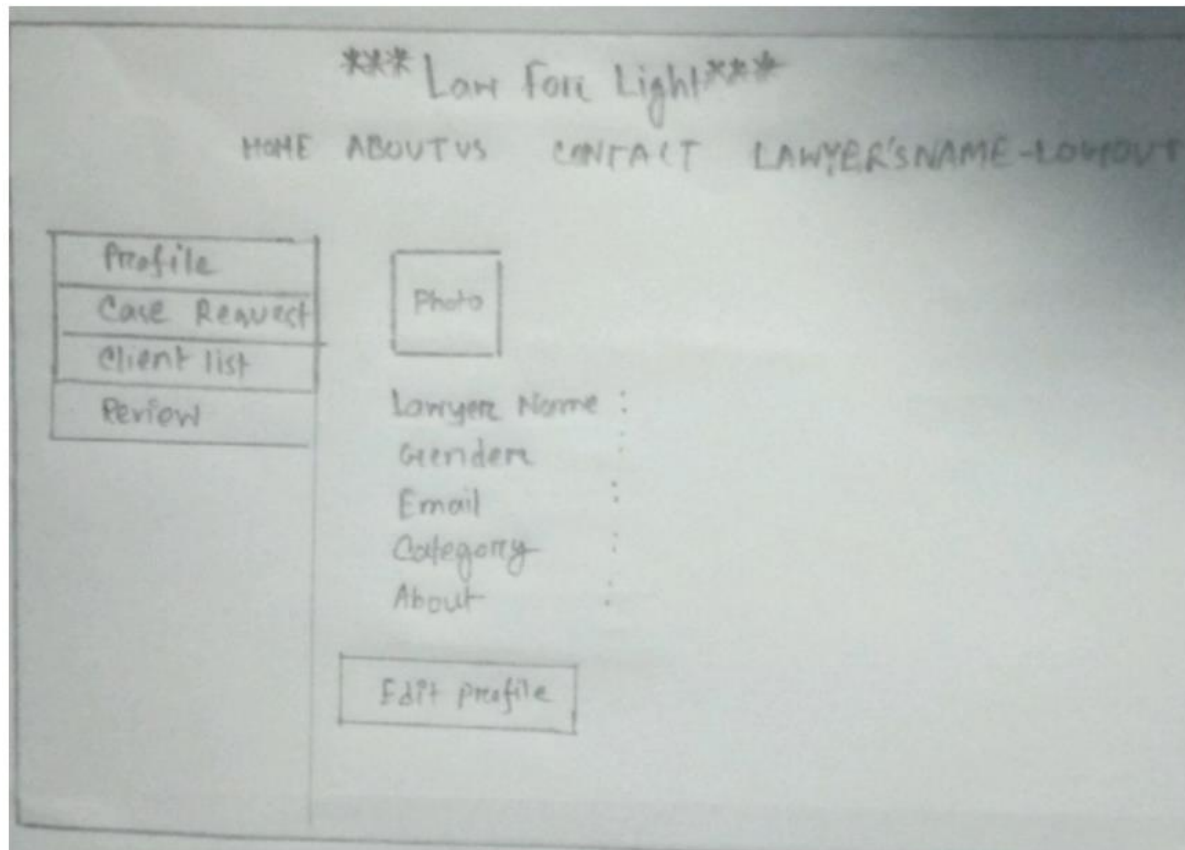


Figure 19 Profile page

Prototype of viewing case request from client.

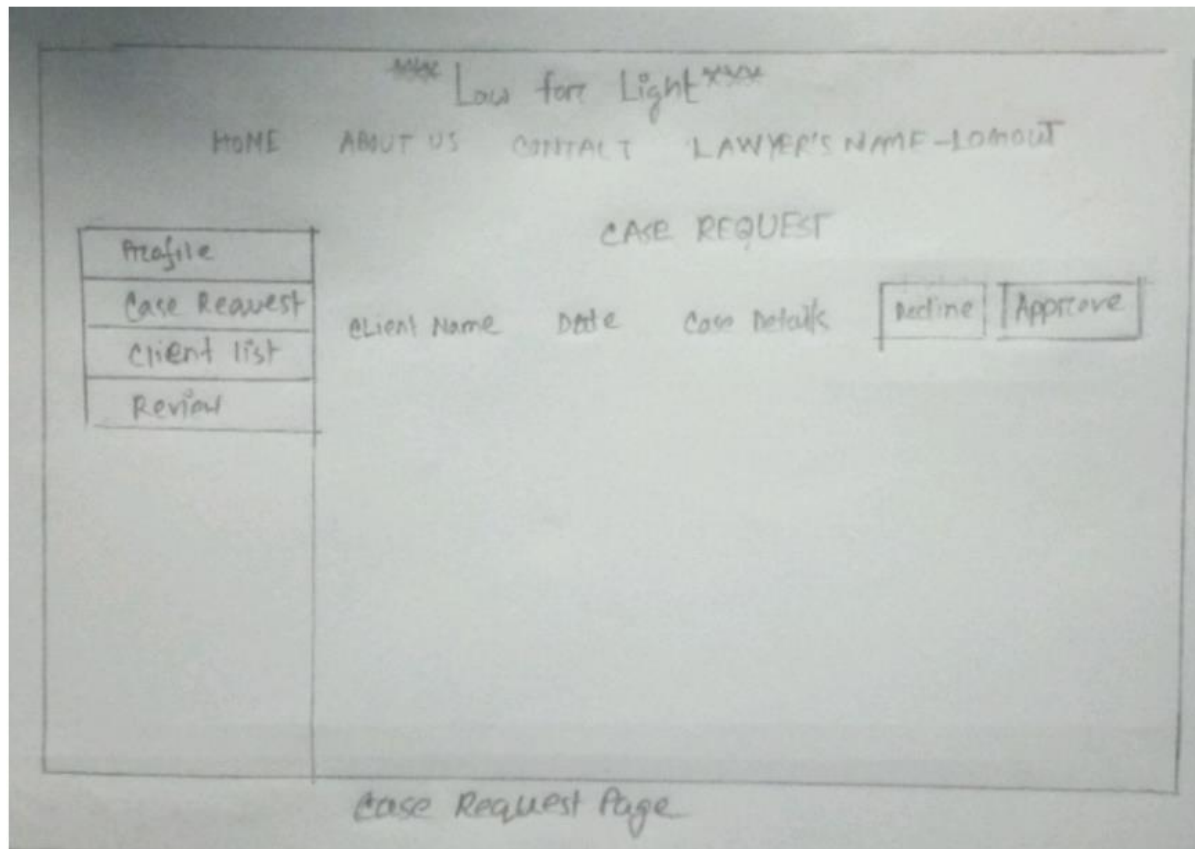


Figure 20 view case request page

Prototype to view client list and for sending message to lawyer's client

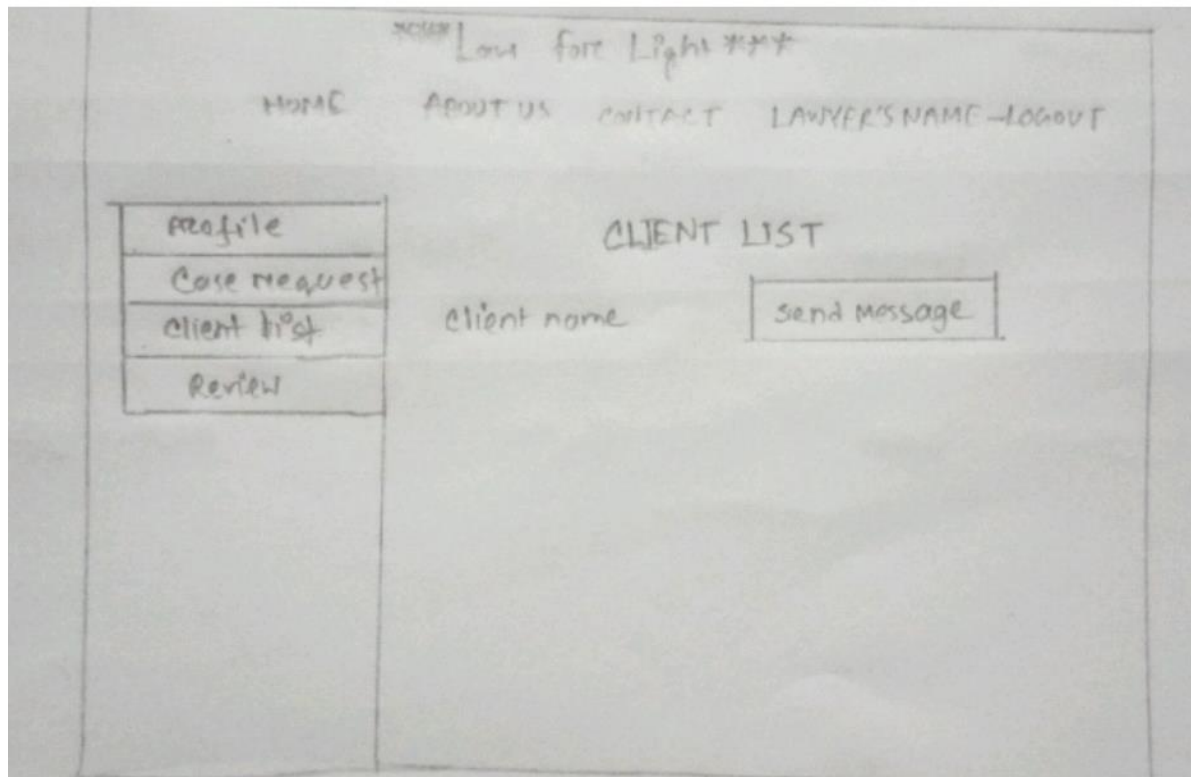


Figure 21 Client list page

Chapter 9 – Engineering

Class Diagram

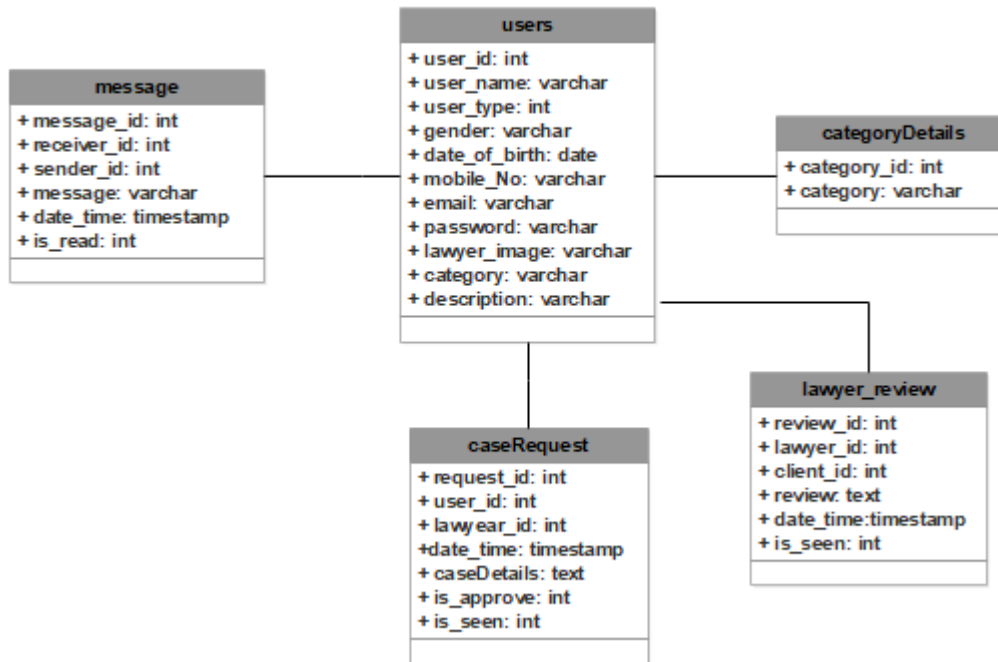


Figure 22 New system's Class Diagram

Peter Chen EERD Diagram

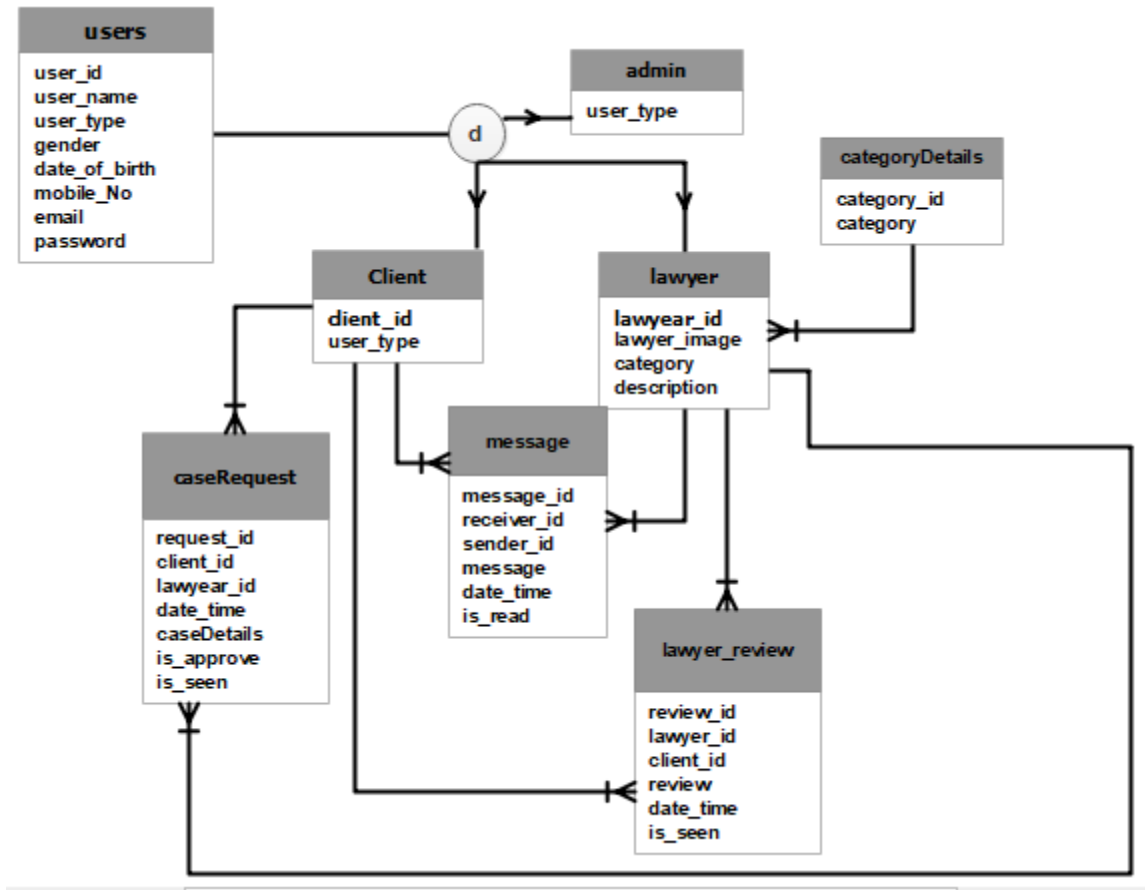


Figure 23 EERD of Case Taking System

Sequence Diagram

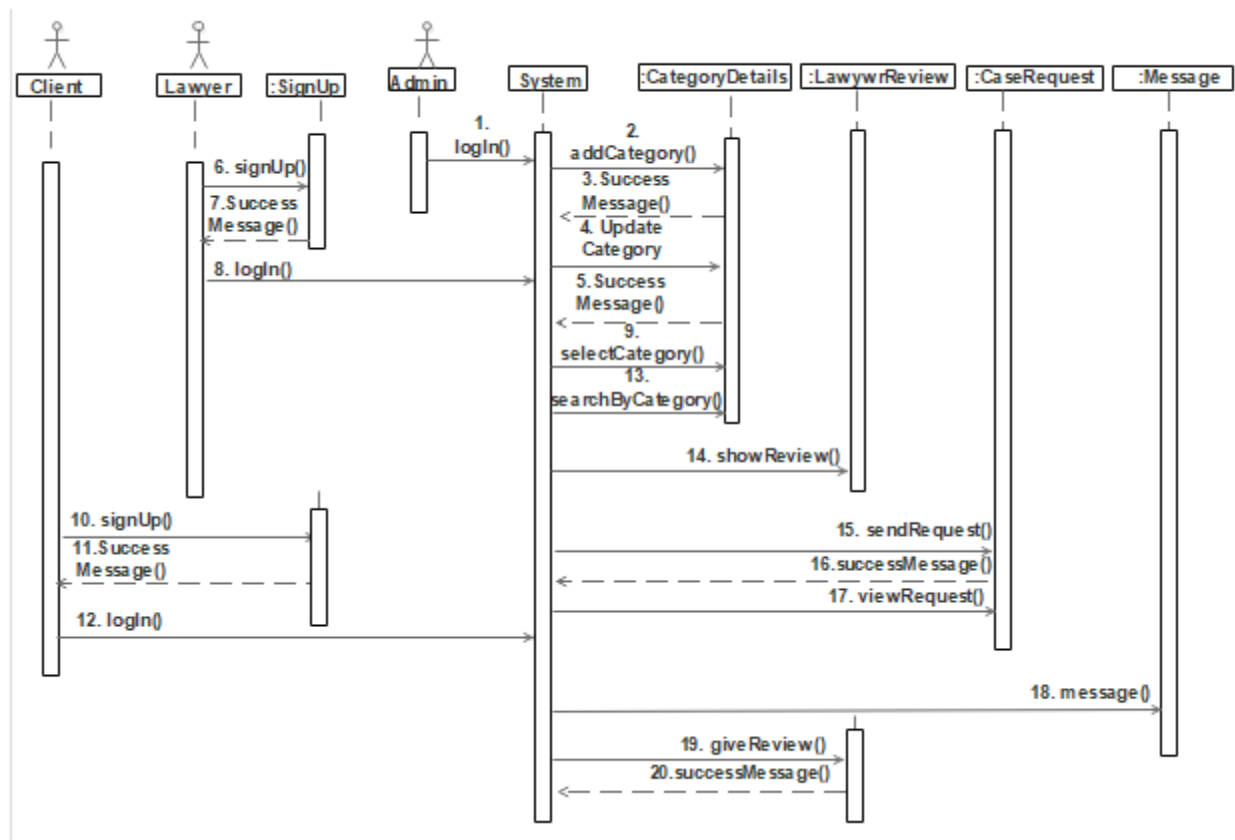


Figure 24 Sequence diagram of Case taking system

Deployment Diagram

This diagram is the representation of the system's architecture. The Deployment diagram of the project is shown below:

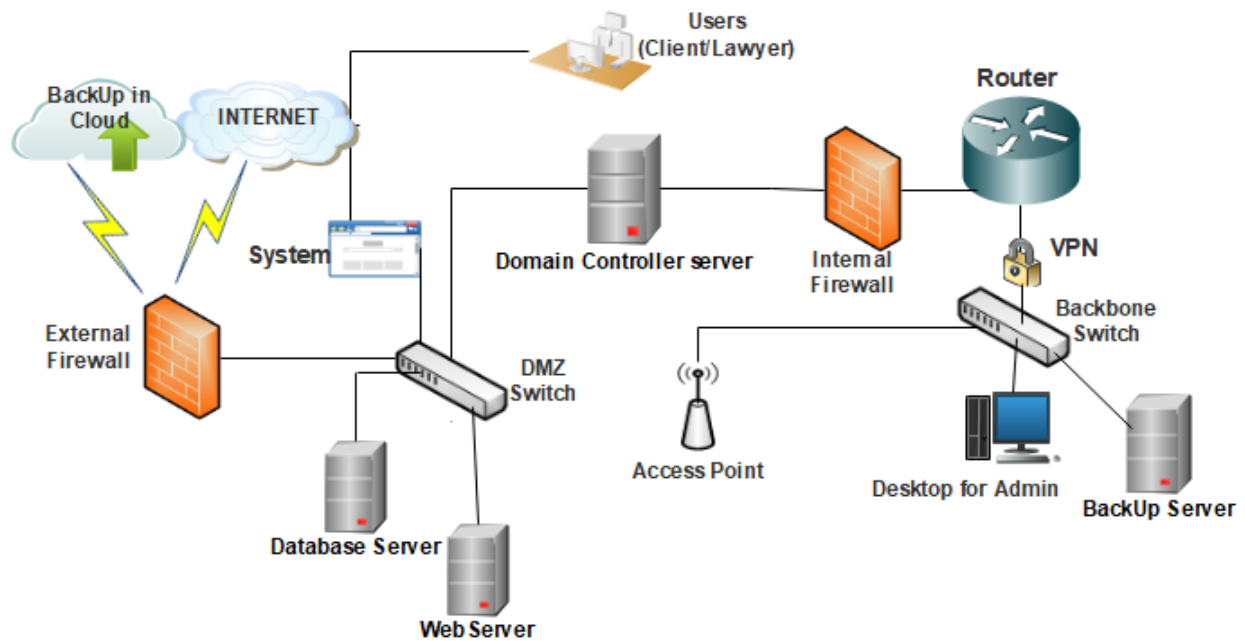


Figure 25 Deployment Diagram of Case taking system

System Interface Design / Prototype

Prototype of the system is shown below:



Figure 26 Home page of the system

*** Law for Light***

[HOME](#)[ABOUT US](#)[CONTACT](#)[SIGN UP](#)[LOGIN](#)

PLEASE, FILL UP THE FIELDS CAREFULLY. AFTER CLICKING 'SIGN UP' YOU CAN'T BE ABLE TO EDIT IT LATER.

Already have account?

[Click here](#) - [Log In](#)

User Name:

Gender: ☐ Female ☐ Male

User Type: ☐ Client ☐ Lawyer

Date Of Birth:

Mobile Number:

Email address:

Password:

Confirm Password:

Figure 27 Sign up page for Case taking system

*** Law for Light***

[HOME](#) [ABOUT US](#) [CONTACT](#) [SIGN UP](#) [LOGIN](#)

New here? Sign up first.

Email address:

Password:

*** Law for Light*** 2019

Figure 28 Log in page for case taking system

System Interface design For Admin:

*** Law for Light***

HOME ABOUT US CONTACT ADMIN-LOGOUT

[Add Category](#)
[Client Users](#)
[Lawyer Users](#)
[Edit Category](#)

Category

*** Law for Light*** 2019

Figure 29 Add Case Category page

*** Law for Light***

[HOME](#)
[ABOUT US](#)
[CONTACT](#)
[ADMIN-LOGOUT](#)
[Add Category](#)
[Client Users](#)
[Lawyer Users](#)
[Edit Category](#)

ALL CATEGORIES.

Category Id	Category		
1	Domestic Violence Case	Modify	Delete Category
2	Family Case	Modify	Delete Category
3	Property Case	Modify	Delete Category
4	Religious Case	Modify	Delete Category
5	Tax Case	Modify	Delete Category
6	Labour Case	Modify	Delete Category

*** Law for Light*** 2019

Figure 30 Edit Case Category page

*** Law for Light***

[HOME](#)
[ABOUT US](#)
[CONTACT](#)
[ADMIN-LOGOUT](#)
[Add Category](#)
[Client Users](#)
[Lawyer Users](#)
[Edit Category](#)

ALL USERS AS LAWYER.

User Id	Name	Email	Gender	Date of Birth	Mobile no	Password	
3	emon	humaon@yahoo.com	male	2019-12-11	01788943878	1	Delete

*** Law for Light*** 2019

Figure 31 Lawyer users list page



Figure 32 Client users list page

System Interface Design for Lawyer user:

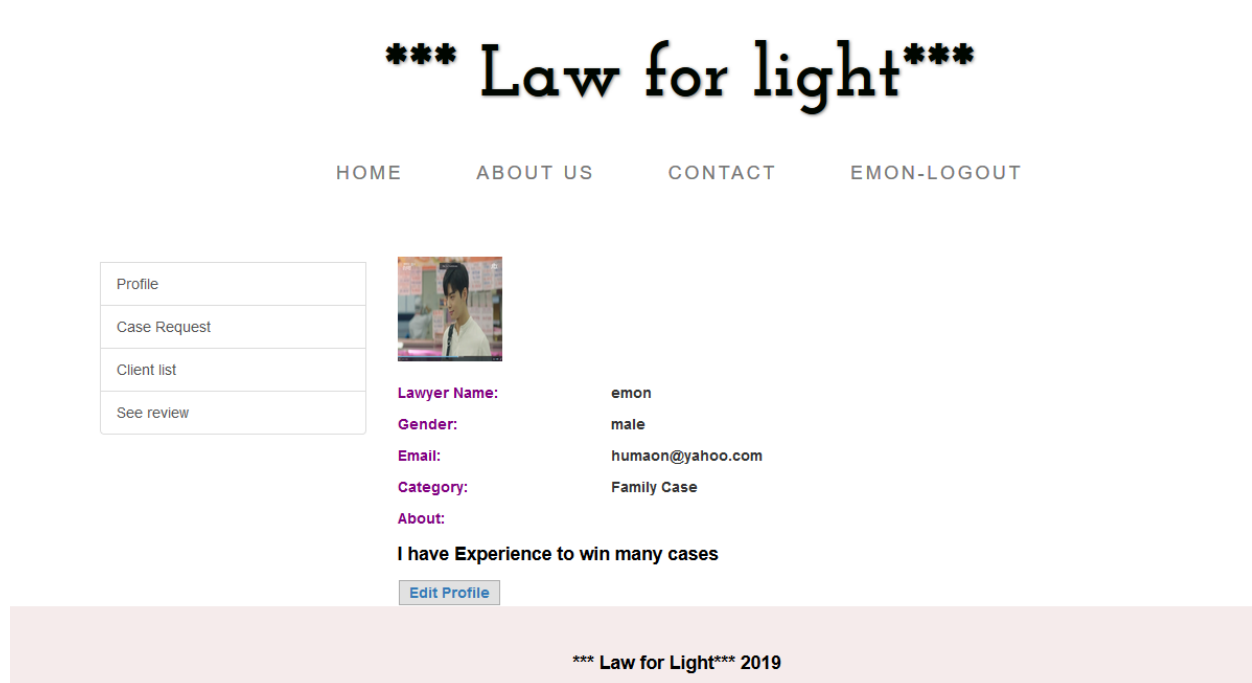


Figure 33 profile page

*** Law for light***

[HOME](#)
[ABOUT US](#)
[CONTACT](#)
[EMON-LOGOUT](#)

Profile
Case Request
Client list
See review

CASE REQUEST.

Client Name	Date	Case Details	
nusrat	2019-12-06 22:43:32	tukg	Approved
nusrat	2019-12-06 22:44:31	guyugyf	Declined

*** Law for Light*** 2019

Figure 34 Case Request Notification Page

*** Law for Light***

[HOME](#)
[ABOUT US](#)
[CONTACT](#)
[EMON-LOGOUT](#)

Profile
Case Request
Client list
See review

CLIENT LIST.

Client Name

nusrat

Send Message

*** Law for Light*** 2019

Figure 35 lawyer's Client list page

[HOME](#)[ABOUT US](#)[CONTACT](#)[EMON-LOGOUT](#)

Profile
Case Request
Client list
See review

REVIEWS

Name	Review	Date
nusrat	dwerfe	2019-12-07 19:46:43
nusrat	jsbegj kgnlirhg hturh ijyijt ihrtiyh hrthyrth uhturh rhtu irhyhtrh ihrtoyh efwt rturg uhtuh ityhlih ityi bdehj jherth hghh rghtuhg rthrt itiyirtj itjhyij kth gitgih	2019-12-07 19:46:43
nusrat	nn	2019-12-07 19:46:43
nusrat	mmm kkk kkk kkk	2019-12-07 19:46:43
nusrat	lnlkb	2019-12-07 19:46:43
nusrat	lkdbkjwe	2019-12-07 19:49:58

Figure 36 See review page for lawyer

System Interface Design for Client user:

***** Law for Light*****

HOME ABOUT US CONTACT NUSRAT-LOGOUT

Search by Category

Response Notification

Select Category that relates to your specific case

Domestic Violence Case ▾

*** Law for Light*** 2019

Figure 37 Search by Category Page

***** Law for light*****

HOME ABOUT US CONTACT NUSRAT-LOGOUT

Search by Category

Response Notification

Lawyer Name: emon

Gender: male

Email: humaon@yahoo.com

Category: Family Case

About:

I have Experience to win many cases

Send Case Request

Give review

REVIEW

nusrat :
dwerfe
2019-12-07 19:46:43

nusrat :
jsbegj kgnlirhg hturh iyyijt ihrtiyh hrthyrth uhturh rhtu irhyhtrh
ihrtoyh efwt rturg uhtuh ityhlih ityi bdehj jherth hggh rgthuhg
rthrt itiyirtj itjhyij kth gitgih
2019-12-07 19:46:43

nusrat :
nn
2019-12-07 19:46:43

nusrat :

Figure 38 Viewing lawyer information after searching

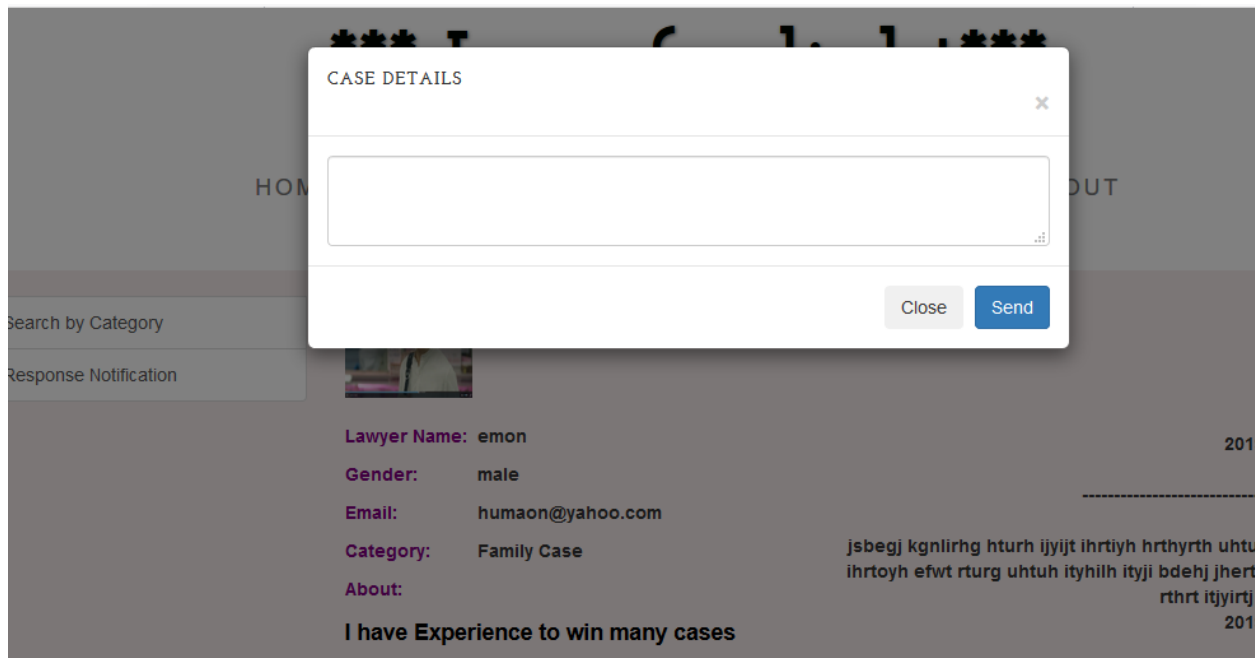


Figure 39 Sending case request



Figure 40 Case Response Notification Page

Chapter 10 – Deployment / Development

Core Module Coding Samples

Code for system Setup

```

1  <?php
2  //Including db Connection file
3  include_once '../dbConnection.php';
4
5  //Creating connection object without database name;
6  $connect = connection(FALSE);
7
8  //To drop database;
9  $queryDb = "DROP DATABASE IF EXISTS lawyer_Management_System;";
10 if ($connect->query($queryDb) === TRUE) {
11     echo "Database dropped successfully<br>";
12 } else {
13     echo "Error: " . $queryDb . "<br>" . $connect->error. "<br>";
14 }
15
16 //To create database;
17 $queryDb = "CREATE DATABASE lawyer_Management_System;";
18 if ($connect->query($queryDb) === TRUE) {
19     echo "Database created successfully<br>";
20 } else {
21     echo "Error: " . $queryDb . "<br>" . $connect->error. "<br>";
22 }
23
24 //Creating connection object with database name;
25 $connect = connection();
26
27 //code for creating categoryDetails table
28 $code = "CREATE TABLE IF NOT EXISTS `categoryDetails` (
29     `category_id` int(11) NOT NULL AUTO_INCREMENT,
30     `category` varchar(50),
31     PRIMARY KEY (`category_id`)
32 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 AUTO INCREMENT=1;";

```

```

33
34 if ($connect->query($code) === TRUE) {
35     echo "categoryDetails table created successfully<br>";
36 } else {
37     echo "Error: " . $code . "<br>" . $connect->error. "<br>";
38 }
39
40 //code for creating users table
41 $code = "CREATE TABLE IF NOT EXISTS `users` (
42     `user_id` INT(11) NOT NULL AUTO_INCREMENT,
43     `user_name` VARCHAR(50) NOT NULL,
44     `user_type` INT(11) NOT NULL COMMENT '0- Admin, 1-Client, 2-Lawyer',
45     `gender` VARCHAR(15) NOT NULL,
46     `date_of_birth` DATE NOT NULL,
47     `mobile_No` VARCHAR(30) NOT NULL,
48     `email` VARCHAR(60) NOT NULL,
49     `password` VARCHAR(15) NOT NULL,
50     `lawyer_image` varchar(255) DEFAULT NULL,
51     `category` varchar(50) DEFAULT NULL,
52     `description` varchar(255) DEFAULT NULL,
53     PRIMARY KEY (`user_id`)
54 ) ENGINE=InnoDB DEFAULT CHARSET=latin1 AUTO_INCREMENT=1;";
55
56
57
58 if ($connect->query($code) === TRUE) {
59     echo "users table created successfully<br>";
60 } else {
61     echo "Error: " . $code . "<br>" . $connect->error. "<br>";
62 }
63
64 $code = "INSERT INTO `lawyer Management System`.`users`

```

```

65     (`user_name`, `user_type`, `gender`, `date_of_birth`, `mobile_No`, `email`, `password`)
66     VALUES
67     ('Admin', '0', 'female', '19961106', '01834691633', '1000028@daffodil.ac', '111');";
68
69 if ($connect->query($code) === TRUE) {
70     echo "user admin created successfully<br>
71     email: 1000028@daffodil.ac<br>password:111<br>";
72 } else {
73     echo "Error: " . $code . "<br>" . $connect->error. "<br>";
74 }
75
76 //code for creating caseRequest table
77 $code = "CREATE TABLE `lawyer_management_system`.`caseRequest` (
78     `request_id` INT( 11 ) NOT NULL AUTO_INCREMENT PRIMARY KEY,
79     `user_id` INT( 11 ) NOT NULL ,
80     `lawyear_id` INT( 11 ) NOT NULL ,
81     `date_time` TIMESTAMP NOT NULL ,
82     `caseDetails` TEXT NOT NULL ,
83     `is_approve` INT NOT NULL COMMENT '0- pending, 1-approve, 2-decline',
84     `is_seen` INT NOT NULL
85 )ENGINE=InnoDB DEFAULT CHARSET=latin1 AUTO_INCREMENT=1;";
86
87 if ($connect->query($code) === TRUE) {
88     echo "caseRequest table created successfully<br>";
89 } else {
90     echo "Error: " . $code . "<br>" . $connect->error. "<br>";
91 }
92
93 //code for creating message table
94 $code = "CREATE TABLE `lawyer_management_system`.`message` (
95     `message_id` INT( 11 ) NOT NULL AUTO_INCREMENT PRIMARY KEY ,
96     `receiver id` INT( 11 ) NOT NULL ,

```

```

97 `sender_id` INT( 11 ) NOT NULL ,
98 `message` TEXT NOT NULL ,
99 `date_time` TIMESTAMP NOT NULL ,
100 `is_read` INT NULL
101 )ENGINE=InnoDB DEFAULT CHARSET=latin1 AUTO_INCREMENT=1;";
102
103 if ($connect->query($code) === TRUE) {
104     echo "Message table created successfully<br>";
105 } else {
106     echo "Error: " . $code . "<br>" . $connect->error. "<br>";
107 }
108 ?>

```

Figure 41 System setup.

Add Case Category coding

```

26
27
28 <div class="form-group">
29     <label for="category">Category</label>
30     <input type="text" class="form-control" name="category" id="category" required />
31 </div>
32
33     <button type="add" class="btn btn-default">Add</button>
34 </form>
35 </div>
36 <div class="col-md-4">
37 </div>
38 </div>
39
40 </div>
41
42 <?php
43     //insert category
44 if($_POST){
45     $category = (isset($_POST['category']) && $_POST['category'] != '')? $_POST['category'] : false;
46
47
48     if(isset($_SESSION['role'])&& $_SESSION['role'] == 0){
49         $code = "INSERT INTO categorydetails(category)
50             VALUES ('$category')";
51     }
52     include_once 'dbConnection.php';
53     $connect = connection();
54
55
56
57     if ($connect->query($code) === TRUE) { ?>

```

```

57         if ($connect->query($code) === TRUE) { ?>
58             <script>
59                 alert('Category has been added succesfully.');
```

Figure 42 Code for Adding case category

Code Sample to view case request

```

32         <?php
33         $user_id= $_SESSION['user_id'];
34         // Get all user data from database to show
35         $code = "SELECT * FROM caserequest INNER JOIN users on users.user_id=caserequest.us
36         where `lawyear_id` ='$user_id'";
37
38
39         include_once 'dbConnection.php';
40         $connect = connection();
41         $result = $connect->query($code);
42
43
44         if(isset($_GET['approve_id'])){
45             $approve_id=$_GET['approve_id'];
46             $code = "UPDATE caseRequest SET is_approve='1' where request_id=$approve_id";
47             $result = $connect->query($code);
48
49
50             echo "<script>
51             location.replace('caseRequest.php');
52             </script>";
53         }
54         if(isset($_GET['decline_id'])){
55             $decline_id=$_GET['decline_id'];
56             $code = "UPDATE caseRequest SET is_approve='2' where request_id=$decline_id";
57             $result = $connect->query($code);
58
59
60
61
62
```


Code for Search Lawyer by Case category

```

include_once 'dbConnection.php';
$connect = connection();
$code = "select category from categorydetails";
$result = $connect->query($code);
while($row=mysqli_fetch_array($result,MYSQLI_ASSOC)){ ?>
    <option <?php if($category==$row['category']){ echo 'selected';} ?>
        value="<?php echo $row['category']; ?>"> <?php echo $row['category'];
        ?></option>";
    <?php }
    ?>

</select>

</form>
</div>

<br/> <?php
// search lawyer by category
if(isset($_GET['category'])) {
$category=$_GET['category'];
include_once 'dbConnection.php';
    $connect = connection();
    $code = "Select user_id, user_name, lawyer_image from users
    where category='$category'";

    $result = $connect->query($code);
if($result->num_rows>0){

```

Figure 44 search by case category

Code Sample Messaging

```

<?php
// Messaging
include_once 'dbConnection.php';
$connect = connection();

if(isset($_GET['receiver_id']))
{
    $receiver_id=$_GET['receiver_id'];
    $sender_id=$_SESSION['user_id'];
    if(isset($_POST['sent_message']))
    {
        $message=$_POST['message'];

        $code = "INSERT INTO message(receiver_id, sender_id, message)
VALUES ('$receiver_id', '$sender_id', '$message')";
        $connect->query($code);
    }

    $code="SELECT * FROM `message` where (receiver_id='$receiver_id' a
nd sender_id='$sender_id')
or (sender_id='$receiver_id' and receiver_id='$sender_id')
order by message_id desc";
    $cc="SELECT * From users";
    $results = $connect->query($cc);
    while($rows=mysqli_fetch_assoc($results)){
        $user_n[$rows['user_id']]=$rows['user_name'];
    }

    $result = $connect->query($code);
    while($row=mysqli_fetch_assoc($result)){
        ?>
    }

    <?php echo "<div style='color:red' name='". $row['sender_id']."'>". $user_n[$row['ser
    <?php echo "<div ' name='". $row['date_time']."'>". $row['date_time']."'>"; ?>
    <?php echo "<div ' name='". $row['message']."'>". $row['message']."'>"; ?>

    </br> <?php echo "-----";
}

?>
<form method='post'>

    <textarea name="message"></textarea>
    <input type = 'submit' name='sent_message' value='send'/>
</form>
<?php
}
?>

```

Figure 46 Messaging Code

Possible problem break down

While developing the system there could have been some problem. To overcome those problems the whole process of the system development has been break down into small chunk, these are listed as following:

Database designing

- Creating Database for Case Taking Management System.
- Creating required table
- Choosing the suitable attributes for the system.
- Creating relationship between tables.
- Establishing database connection with the website through PHP code.

Designing System Interface

- Using bootstrap.
- Linking with different pages.
- Using suitable colors.

LogIn process according to different user roles

- Designing log in form.
- Characterizing users.
- Use of conditions to allow role based log in.

Management for Admin

- Can Manipulate Client and lawyer list.
- Can Manipulate Case category.
- Designing Case category form to add case category by Admin.
- SQL Syntax to add, retrieve update and delete case category.

Search management

- Designing search form by name or case category.
- Retrieve case category.
- Use drop down box for case category.

- SQL syntax to retrieve information base on input.

Send Case Request process by client

- Set condition to access by client.
- Create case request button
- Creating case request form.
- SQL syntax to add information to database.

Checking Case request Notification by Lawyer

- Set condition to access by lawyer.
- Designing case request page.
- SQL syntax to retrieve information.
- Creating accept and decline button.

Case Response Notification Management

- Set condition to access by Client.
- Designing case response page.
- SQL syntax to retrieve information from database.

Messaging Management

- Designing page
- SQL syntax to add and retrieve information to/ from database.

Review

- Designing review page
- Designing review form
- Allow client to give review to specific lawyer
- SQL to relate with database for adding and retrieve information.

Prioritization while developing

With prioritization the most important things are focused and developed first and less important things are kept for later after the development of the core tasks. The following tasks are listed as prioritization:

- Database designing
- Designing System Interface
- Login process according to different user roles
- Management for Admin
- Search management
- Send Case Request process by client
- Checking Case request Notification by Lawyer
- Case Response Notification Management
- Messaging Management
- Review

Chapter 11 – Testing

Test Plan Acceptance

Here the test plan about what test will be accepted and how that would be done to be accepted will be listed as a plan, the test plan acceptance is shown below:

Test plan for Unit Testing

- Testing Sign up process with correct data.
- Testing Add category by admin.

Test plan for Integration Testing

- Testing of sending Case request by client to lawyer.
- Testing Case category editing process by admin.

Test Plan for Module Testing

- Testing sign up process with unmatched password.
- Testing sign up process by giving existing email.

Test plan for Acceptance Testing

- Testing for search lawyer by category.
- Testing for lawyer profile update.

Test Plan for Security Testing

- Testing for viewing lawyer profile without log in.
- Testing Log in process by inputting wrong data.

Test Plan for Security Testing

- Testing by user.

Unit Testing

Testing for Sign up

Unit Test Case No	1	
Test Class	Sign up	
Data Source	User Data Entry	
Test Description	Testing of the function of Sign up.	
Test Steps	Expected Result	Actual Result
Input User Data: User Name: Israt Trina Gender: Female User type: Client Date Of Birth: 7/11/1995 Mobile Number: 01834691633 Email Address: israt_trina@yahoo.com Password: 13245 Confirm Password: 13245	Success pop-up message saying successful signup will be shown by clicking Sign Up button.	Success Pop-up message showed.

PLEASE, FILL UP THE FIELDS CAREFULLY. AFTER CLICKING 'SIGN UP' YOU CAN'T BE ABLE TO EDIT IT LATER.

Already have account?
[Click here](#) - [Log In](#)

User Name:

Gender: ☒ Female ☐ Male

User Type: ☒ Client ☐ Lawyer

Date Of Birth:

Mobile Number:

Email address:

Password:

Confirm Password:

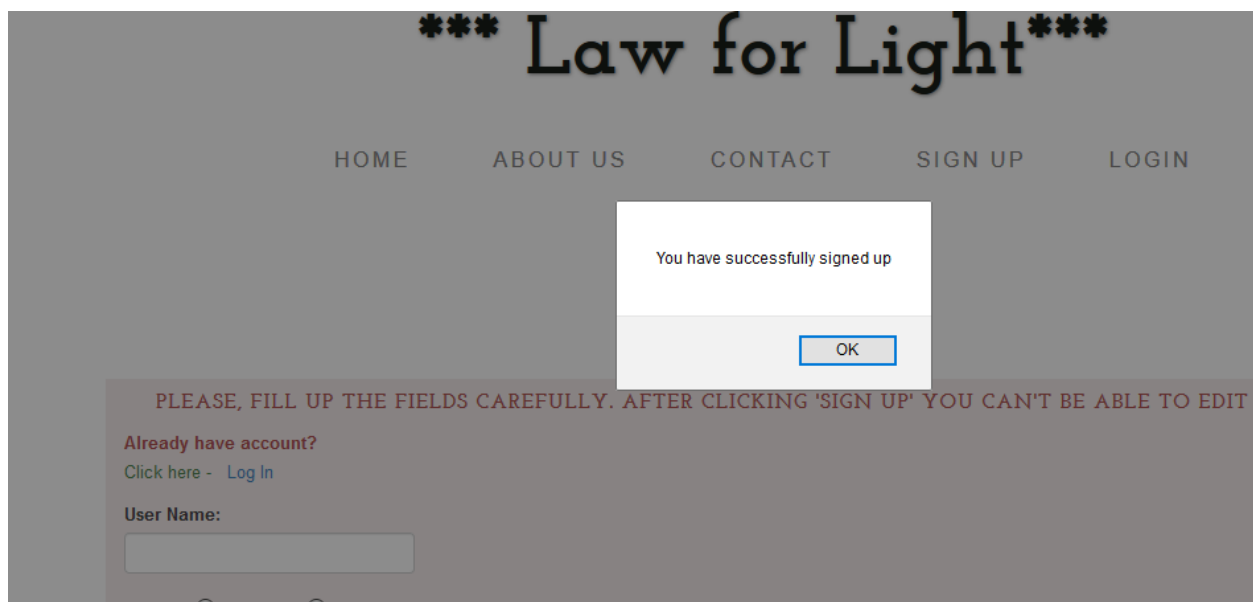
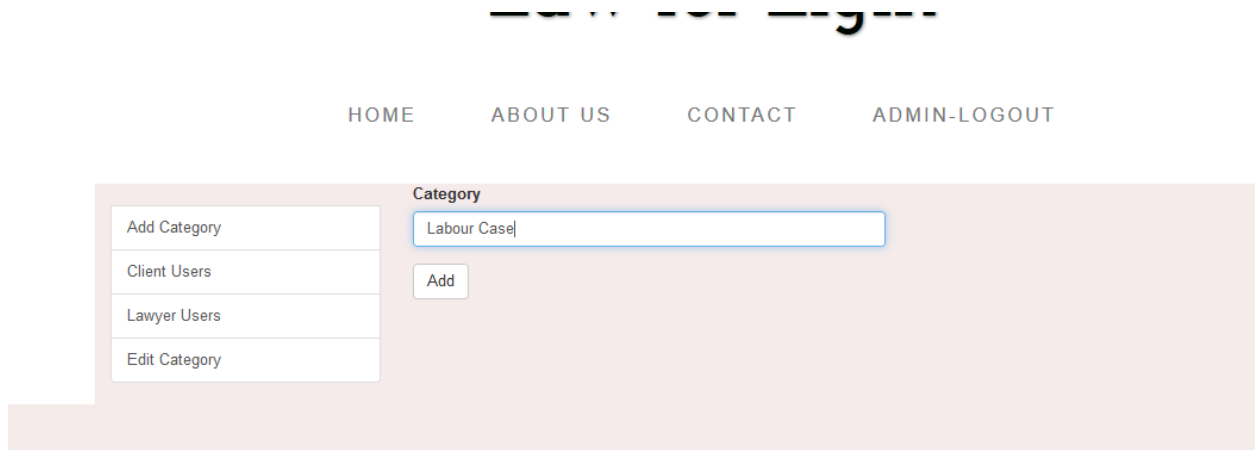


Figure 47 Testing to sign up

Unit Test Case No	2
Test Class	Add Category

Data Source	Admin Data Entry	
Test Description	Testing of the function of Adding Category.	
Test Steps	Expected Result	Actual Result
Input Data: Case category: Labour Case	Success pop-up message saying successful 'category added successfully' after clicking add button	Success Pop-up message showed after input and clicking add button.



Category

Labour Case

Add

HOME ABOUT US CONTACT ADMIN-LOGOUT

Add Category

Client Users

Lawyer Users

Edit Category

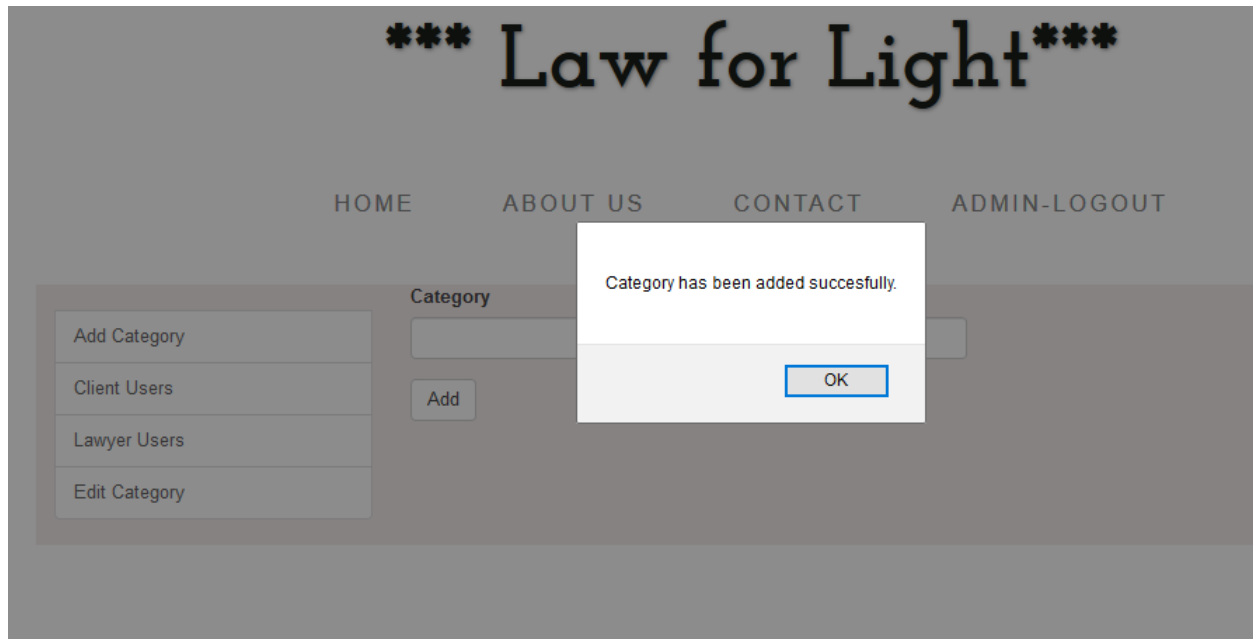


Figure 48 Unit Testing for Adding Case Category

Integration Testing

Integration Test Case No	1	
Test Class	Case request	
Data Source	Client Entry	
Test Description	Testing of the function of send case request.	
Test Steps	Expected Result	Actual Result
Input Data:	Success pop-up	Success Pop-up
Case Details: I am a divorcee mom with two children. I want my child to	message will be shown after clicking send button and the case	message showed and the request is found in case request page.

be with me. So, I want to get full custody of my kids, Can you help me?	request will be Found in case request page of lawyer account.	
---	---	--

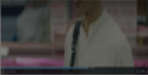
CASE DETAILS

I am a divorcee mom with two children. I want my child to be with me. So, I want to get full custody of my kids, Can you help me?

Close Send

Search by Category

Response Notification



Lawyer

Name: emon

Gender: male

Email: humaon@yahoo.com

Category: Family Case

About:

I have Experience to win many cases

Send Case Request Give review

jsbegj kgnlirhg hturh ijyijt i

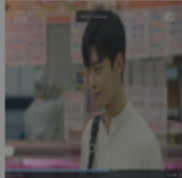
ihrtoyh efwt rturg uhtuh ityh

*** Law for light

HOME ABOUT US CONTACT N

Request has sent succesfully.

OK



Lawyer
Name: emon
Gender: male
Email: humaon@yahoo.com
Category: Family Case
About:

I have Experience to win many cases

[Send Case Request](#) [Give review](#)

jsbegj
ihrtoyh

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[Profile](#)
[Case Request \(1\)](#)
[Client list](#)
[See review](#)

Welcome

--- WE TRY OUR BEST FOR PROVIDING A BEST SERVICE TO YOU

By **Nusrat**

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[Case Request \(1\)](#)
[Client list](#)
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CASE REQUEST.

Client Name	Date	Case Details	
nusrat	2019-12-06 22:43:32	tukg	Approved
nusrat	2019-12-06 22:44:31	guyugyf	Declined
nusrat	2019-12-16 12:58:30	I am a divorcee mom with two children. I want my child to be with me. So, I want to get full custody of my kids, Can you help me?	Confirm Decline

Figure 49 Integration testing of case request.

Integration Test Case No	2	
Test Class	Edit Category	
Data Source	Admin Entry	
Test Description	Testing of the function of Edit Category	
Test Steps	Expected Result	Actual Result
Clicked on “Modify” action there Current Category Name: Domestic Violence Case clicked on “Edit” button	Edited Category name will be shown on ‘Edit Category’ page.	Edited Category name has shown on ‘Edit Category’ page.

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Add Category Client Users Lawyer Users Edit Category	ALL CATEGORIES.			
	Category Id	Category		
	1	domstc Viotlance Casw	Modify	Delete Category
	2	Family Case	Modify	Delete Category
	3	Property Case	Modify	Delete Category
	4	Religious Case	Modify	Delete Category
	5	Tax Case	Modify	Delete Category
	6	Labour Case	Modify	Delete Category
*** Law for Light*** 2019				

Figure 50 before edit

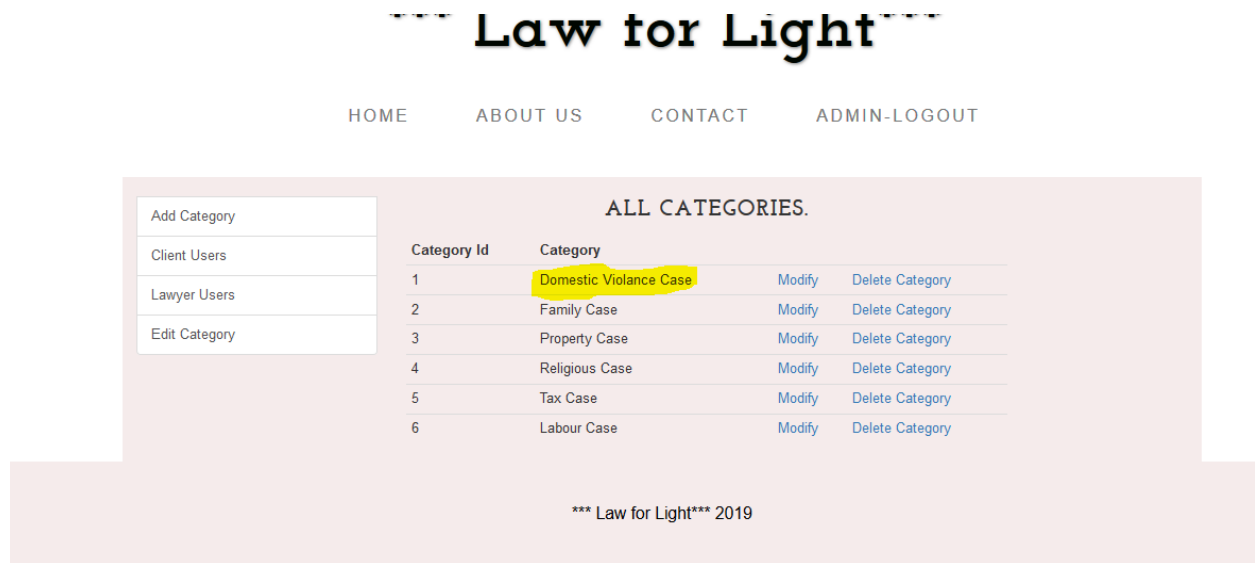


Figure 51 After edit.

Module Testing

Module Test Case No	1	
Test Class	Signup	
Data Source	User Entry	
Test Description	Giving Different password	
Test Steps	Expected Result	Actual Result
Input two different password on password field and confirm password field	Sign up will not be completed.	Sign up is not successful.

PLEASE, FILL UP THE FIELDS CAREFULLY. AFTER CLICKING 'SIGN UP' YOU CAN'T BE ABLE TO EDIT IT

Already have account?
Click here - [Log In](#)

User Name:

Gender: ☒ Female ☐ Male

User Type: ☒ Client ☐ Lawyer

Date Of Birth:

Mobile Number:

Email address:

Password:

Confirm Password:

Your given password is not matched

Figure 52 Module testing with wrong data.

Module Test Case No	2	
Test Class	Sign up form	
Data Source	User Entry	
Test Description	Sign up test with existing email data	
Test Steps	Expected Result	Actual Result
Input existing email on email field	Sign up will not be completed.	Sign up has not been completed.

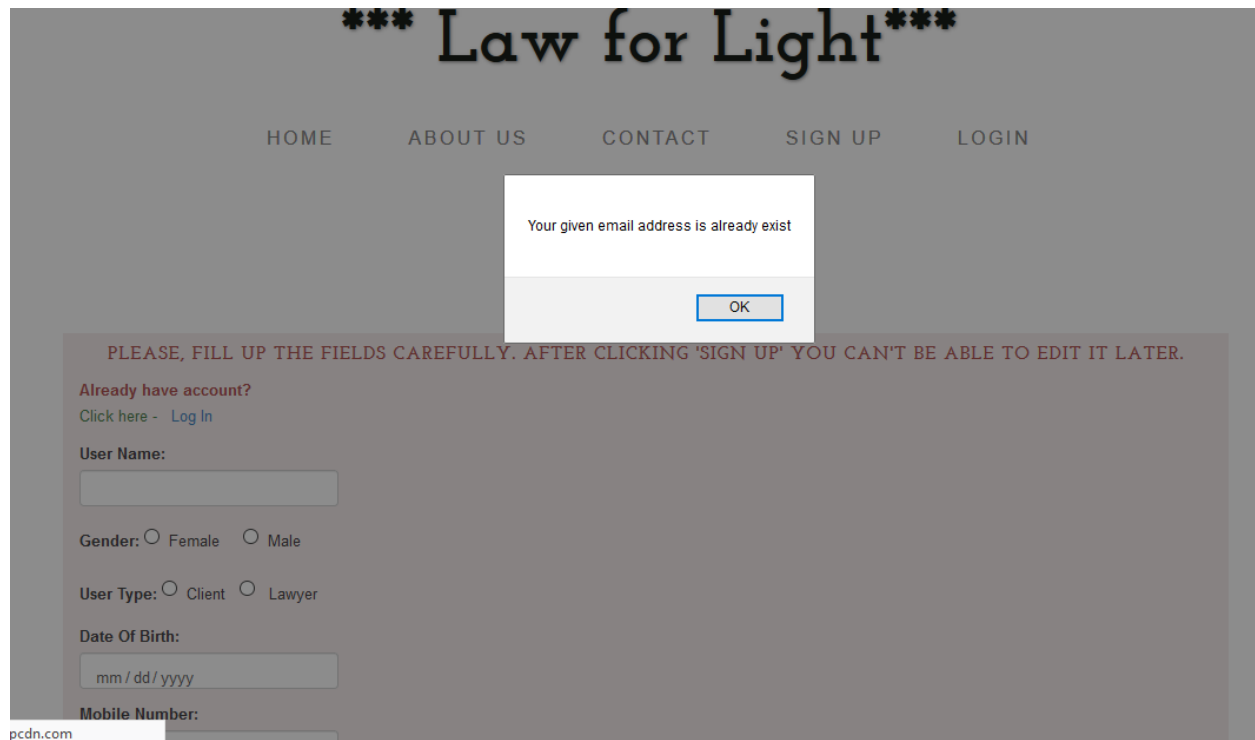


Figure 53 showing error while attempt to sign up with existing email.

Acceptance Testing

Acceptance Test Case No	1	
Test Class	Case Category	
Data Source	Client	
Test Description	Testing search function under category	
Test Steps	Expected Result	Actual Result
Select Case category	Lawyers under the selected case category will be shown	The output is as expected.

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Search by Category

Response Notification

Select Category that relates to your specific case

Family Case ▼



emon

*** Law for Light*** 2010

Figure 54 testing for searching

Acceptance Test Case No	2	
Test Class	Update profile	
Data Source	Lawyer	
Test Description	Testing profile update function.	
Test Steps	Expected Result	Actual Result
Give required profile information and clicked on update button	Updated information will be shown on lawyer profile.	The profile is updated as expected.

*** Law for light***

[HOME](#)[ABOUT US](#)[CONTACT](#)[SHIMON CHOWDHURY-LOGOUT](#)[Profile](#)[Case Request](#)[Client list](#)[See review](#)**Lawyer Name:**

shimon chowdhury

Gender:

male

Email:

shimon@gmail.com

Category:**About:**[Edit Profile](#)

*** Law for Light*** 2019

Figure 55 before update

*** Law for light***

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[SHIMON CHOWDHURY-LOGOUT](#)

Profile
Case Request
Client list
See review



Lawyer Name: shimon chowdhury
Gender: male
Email: shimon@gmail.com
Category: Property Case
About:
I have Experience to win many cases.
And doing cases on property for years.

[Edit Profile](#)

*** Law for Light*** 2019

Figure 56 After updation.

Security Testing

Security Test Case No	1	
Test Class	Search	
Data Source	Client Entry	
Test Description	Attempt to view lawyer profile without log in	
Test Steps	Expected Result	Actual Result
Client type lawyer name on search fiend and click on the lawyer to view lawyer profile information	The system will drive the client to log in page	As expected.

with out login.

*** Law for Light***

SEARCH RESULTS FOR *SHIMON*



shimon
chowdhury

*** Law for Light*** 2019

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[SIGN UP](#)
[LOGIN](#)

New here? Sign up first.

Email address:

Password:

Figure 57 after clicking on lawyer.

Security Test Case No	2	
Test Class	Log in checker	
Data Source	User Entry	
Test Description	Log in test with wrong data	
Test Steps	Expected Result	Actual Result
User trying to access with wrong data.	Log in will be unsuccessful with warning message.	Log in is unsuccessful with warning message as expected.

How to Login

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[SIGN UP](#)

New here? Sign up first.

Email address:

Password:

Your given email
or password is
wrong

Figure 58 testing to log in with wrong data

Usability testing

Usability Test Case No	1	
Test Class	User	
Data Source	User	
Test Description	Test by user	
Test Steps	Expected Result	Actual Result
Using the whole system	User will be able to user the whole system without facing any difficulties.	The result is as expected result.

Chapter 12 – Implementation

Training

To make the users familiar with the system the following listed training can be used:

Sector of training	User type	Description
Search Lawyer	Clients	Get idea of searching lawyers on the system.
Send Case Request	Clients	Get to know the procedure of sending case request.
Checking Case response	Clients	Get to know whether the case request has accepted or declined by lawyer.
Sending Message	Lawyer/client	Get to know how to send message.
Checking Case request	Lawyer	Get to know how to check case request from client and about declining or

		accepting the case.
--	--	---------------------

Big Bang (implementation scheme)

It refers to the implementation scheme that involves getting rid of the existing system and transferring all users to the new system simultaneously. Big bang could be the only viable method if the two systems are incompatible. This scheme is faster than any other scheme. It can avoid issues that can arise when users are working with different software or hardware. It is the least expensive method. But it can be hard as users have to learn the new system immediately. It also involves a lot of risk as problems that could occur during implementation can be unpredictable, plentiful and serious, additionally fallback systems may be inadequate to deal with them.

Scaling

No. there is no plan for scaling the system since this is an academic project I have decided to take no scaling.

Load Balancing

It is about balancing the system against the user access hit to the system. To be more specifically measuring how many users are currently using the system at a time and how much the system is capable to endure. To ensure the faster performance of the system the load between different servers is divided into servers.

Chapter 13 – Critical Appraisal and Evaluation

Objective that could be met

The objective of this project is provided below:

- Create a web based system so that rather than going to court manually client users can easily search and select expert lawyer under case category and take appointment for their case through online.
- Access to the system will be controlled by log in option and to make the log in successful one time verification code will be sent to user email for verification after creating an account on the system.
- There is no time limit or no need to maintain specific office time for contacting or finding lawyer as the system will be online based it is usable anytime from anywhere.
- Database will be created and maintained that will store the information about all types of users, case category and their messages and case details. From database the information will be retrieved to the webpages.

Success rate against each objective

Objective 1

In the system the logged in clients can search lawyers by name or case category and can view lawyers profile and send case request to their chosen lawyers. After the acceptance of the case clients can communicate with their lawyer for further appointment. So, the success rate of objective 1 has fully accomplished.

Objective 2

After the sign up process users can be able to log in to the system. One cannot access the whole system without sign up or log in process or by giving wrong password or email while log in. So, the success rate of objective 2 has partially accomplished.

Objective 3

The system is accessible 24*7 from anywhere anytime. With the connection of Internet from any device and from any browser users can access the system. So, the success rate of objective 3 has wholly accomplished.

Objective 4

All the information of the system is successfully stored in and retrieve from the system's database. The system is capable to send information to the database and also show information to the system by retrieving them from system's database. So, the success rate of objective 4 has successfully accomplished.

How much better could have been done

It could have been much better if verification code could be sent to email for verification after creating an account on the system. So, the chances of using wrong email can be reduced and verified users can only access the system.

Why it could not be done

As the time that is fixed for this project is so much tight and as well as I don't know what code to use for automatic 'verifying code generation'. To learn this new thing will require much more time that's why this thing is not done to the system.

Objectives totally not met / touched

Overall all the objectives have been touched but one thing that has not totally touched is allowing voice call between clients and lawyers through system.

Why it could not be touched

I don't have any idea about this part and moreover to learn this thing will require time which is very difficult with in the limited time. There is a chance that the project could be delayed.

What could have been done

In order to touch this feature the time limit for the project should be extend as I have to learn first and then apply it later. So many obstacles can occur while trying to touching this feature.

Chapter 14 – Lessons Learned

Pre project – review – closing

In pre-project I have organized the project idea, gathered initial requirements, possible problems and identified the solutions for the project will be. The project is mainly to cover the works that includes in finding lawyer till case acceptance by the lawyer. And then the system has been developed as it was said and every process has been documented carefully.

What have I learned

The first thing that I have learned while doing this project is choosing an appropriate methodology for the project. While doing this project I searched different methodology to know the suitable one for it which helps me to establish a clear concept about methodologies with project type. Additionally I learned some new diagram and as well as many things from code section.

What problem I have faced

- The most difficult and complex problem that I have faced while coding, to make the system run able for the purpose.
- Selecting the suitable methodology for the project.
- Faced difficulties with the time duration as the given time for the completion of the project is limited.

What solutions occurred

- Spend some extra time on Coding part, and take helps from Internet.
- Did research on methodology and then find out the suitable one for the project.

- DSDM time box maintain to complete project within fixed time strictly.

Chapter 15 – Conclusion

Summary of the project

After doing market research analysis of the proposed project based on feasibility factors I have found out that comparing to the investment cost with its market demand the client and lawyer will be highly benefitted from this system as it will provide both of them high quality support by saving time and hassle of client till the case is being accepted by lawyers.

Goal of the project

The goals of the project are give below:

- Reduce Client's complexity and time of finding lawyer for the specific case
- Control access by validate and verified users.
- Ensuring 24*7 accessible on system.
- Store information about users' of all type to avoid data losing.

Success of the project

I think the actual purpose of the project has met successfully. The reason why I have gained this idea for which I have take this project forward was to provide a platform to the general people who are in badly need for lawyer can find them through online, and my project is able to do this job properly. So, it can be said that the project is a total success for its goal.

What I have done in the documentation

In the documentation I have done the things that have been asked in the content. I provide the prototype of the proposed system, chose methodology and give justification against it; provide short overview and justification for the proposed project, identified problems areas and its solutions, Showed different diagrams of the proposed system and old system to clear the concept of the project, gather information about market value on the project, requirements catalogue and also prioritized those requirements according to MoSCoW prioritization, tested the proposed system and documented it as well.

Value of the project

Comparing with the digitalization people are becoming dependent on technology more and more. If there is something which works can be done easily with technology more than usual people use to embrace that technique. This project can able to add value to the people of the country as general people can find lawyer through online at anytime locating from anywhere without have to go to court till the acceptance of the case and lawyer can find more client through online which can facilitate their earning source.

My experience

At the very beginning, this project was not a cup of tea for me, I had faced some obstacles while doing the code part and organizing my idea for this project I faced little difficulties. While doing the implementation part I faced some error then I take help from Internet to solve those problems and able to gain some new knowledge that I did not have before.

Appendices

Unit Testing

Test Class	Sign up	
Data Source	User Data Entry	
Test Description	Testing of the function of Sign up.	
Test Steps	Expected Result	Actual Result
Input User Data: User Name: Israt Trina Gender: Female User type: Client Date Of Birth: 7/11/1995 Mobile Number: 01834691633 Email Address: israt_trina@yahoo.com Password: 13245 Confirm Password: 13245	Success pop-up message saying successful signup will be shown by clicking Sign Up button.	Success Pop-up message showed.

Unit Test

Test Class	Add Category	
Data Source	Admin Data Entry	
Test Description	Testing of the function of Adding Category.	
Test Steps	Expected Result	Actual Result
Input Data: Case category: Labour Case	Success pop-up message saying successful 'category added successfully' after clicking add button	Success Pop-up message showed after input and clicking add button.

Integration Testing

Test Class	Case request	
Data Source	Client Entry	
Test Description	Testing of the function of send case request.	
Test Steps	Expected Result	Actual Result
Input Data: Case Details: I am a divorcee mom with two children. I want my child to	Success pop-up message will be shown after clicking send button and the case	Success Pop-up message showed and the request is found in case request page.

be with me. So, I want to get full custody of my kids, Can you help me?	request will be Found in case request page of lawyer account.	
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Integration Test

Test Class	Edit Category	
Data Source	Admin Entry	
Test Description	Testing of the function of Edit Category	
Test Steps	Expected Result	Actual Result
Clicked on “Modify” action there Current Category Name: Domestic Violence Case clicked on “Edit” button	Edited Category name will be shown on ‘Edit Category’ page.	Edited Category name has shown on ‘Edit Category’ page.

Module Testing

Test Class	Signup	
Data Source	User Entry	
Test Description	Giving Different password	
Test Steps	Expected Result	Actual Result
Input two different password on password field and confirm password field	Sign up will not be completed.	Sign up is not successful.

Module Test

Test Class	Sign up form	
Data Source	User Entry	
Test Description	Sign up test with existing email data	
Test Steps	Expected Result	Actual Result
Input existing email on email field	Sign up will not be completed.	Sign up has not been completed.

Acceptance Testing

Test Class	Case Category	
Data Source	Client	
Test Description	Testing search function under category	
Test Steps	Expected Result	Actual Result
Select Case category	Lawyers under the selected case category will be shown	The output is as expected.

Acceptance Test

Test Class	Update profile	
Data Source	Lawyer	
Test Description	Testing profile update function.	
Test Steps	Expected Result	Actual Result
Give required profile information and clicked on update button	Updated information will be shown on lawyer profile.	The profile is updated as expected.

Security Testing

Test Class	Search	
Data Source	Client Entry	
Test Description	Attempt to view lawyer profile without log in	
Test Steps	Expected Result	Actual Result
Client type lawyer name on search fiend and click on the lawyer to view lawyer profile information with out login.	The system will drive the client to log in page	As expected.

Security Test

Test Class	Log in checker	
Data Source	User Entry	
Test Description	Log in test with wrong data	
Test Steps	Expected Result	Actual Result
User trying to access with wrong data.	Log in will be unsuccessful with warning message.	Log in is unsuccessful with warning message as expected.

Usability testing

Test Class	User	
Data Source	User	
Test Description	Test by user	
Test Steps	Expected Result	Actual Result
Using the whole system	User will be able to user the whole system without facing any difficulties.	The result is as expected result.

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Plagiarism Report

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