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Towards an Online Legal Service Platform: An Approach for Establishing Client-Lawyer Interaction in Bangladesh

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ABSTRACTS

Bangladesh is still lagging behind many countries in adopting legal technology to reinforce the judicial system's quality because multiple factors affect the quality of legal service provisioning. One of the main factors is the improper interaction between lawyers and clients on various legal issues. Consequently, clients face difficulties finding appropriate lawyers, estimating the duration and expenses of the case, and sometimes losing money due to excessive legal charges. This paper presents an operational web framework that links lawyers and clients in the context of Bangladesh's legal services system. The framework comprises several modules with a variety of functionalities, such as creating portfolios of lawyers, filtering and hiring preferred lawyers, getting free legal support, estimating time and amount of legal costs, evaluating the lawyers, and the facility of making a complaint about the inappropriate quality of services. However, most of the functionalities of all modules have been experimented with as a prototype through a web application. The results show the usability and applicability of the framework that establishes a client-lawyer relationship paradigm to improve the quality of the legal services system of Bangladesh.

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1. INTRODUCTION

The rapid advancement of technology (e.g., Big Data, Cloud Computing, and IoT) and ubiquitous internet access have transformed the world into a new dimension (Qin *et al*., 2020). Almost all organizations and companies are now moving towards solving problems with technology. So, this trend improves the quality of the service system and resolves the difficulties within the expected time-bound. The inclusion of legal technology (i.e., software usage, intelligent devices, data analytics) improves the legal services system through case management, document storage, accounting and billing, and so on (Li *et al*., 2019). However, proper legal support and services are still one of the major problems in many countries, especially in Bangladesh, where a large number of pending cases (approx. 3.2 million backlogs of cases) delay the rate of case adjudication process (Islam, 2011; Hossain, 2021). An important reason for such a backlog of cases is that most people do not know how to find appropriate lawyers and do not have a regular lawyer. Thus, finding the right lawyers for clients, mainly the poor and helpless, is usually a challenging task (Akter, 2017). Moreover, it is often observed that helpless peoples obtain fraudulent services from particular law firms in some instances. As a result, they start to lose money and waste valuable time.

An important reason for the backlog of cases in the judicial system of 20 Bangladesh is that the young and less experienced lawyers, who are capable enough to handle cases, do not find a helpful platform to present their professional competence. Consequently, they face difficulties in finding and interacting with potential clients. It is, however, the issues that are trying to address in this research can be characterized together as —a) delay of case adjudication procedures; b) lengthy case handling structure; c) the number of pending cases; d) filtering appropriate lawyers; e) communication between lawyers and clients; f) changing or influencing the outcome of the case unlawful in exchange for money by the lawyers; g) unpredictability about the complexity of the legal cases by the law firms and government. Furthermore, these issues deteriorate the quality of the legal service systems in Bangladesh to some extent (Akter, 2017; Neukom, 2009).

The adoption of artificial intelligence and legal technology can be possible to reduce the complexity of legal services and to handle cases (Lin, 2019). For instance, many law firms are now providing legal support on online web platforms. They are also making web portals for lawful information retrieval. In addition, some firms are providing free advice and attracting clients to online legal procedures. So, trust and security are the concern of these systems because of clients' fraud and falsification claims against lawyers. However, the online legal services strategy in Bangladesh is still new and inadequate.

In this paper, we emphasize making a framework that creates a communication platform between clients and lawyers to improve the quality of the legal services system of Bangladesh. The framework consists of multiple modules such as membership enrolment, service provision and consumption, legal data analytics, and help center. The modules mainly focus on client and lawyer entities. The lawyers present their information, including professional skills, knowledge, experiences, and areas of expertise, and prepare a portfolio for evaluating their competencies so that users can easily filter and choose them for hire. On the other hand, clients find the service-oriented facilities concerning legal costs (including lawyers' fees), lawyers' proficiency, best deal with lawyers, duration of the case handling process, and submission of complaints in help center (i.e., 50 maintained by platform owner in case of any improper legal services provision. Moreover, clients can leave reviews on the activities of lawyers involved in providing legal services to them. Finally, we showed all these modules in a web application as a prototyping experiment of the framework.

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The rest of the paper organizes as follows: Section 2 represents the comparative reviews of the related studies. Section 3 describes the proposed framework of this work. Then, the result analysis and discussion are examined in Section 4. Finally, the work concludes with future directions in Section 5.

2. RELATED WORKS

The inclusion of ICT in the judicial system has become a new tool in providing effective legal services and improving legal practices. By using the ICT adoption, many countries have brought considerable momentum to the legal process. One such country is South Korea, which is evolving, applying, and leveraging IT solutions for the benefits of the judicial sector and its consumers.

In the traditional paper-based process, preservation, maintenance, and filtering of documents are often time-consuming. In other words, it takes a long time to get the document whenever it is required. Therefore, making and maintaining an archive of court records (e.g., electronic case files) is essential to speed up the legal process. John-Okeke (2008) demonstrated a fully automated web-based centralized interactive database system to store, disseminate and search information in real-time. They employed a client-server paradigm where the server receives, stores, updates, and provides current information in reply to any queries by clients. However, the security issue is the biggest concern in this type of legal information management system. Moreover, any margin of error can cause changing of case records of the legal process since maintaining confidentiality and integrity of legal information is essential. So, these issues are needed to be addressed (i.e., by encrypted case records/case files).

Online legal service platform provides individuals and business stakeholders the option to act as their lawyers. The facilities and usefulness of this type of services system were examined in a study (Cho, 2006). They showed that the adoption of online platforms affects people towards information- oriented online legal services in Hong Kong considering perceived trusts and risks. They also mentioned some relevant online legal sites and forums where lawyers answer queries by e-mail, and the cost of this service system is lower than that of traditional legal services. However, the authors mentioned the effectiveness of legal services in some domains but omitted many cultural or regional factors related to the quality of online legal services.

Denvir and Catrina addressed some of the issues (Cho, 2006) regarding finding legal advice from web sources, such as discussion forums and commercial websites, in their study (Denvir, 2006). They examined the type of legal solution the people aged between 15 and 26 in England find from the Internet to resolve civil justice queries related to housing or employment law. They also showed that the ratio of Internet use (i.e., the trend of online legal services) for identifying the appropriate source of information or advice for legal justice problems increased 2.1% to 15.6% from 2001 to 2009. In essence, an online legal advice strategy improves people's ability to understand the law, but it is not the only way for general legal guidance. Therefore, the quality and comprehensiveness of online legal sources need to explore further.

The use of technology will not ensure the legal process's quality unless lawyers show a collaborative approach with clients in handling cases. McKamey (2017) addressed this issue in a study. They explored how technological advancement draws an impact on legal professions. Moreover, they suggested that the current legal professionals be more adaptable to the technology-based changing society than past.

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The technological challenge is another crucial factor in making an impact on the legal services system. It puts pressure on legal professionals in many areas in terms of costs. In addition, the growth of intellectual property rights, personal and commercial data protection, and privacy on the internet poses them to adapt quickly to new legal policies (Akman, 2019). On the other side, the technological impact is creating new opportunities and enhancing the skills of lawyers to serve clients efficiently. For example, using mining legal data sources, it can be possible to minimize the challenges of legal issues and made an intelligent legal support system (Sharafar *et al*., 2019). Currently, legal case descriptions and case types are automatically extracted and classified to gain insights into lawyers, judges, and courts (Zhao *et al*., 2019). Now the question is how effective these are in establishing relationships with clients and lawyers.

At present, it is noticeable that many lawyers and law firms are turning out online legal services because of combining the potential of legal tech and legal strategy. One of such platforms is JUSTIA (Li, 2017), which is a web portal of legal information consisting of free case law, codes, opinion summaries, and other primary legal texts, with paid services for its attorney directory and Webhosting. It mainly focuses on American and Latin American jurisdictions. However, it excludes some features, such as clients' directory and lawyers' identification number (i.e., anyone can enroll as a lawyer), and it allows clients to review lawyers from social media, so security issues exist here. In addition, lawyers' rating is evaluated with the peer-reviewed process (Haack, 2006) but without the involvement of the clients (since they are one of the major stakeholders of the legal services system).

To sum up, the concept of online legal services is not new but seems to be a budding phase in Bangladesh. It is evident that in this changing society, the efficiency of the legal process needs to be more improved through the adoption of technology, i.e., software, intelligent devices, and data analytics. The online legal services system, which is the impact of digitalization on the judicial sector, enables people to turn to legal professionals for legal support and guidance. Thus, this depends on multiple factors such as encrypted legal data archive and retrieval, regional and cultural legal practices (as different societies and cultures have their own legal culture and traditions), quality of services, lawyers' adoption of new legal tech, intelligent legal case management, and client-lawyer relationship. So, considering these factors, this research focuses on establishing an interface to the legal process of clients and lawyers in the context of Bangladesh.

3. METHOD

Legal decisions are making easier with the rapid advancement of technology (Zhao *et al*., 2019). Providing online legal services is one of the promising ways that many legal professionals are following. However, this paper presents this type of servicing mechanism based on Bangladesh's judicial service system. It consists of different components: Membership accomplishment, service consumption and provision, legal data analytics, and help center. **Figure 1** depicts how these modules are interlinked. The service controller initiates, manages, and interconnects to all major components of the system.

The membership accomplishment defines as some credentials and unique identifier of each user entity. The service provisioning and consumption component specify legal services (e.g., legal advice, hiring lawyers) between clients and lawyers after their membership enrollment. The help center seems to be an online complaints system coordinated by the service system owner regarding improper legal services. Besides, it offers the facility of making online complaints about fraud and harassment. On the other hand, legal data

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analytics represents obtaining insights from legal data, such as patterns of cases, lawyers' success rates in their practice field, etc.

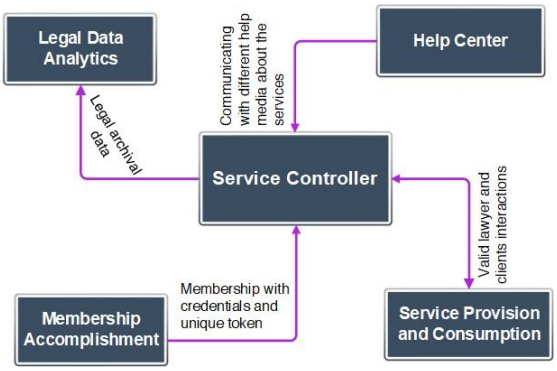

Figure 1. Architectural diagram of the legal services provisioning framework that is a multi-functional legal servicing process paradigm including membership completion, service consumption and delivery, data analysis, and help media services.

Figure 2 shows the combined workflow that indicates how the legal tasks perform with different objects in the framework. The Legal Service Initiation (LSI) is the first component, which is the Service Controller, as shown in **Figure 1**, and it instigates the functional modules of the framework. It initiates the workflows in three phases that are subscriber, LSI status, and LSI help media. The subscriber phase is the combination of Membership Accomplishment, and Service Provisioning and Consumption; whereas LSI help media indicates Help Center, and then LSI status phase implies Legal Data Analytics component (see **Figure 1**).

The subscriber segment checks whether the subscribers accept or provide legal services. The subscribers who provide legal and lawsuit services are the lawyers. They can be either members or followers in the framework. A follower needs to have a unique membership token (distinctive identity of a law service provider) before attaining membership. Besides token, some other credentials are essential to accomplish the membership process. The credentials are lawyers' personal information, national identity/social security number, and bar council membership identity number for a valid lawyer.

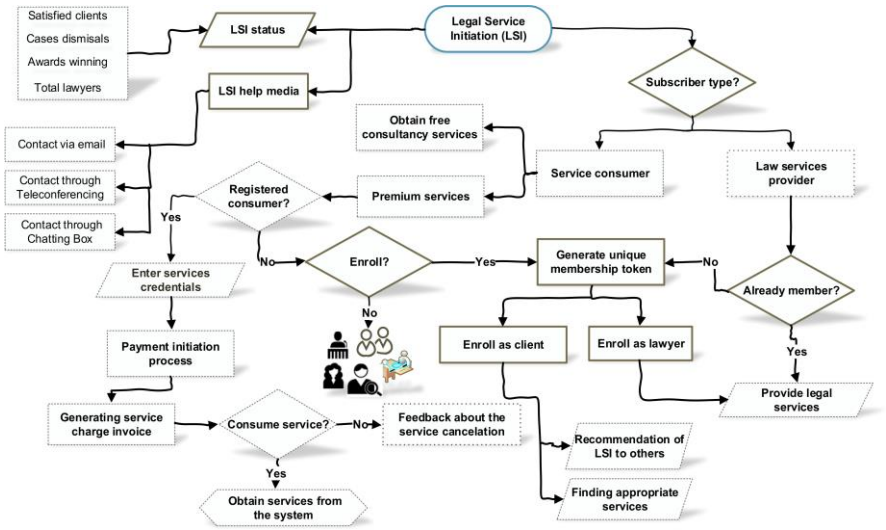

Figure 2. The architectural workflows showing the interaction and task accomplishment of various legal service-oriented components.

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The subscribers who want to get legal services are the clients. The clients can avail of service through either free consultancy or the payment method. The free consultation service system only includes several legal services, e.g., property law, family, and copyright law. On the other hand, the payment method covers premium services on criminal defense, intellectual property, bankruptcy and debt, real estate, fundamental rights, cyber law, labor law, corporate law, etc. To have these premium services, clients must be registered members. The registration procedure involves membership tokens and other information, such as personal information, identity number, and contact information. Afterward, the newly enrolled member recommends to others law services, finds appropriate services, and gives feedback apropos of any inconsistency in the system. However, the claimant, the listed member, ought to provide services credentials: lawyer information, area and location of the lawsuit, and type of services to consume suitable legal amenities. There is also a service charge invoice generated in the process of obtaining legal services. In addition, any member may cancel the service if the service charge exceeds the claimant's capacity or if the service quality is inapt.

The LSI status embodies the knowledge of the various aspects of the legal service insights. For example, the knowledge discovered from legal services data can be the client satisfaction level, number of case dismissals, and lawyers' performance. Furthermore, the LSI status entails the quality of legal services with proper harnessing and turning legal data into actionable insights. Finally, through the LSI help media, clients can share their concerns or opinion via email, teleconferencing, or chatbox. That is, a client can share views on different contexts —if a lawyer does not provide good service to the client; or if a client faces any harassment by lawyers. In other words, it has the facility of making complaints about clients concerning improper services systems (as mentioned at the beginning of Section 3).

4. RESULTS AND DISCUSSION

This section describes experiments, results, and discussion of this research. As the proposed framework is an online-based services platform, we designed and implemented it as a prototype experiment in a web application by following the client-server architecture paradigm. We used MySQL Database, Apache HTTP Server, and PHP Laravel web application framework in the experiment. To test the application, we generated and collected dummy data from different open-source tools. We also collected a few users' personal information (lawyers' personally identifiable information) from Wikipedia. So, there were 373 lawyers and 9,627 clients' in a total of 10,000 users' information inserted into the database. We then applied various legal services-oriented queries and displayed the results in the application. However, the rest of this section represents obtained results subsequently in different functionality and usability testing phases of the application.

Figure 3 shows the LSI panel, which is the first step in the legal services system, and it has linked all other service modules. This page displays to a user after searching for the legal services on the web. In addition to proceeding to different modules from this page, a user finds the service type, terms, and conditions as well as the list of top lawyers as shown in **Figure 4**. The lawyers, who have acquired top ratings in all perspectives, are filtered out and demonstrated as top-rated lawyers. Besides, any user or client looks up desired lawyers with services type and the location where the services provide (find search option, in **Figure 3**).

If a user wants a free consultation from top-rated lawyers or filtered lawyers, then the person will have to get it by providing a request message which shows in **Figure 5**. So, clients must declare their identity by credentials so no lawyer can be agitated or deceived with a false message. The credentials include lawyer's and client's ID (the unique access token as a

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user and it automatically set when a client moves in a page for free legal advice), then the client's contact number and e-mail, and type of legal issue and description in which client wants legal advice. There is a constraint in free legal advice that the client will get free advice only in limited legal areas provided by the lawyer. However, if everything goes well, the client submits the request and passes it to the lawyer. Then the lawyer considers the client's request and responds with the provided contact information.

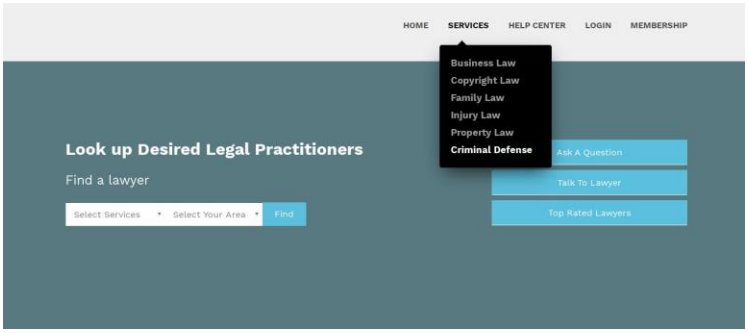

Figure 3. The snippet of the main navigation page that will be displayed to any visitor while looking for this type of legal servicing platform.

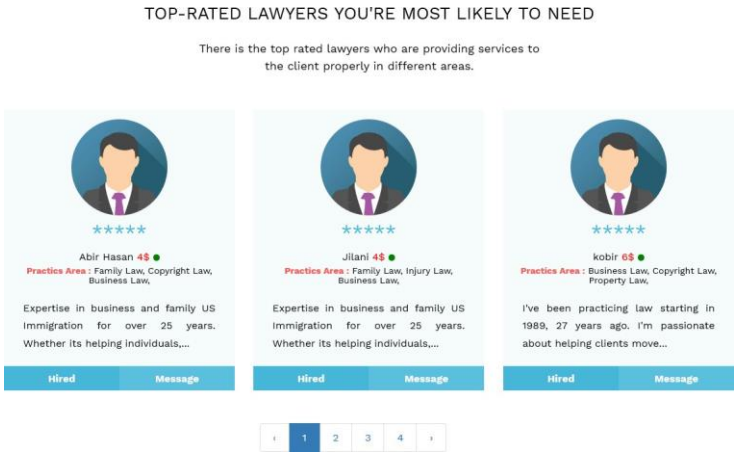

Figure 4. Finding out information about top-rated and all other prospective lawyers.

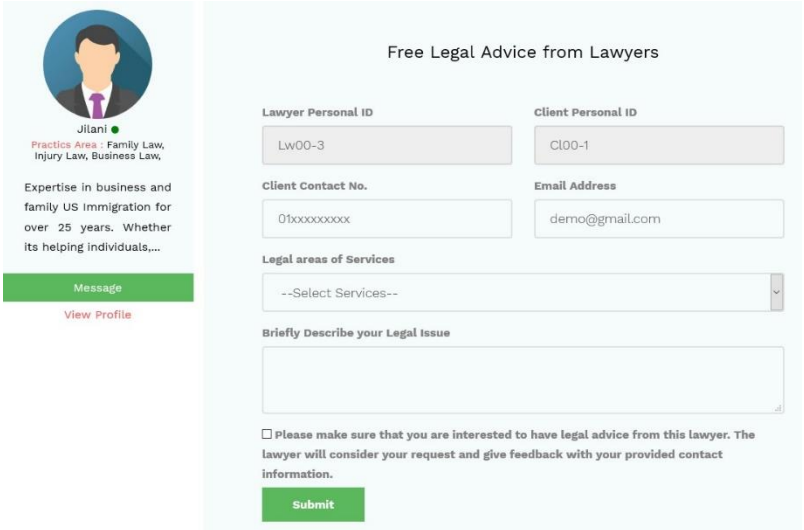

Figure 5. The activity of obtaining the required free consultancy services from a preferred lawyer.

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The proposed legal services platform is not just about filtering lawyers or getting free advice, but it is a platform where individuals or companies can obtain the legal services they expect from qualified and appropriate lawyers. However, a user needs to subscribe for the membership to take all the facilities and access this platform's features. The procedure of getting membership requires a few more essential things (shown in **Figure 6a**), such as a valid lawyer's bar council number and social security number or national identity number, along with personally identifiable information. If a user wants to list as a client, then the client has to set the role as the client (by selecting" I'm a Client"), and because of this, no bar council number is essential as it is only applicable to lawyers. Moreover, a personal profile is crucial (especially for lawyers to make a portfolio) to convey one's detailed identity as indicated in **Figure 6b** for the accomplishment of the membership enrolment.

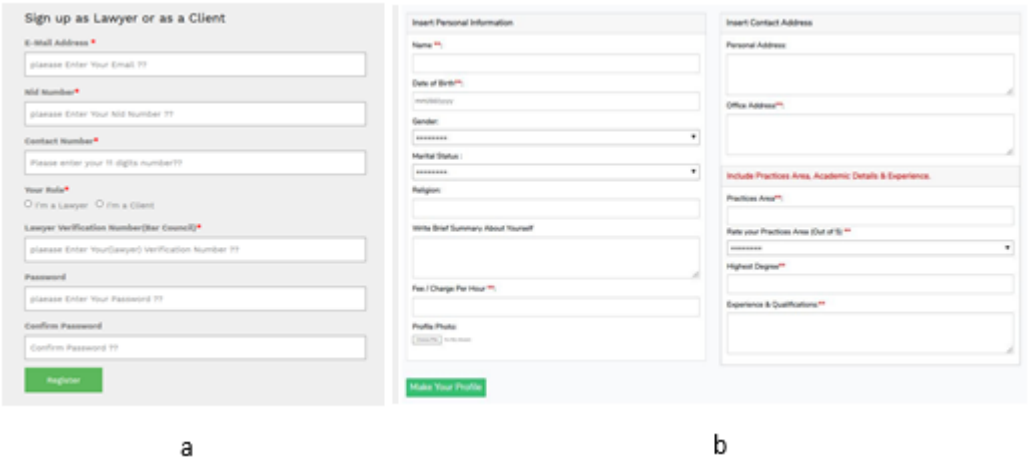

Figure 6. Membership enrolment process. (a) membership form of clients or lawyers, if the membership is of lawyer type then select" I'm a lawyer" and enter valid identity number (or bar council number), otherwise, enroll as clients; (b) user profile creation where profile picture will be converted into 300 × 300-pixel visible image.

When a client intends to hire a lawyer, the client submits a request for hiring to the lawyer. So, this requires a brief description of the legal issue; the payment method by which the client will pay the services charge of the lawyer; and the lawyer's and client's unique access ID automatically set when the client navigates in the interface for hiring, as indicated **in Figure 7**. Since the client is a registered member, the lawyer identifies the request and finds the client's identifiable information with the client's ID. Then the lawyer communicates with a client regarding the legal issues. After reaching a consensus on the negotiations, the service relationship establishes service provision and service consumption.

Another helpful feature of the framework is representing lawyers' professional competency so that a client can assess and select lawyers. **Figure 8** depicts the portfolio of a lawyer for reviewing proficiency, including success rate and strength in relevant practice fields, qualifications, and experiences. The bar graph indicates the expertise level (scales out of 5) in different legal practice areas of a lawyer. In addition, there is an option to recommend similar lawyers based on the attributes of legal practice areas, expertise level, experience, and locations associated with the lawyer the clients are currently on.

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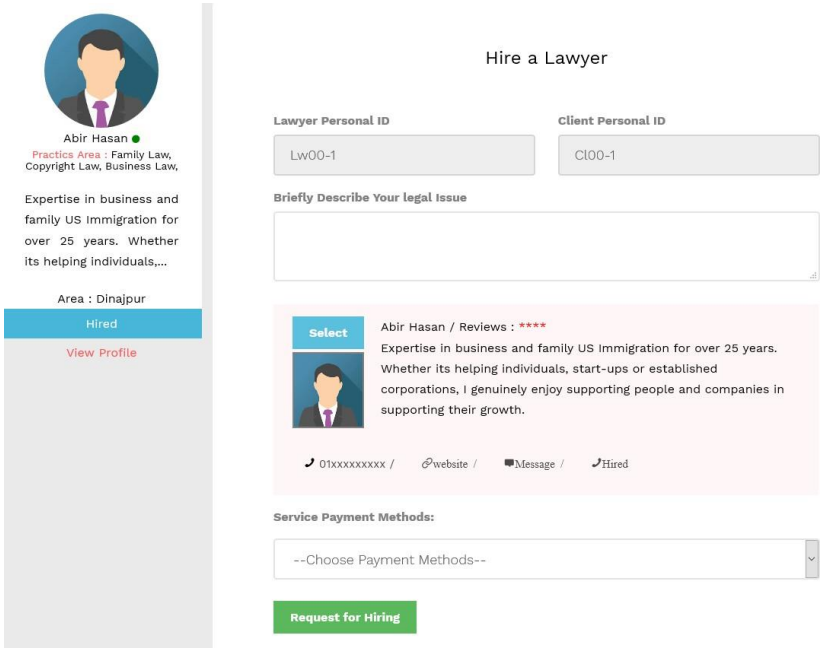

Figure 7. The process of consuming legal services by hiring the desired lawyer in terms of proper charges. The service payment methods represent different online banking procedures for legal services payment of lawyer.

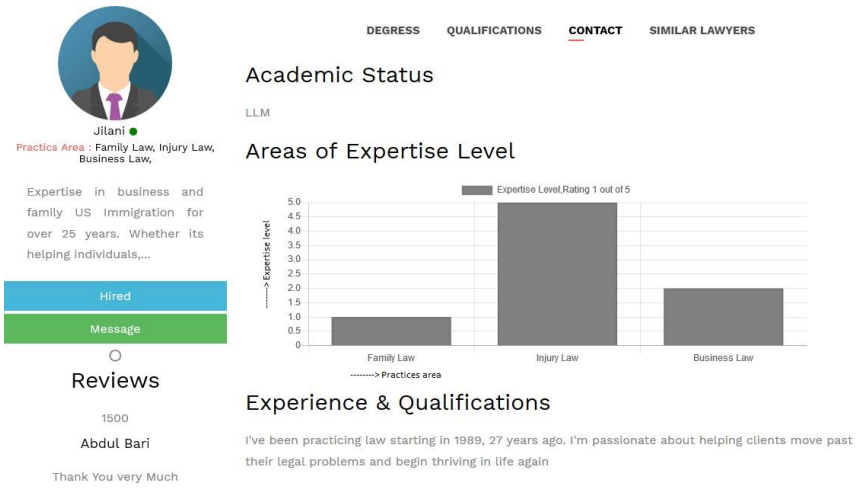

Figure 8. Lawyers profile reviewing to find personal details, skills, and knowledge.

One of the modules mentioned in the framework is legal services data analysis. This data analysis or mining knowledge from the legal data is essential for determining the platform's usefulness in various activities. The activities can be the number of complaints, the number of lawyers who properly handled the cases, or the analysis of clients' feedback regarding services. However, here we have shown a sentiment analysis on lawyers' activity from clients' comments to identify the lawyers' performance, as indicated in **Figure 9**. So, firstly, we collected comments from a lawyer's profile of 13 clients who consumed services from that lawyer. Then, we visualized the comments in a word cloud representation in terms of word frequency as depicted in **Figure 9a**. In other words, the more words mentioned in the comments, the bigger and bolder the word looks, and thus all the other words are in order of their frequency. Finally, we extracted sentiment from the 13 comments and obtained 9 positives (69.2%), 3 negatives (23.1%), and 1 neutral (7.7%) sentiment that is shown in **Figure**

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9b. So, it can be said that higher positive sentiment means most of the clients were satisfied with the desired quality of service from that lawyer.

(a) Word cloud representation of text data that indicates the frequency of words from clients' reviews.

(b) Sentiment extraction from clients' comments.

Figure 9. Leveraging legal data to gain insights from a lawyer's activity.

The framework mentions a help center through which an authentic member can complain regarding the inappropriate quality of legal services issues. For example, **Figure 10** demonstrates how a client submits complaints to the platform maintainers of the services system. So, this requires the type of problem the client wants to get help with, type of account (i.e., client account), client ID, name and email, and a brief description of the complaint. Additionally, if the client's complaint is against any lawyer, the client mentions the lawyer's identity with the lawyer's unique access ID and other identifiable information alongside the complaint message.

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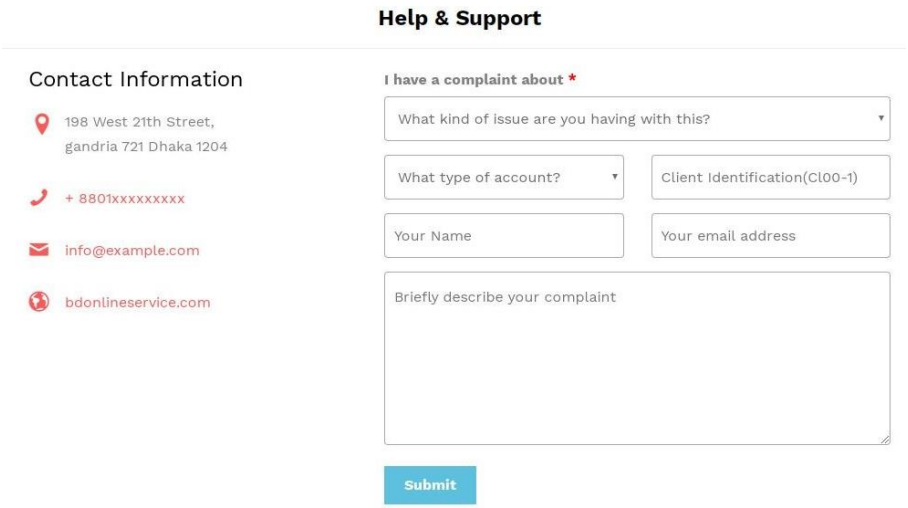

Figure 10. LSI support center for communicating with services maintainers in the case of any improper quality of legal service.

4. CONCLUSION

The online legal service provisioning and getting is not merely a new addition, but it seems to be a promising phase to the judicial system in Bangladesh. Adopting legal technology enables legal professionals to provide legal support to clients effectively and reduces the backlog of cases accordingly. This research article has mentioned such technological adoption by an online legal services platform in Bangladesh's legal system where clients can find desired lawyers and consume services, and lawyers interact with clients to provide legal support. The framework consists of several modules with various functionalities. Most of the functionalities have been experimented with as a prototype through a web application. The results showed the outcomes from different testing phases of the application, including how to filter lawyers, get free legal support, evaluate lawyers, negotiate and hire lawyers, analyze clients' comments on legal services, and complain about improper services. Moreover, the result indicates that the proposed framework benefits both clients and lawyers and then establishes a client-lawyer relationship model to enhance the legal system of Bangladesh. The benefits are filtering and hiring desired lawyers, estimating how long it takes to resolve the legal case, making a complaint system regarding the improper quality of legal services, predicting costs, avoiding unnecessary legal expenses, and creating opportunities for newly enrolled lawyers who are capable of handling legal cases and looking for practice cases. In addition, the framework enables the government and law firms to get insights into the current status of the legal system.

As the proposed platform is a prototyping experimental design, many functionalities can be included in the future to make a better system when deployed online for practical use. These features include the searching for any client to conduct the case by the lawyers, providing incentives to the high rated lawyers based on their activities, making service level agreement terms and conditions between clients and lawyers in the matter of denying/delaying services, and based on the agreement penalty can be given.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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