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Semantic based Consolidated Framework for Legal Practitioner Service

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ABSTRACT

Lawyers, as guardians of the law, play a vital role in the preservation of society. At the same time, the public should be protected from those who are not qualified to be lawyers by reason of a deficiency in education. Unfortunately, the society is plagued with challenges faced by clients of some dubious illegal Practitioners of law (Lawyer) on a daily basis. Meanwhile, majority of the society seems to be ignorant of the various categories of lawyers to hire for their cases in terms of area specialization. This work however proposes the consolidation of legal practitioners and their services through a semantic based application website.

The required input parameters are derived from relevant textbooks, reports and journals related to legal practitioners, as well as conducting interview with some standard and highly competent legal practitioners. Protégé 4.3, an ontology editor was used to create the legal practitioner ontology. Also, a database is created to store data and ASP.NET C# was used to develop the ontology driven interface for accessing the legal practitioner website. This paper work provides solution to the challenge faced with fake and dubious legal practitioners. It also alleviates the ignorance of clients' accessibility to legal practitioner consultancy by bringing available lawyer consultants down to their threshold.

*Keywords***:-** Consolidated framework, Legal practitioner, Illegal practitioner of Law, Ontology, and Semantic Web.

I. INTRODUCTION

The use of internet as a means of accessing resources and information cannot be over emphasized. A basic tenet of the professional responsibility services of lawyers is that every person in our society should have access to the independent professional services of a lawyer of integrity and competence [4]. The traditional ban against advertising by lawyers is rooted in the public interest, as competitive advertisement would encourage extravagant, artful, self-laudatory brashness in seeking business and thus could mislead the layman [4]. This could inevitably produce unrealistic expectations in particular cases and bring distrust to the law and lawyers. Often the reputation of lawyers is not sufficiently known to enable laymen to make intelligent choices. Selection of a lawyer by a layman often is the result of the advice and recommendation of third parties; relatives, friends, acquaintances, business associate, or other lawyers.

The law has become increasingly complex and specialized. Few lawyers are willing and competent to deal with every kind of legal matter and many laymen have difficulty in determining the competence of lawyers to render different types of legal services. For example, selecting a legal practitioner could be difficult for transients, person moving into new areas, persons of limited education or means and other who have little or no contact with lawyers [9]. In view of these, many qualified and competent lawyers have been rendered faceless, thus discouraging them out of the trade. Among other notable challenges are over exploitation in fee charges, on the account of popularity or restricted access to diversity of legal personnel and operations of the so called "illegal practitioners of law", whose dubious acts have been greatly sore on the society. A way of eradicating these difficulties, apart from various ethical conducts/measure to prevent or prosecute unauthorized practitioners [6], this work however proposes a means of consolidating genuine, fully qualified and competent legal practitioners, for ease of access based on registrations relevant data on the consolidated website. It is very obvious that, client will be enhanced to register, log in and search for accurate/perfect match of legal practitioners based on their requirement. This affords legal practitioner access to registered clients.

II. RELATED WORKS

A Legal Practitioner (lawyer) is a person learned in the law; as an attorney, counselor solicitor. Any person who, for fee or reward, prosecutes or defends causes in courts of record or other judicial tribunals in country, or whose business it is to give legal advice in relation to any cause or matter whatever [1]. A lawyer is a person who practices law, as an advocate, attorney, attorney at law, barrister, barrister-at-law, canonist, canon lawyer, civil law notary, counsel, counsellor, legal executive, or public servant preparing, interpreting and applying law, but not as a paralegal or charter executive secretary [5].

Law is the system of conduct established by the sovereign government of a society to correct wrongs, maintain the stability of political and social authority, and deliver justice. Working as a lawyer involves the practical application of abstract legal theories and knowledge to solve specific individualized problems, or to advance the interests of those who hire lawyers to perform legal services [5]. The role of the lawyer varies across legal jurisdictions [3]. The law society is strengthening its efforts to inform the public of the importance of hiring a licensed legal professional [6].

By and large everyone has come to agree that the Web is a strategic sales and marketing tool. It is also a communications and productivity improvement tool. So it would not take much to get the support of various constituencies within a company for Web consolidation [8]. In a corporation, there is a closed group of users and the management is able to enforce company guidelines like adoption of specific ontologies and use of semantic annotation. The term *"Ontology"* can be defined as an explicit specification of conceptualization.

Explicit specification of conceptualization means that the ontology is a description (like formal specification of a program) of the concept and relationships that can exist for an agent or a community of agents [2]. The *semantic web* is an evolution and extensions of the existing web that allows computers to manipulate data and information [2]. It provides a common framework that allows data to be shared and re-used across application, enterprise and community [10]. The semantic web is therefore regarded as an integrator across different content, information application and systems [10]

III. ARCHITECTURAL DESIGN

As shown in Figure 1, our architectural design includes three main components which are web application which provides a user interface for access. The OWL *RDF/API* Resources Description Framework, that gives a high-level implementation of ontology concepts for integration into web accessible format. The created OWL ontology represents knowledge of the legal domain. It is an inanimate object or document that is used through interaction with other tools such as the OWL API.
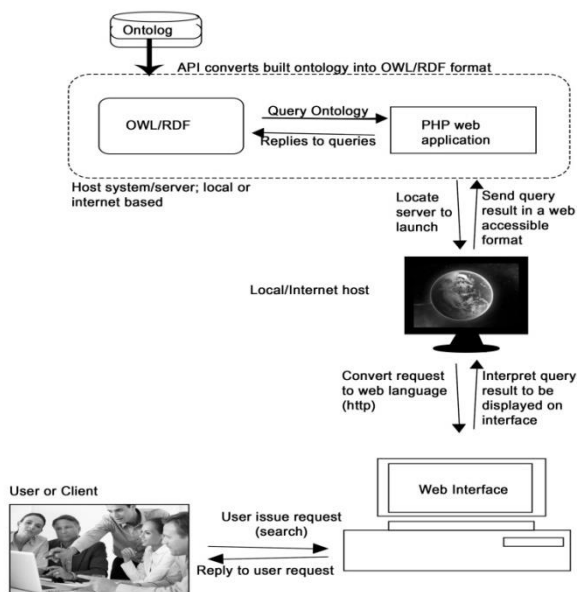
3.1 Ontology Design

The OWL Ontology is the knowledge structure of the web application. It contains all the information of and about the Legal Practitioners. It includes objects necessary for describing the legal practitioners, such as the categories of Disciplines, possible positions and various domain level relationships. Legal practitioner ontology used in this work was built from scratch to suit the purpose as there is no suitable ontology was found. , a broad coverage of the legal practitioner area of specialization categories such as advocates, Solicitors, public defenders, counselor, professional, etc. and positions, including Senior Advocate of Nigeria (SAN), and Senior Member of Bar (SMB) created as concepts, properties or relations and individuals in the system ontology

Fig. 2 and 3 depict some portion of the Legal Practitioners' Ontology. We used top down class hierarchy developmental approach.

Properties are meant to establish relationships between class and every other components of the ontology. For this work, the protégé 4.3 used two type of properties namely; object properties and data properties. Object properties are basically of relationship or interaction type while data properties are value typed or value based. Figure 3 and figure 4 shows the properties

Classes and object properties are arranged into subsumption relationships, which encodes essential background knowledge into the ontology that is necessary for consistent and correct inferences to be made this is achieved with the use of FaCT ++ reasoner. Figure 5 shows the classes and the relation mapping.
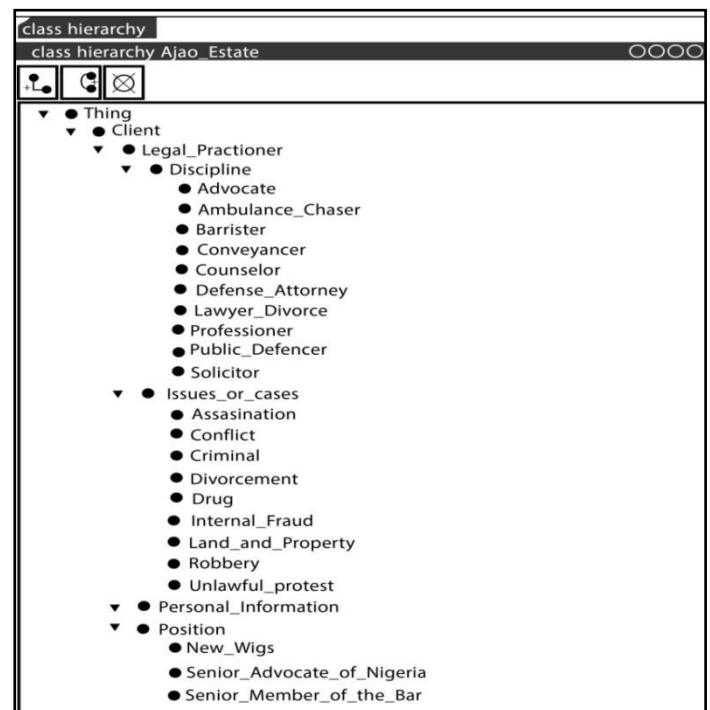

Fig. 1: Architectural Design of the Legal Consolidated System
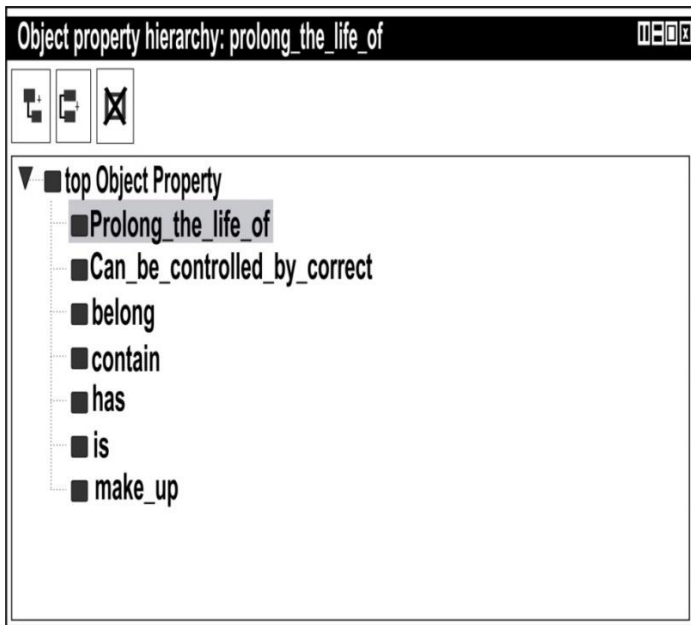

Fig. 2: Hierarchical representation of classes

Fig. 3: Representation of object properties

Fig. 4: Representation of data properties
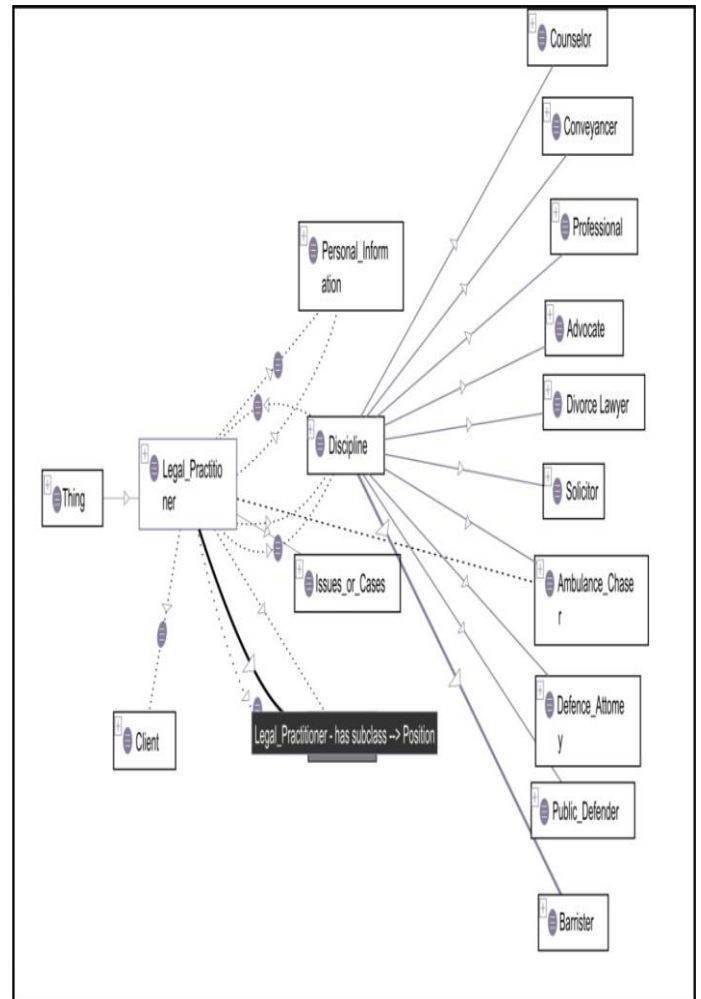
Fig. 5: Class and the relation mapping

In addition, the classes' instances are created also called individuals. These individuals are represented in the class to which they all belong, therefore inheriting properties of the class both object properties and data properties. Figure 6 shows Class and individuals tabs with the represented instances/individuals in subclass *"Qualification"*. The ontology graph diagram in figure 7 shows the radial representation of the Legal practitioner's classes, the subclasses and individuals.

3.2 OWL API/RDF

The OWL API/RDF is an external integrator element which has to stand in between the ontology created. It is the web accessible .rdf format. Figure 8 shows snippet of the OWL/RDF syntax of the object property.
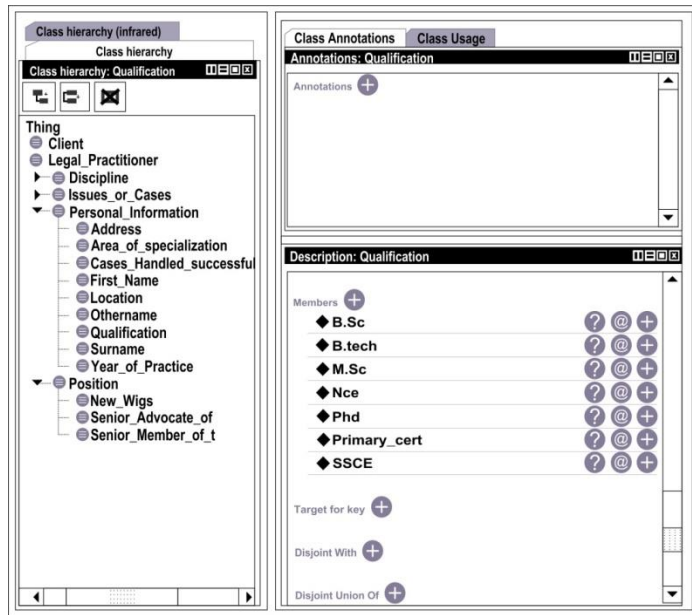
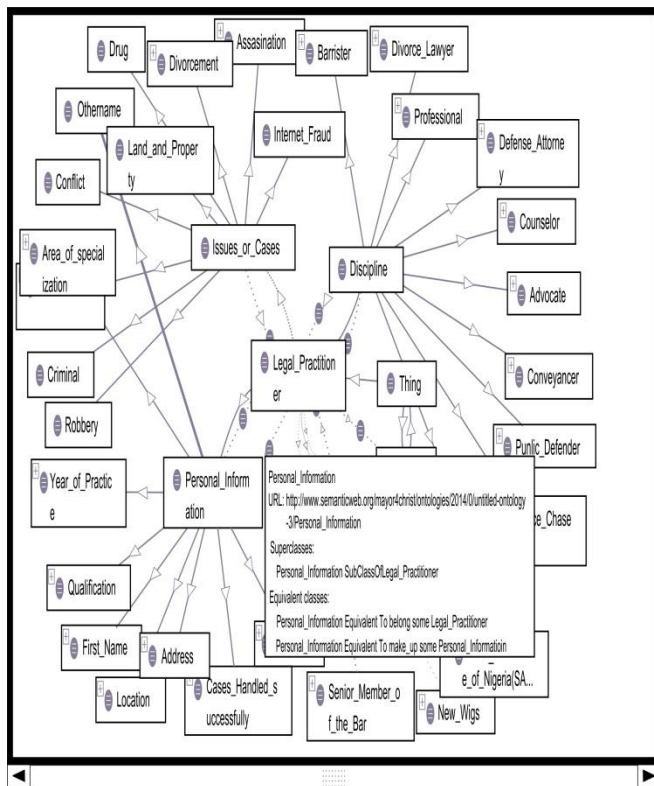Fig. 6: Instances representation of subclass "Qualification"

Fig. 7: Radial representation classes of legal practitioners, subclasses and individuals

http://www.semanticweb.org/mayor4christ/ontologies/2€l14/€l/untitled-
ontology-
3#belong -->

<owl:ObjectProperty
rdf:about="http://www.semanticweb.org/mayor4christ/ontologies/2€l14/€l/untitled-ontology-
3#belong">
<rdfs:comment
rdf:resource="http://www.semanticweb.org/mayor4christ/ontologies/2
€l14/€l/untitled-
ontology-3/Discipline"/>
</owl:ObjectProperty>
<!-- http://www.semanticweb.org/mayor4christ/ontologies/2€l14/€l/untitled-
ontology-
3#can_be_controlled_by_correct -->
<owl:ObjectProperty
rdf:about="http://www.semanticweb.org/mayor4christ/ontologies/2014/0/
untitled-ontology-
3#can_be_controlled_by_correct"/>
<!--
http://www.semanticweb.org/mayor4christ/ontologies/2014/0/untitled-
ontology-
3#can_be_handle_by -->
<owl: ObjectProperty
rdf:about="http://www.semanticweb.org/mayor4christ/ontologies/2014/0/
untitled-ontology-
3#can_be_handle_by"/>
<!--
http://www.semanticweb.org/mayor4christ/ontologies/2014/0/untitled-
ontology-
3#contain -->
rdf:about="http://www.semanticweb.org/mayor4christ/ontologies/2014/0/
untitled-ontology-
3#prolong_the_life_of"/>

Fig. 8: OWL/RDF Syntax

3.3 Web Interface Design

The ontology requires a web based interface which can utilized it, hence ASP.NET C# development tool was used, due to its ease of integration feature. Also JENA.NET was used to integrate the Legal ontology owl with the ASP.NET framework. Figure 9 show the registration page for collating legal practitioners' data. Figure 10 shows the Lawyer search page. This enables clients to search for appropriate legal consultant by selecting presided search criteria choice, which may include the area of specialization, location and year of experiences, chamber

name or name. Figure 11 shows the clients' registration page, which enables them to register for a legal practitioner's

consultancy. Such data will enhance familiarity with client as in a global client's case consultations.

Fig. 9: Lawyer Registration Page
Fig.10: Lawyer Search Page

Fig 11: Client Registration Page.

IV. CONCLUSION

This work has been able to propose solution to the dubiousness illegal law practitioners, eradicate the clients' ignorance of availability and accessibility of appropriate legal practitioners in time of need.

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