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A Novel Framework in Reusing the Ontological Health Record.

G Nithya*, and SL Jany Shabu.

Department of Computer Science, Sathyabama University, Chennai, Tamil Nadu, India.

ABSTRACT

Literature has repeatedly emphasized the significance of the combination between the dental and general health of an individual and for the corresponding healthcare professional to work in synergic manner. However, the absence of a knowledge base of the scientific evidence of associations between the two domains of medical and oral health has committed to the problem of fragmented healthcare delivery. Hence, securing and formally representing this cross-domain knowledge is vital for next generation Health Information Systems (HIS) to become interoperable and performs decision support tasks. To this end, ontologies have been increasingly used in HIS for representing domain knowledge and so no comprehensive ontology is referring to both the medical and oral health domains stand by no knowledge base exists either. In the existing , presents the work to overcome the inherent problem in our resultant ontology. In proposed system, the methods which we extend are the ontology with the rules to add expressivity and derive inferences over instance data.

Keywords: Ontology, Meta map, SemRep, OWL, Dental domain, Medical information.

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INTRODUCTION

The SNOMET-CT is the one framework which is used in the processing of the ontologies. This technology is being used for the development from new ontologies from the existing parent ontologies. SNOMED CT is considered to be the most comprehensive, multilingual clinical healthcare terminology in the world . To encode the meanings that are used in health information and to support the effective clinical recording of data and with the aim of improving patient care the SNOMED CT is being used. It also provides consistent information interchange and is fundamental to an interoperable electronic health records. It provides a consistent means to index, store, retrieve, and aggregate clinical data across specialties and sites of care. SNOMED CT helps in organizing the content of electronic health records systems by reducing the variability in the way data are captured .The reusability of SNOMET-CT is to develop a cross-domain ontology of dental and health concepts to avoid the inherent silos in the resulting ontology. The inter-dependencies of medical and dental domains are being overcome by using e-health systems. The cross domain ontology helps in identifying and displaying interfaces between domains and deriving conceptual models that bring out the cross-domain scope of requirements The ICT in healthcare is basically used for the development, implementation of innovative health care technologies. To avoid the reusability of the ontologies we generate a generic framework which is used for the development of the ontologies in the network. The disadvantage is that the knowledge based development of the ontologies . To overcome all the issues in the system we use the core values to find the disease or issue of the patients in person. This concepts are the improvement of technology from paper based to the electronic systems where huge amount of data can be managed.

Our approach in this manner is distinctive in that we propose there utilization of an officially existing and develop philosophy and utilize the mix of OWL and SWRL to connect the restorative and dental spaces that are working in confinement for most commonsense purposes by: (i) building up a formal, cross-area, reusable knowledge base comprising of exploratory proof based relationship to empower the consistent sharing of patient data while holding the right importance of the mutual data, and (ii) expanding the expressivity of the basic philosophy with guidelines to accomplish choice backing over the common patient data for the purposes of clinical diagnosis and proposals.

RELATED WORK

e-Health is being the basic need for storing the data in the single database. So Marconi defines it as" an application of the internet and other related technology in the healthcare sector to improve the access,efficiency and quality of the clinical and business processes used by the healthcare customers and patients to improve the health status of the patients". The process of semantic interoperability and data integration between and among the system do not use the same ontology.The use of ontologies in both medical and dental ontologies are being defines as the process of data analysis and knowledge discovery, information exchange and data integration and finally clinical decision support. In general the ontologies are base on the Description Logic(DL) which corresponds to the Web Ontology Language(OWL). Martinez-Romero, M.et al deals with the ICU deals with the patients who are in the very dangerous positions. The patients have to be monitored constantly so that they are there improvement is known. Huge records of patients' data are stored which results in wrong storage of data because there are many patients' data being stored. To overcome this issue IOSC3 is used which helps in storage of data records and suggests about what kind of drugs is being prescribed to the patients.ISOC3 is mainly used for Cardiac **I**ntensive Care Unit(CICU). In the proposed system ,Sharing of information is done between medical and dental using ICT systems. Guiding frame work is used for reusing ontology and addressing the problems. ICT helps for automatic management of information. A cross domain ontology is created from the scratch of medical and dental domain may lead to inheritance of error from the parent ontology to our resulting ontology. The formation of patients are being used in a single database where will be less space used being whereas in general we used different whereas in general we used separate storage device in a system. Therefore, the medical and oral health (M-OH) domains require decision support systems that can: i) integrate information from disparate sources, ii) unambiguously share information and communicate with other systems, and iii) perform automated decision tasks and provide explanations for the outputs.

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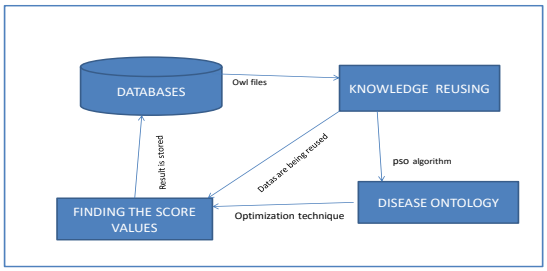
PRELIMINARIES

The model requirements are:

The Databases are used for the storing of information of the patients in the system.Knowledge reuse is that the process of sending the patients details to check whether he has that particular disease or not.Disease ontology is entering the disease name and searching about the symptoms and what are the tests to be taken by the patients to know whether he has the disease or not.Finding the score values.

SYSTEM MODEL:

The system model describes about storing of files and then sending the datas to the verify the patients details whether he has the disease or not.



First in a database the owl files are stored such that the files are send to the knowledge reusing device such that the data are saved and send for the process of disease ontology to check the issue have symptoms and what are all the test to be taken to verify that particular is located in that patients.

Using the algorithm ontology is being verified and using the optimization technique the score values are being found .The finding the score values is that two similar symptoms are compared patients and depending on the score values the disease is being finalized with respect to it.

If it does not match then again using the reusing technique based on cross domain ontology another data is used to compare and check the values. the data is being reused for the ontologies to check if whether the score values are matched .this process is being done until you get the desired score values.

(ii) The steps to be followed for searching and mapping of the data:

His Lexicon-based Ontology Mapping tool(LOM) coordinates terms in the middle of source and target ontologies and appoints an arrangement certainty rating, a number somewhere around 0 and 1.

LOM takes as data a source cosmology and an objective metaphysics, both spoke to in OWL. The device's yield is a rundown of the "terms" of the source metaphysics that "match" terms of the objective:

• Step 1Coordinate entire terms. In the initial step LOM searches for coordinating names. In the event that both ontologies contain a term with the same name, these terms are considered to coordinate. The entire term-coordinating step is very strict in its treatment of terms: "ObjectItem" and "Article Thing" don't coordinate. (It does, nonetheless, ignore case refinements. "Object-Thing" and "question thing" match.)

• Step 2: Match word constituents. LOM next partitions "exacerbated" terms into their segments by considering capitalization, connection, and accentuation. 13 Exactness is the rate of recovered records that are significant. Review is the rate of important records that are recovered. In this manner "Object Item" and "Article Thing" are dealt with as "Article Thing" and would coordinate. LOM additionally utilizes stemming and stages, and utilizes a stop rundown to sift through relational words and comparable, typically unessential, words. Thus "Birth Date" and "Date-of-Conception" match.

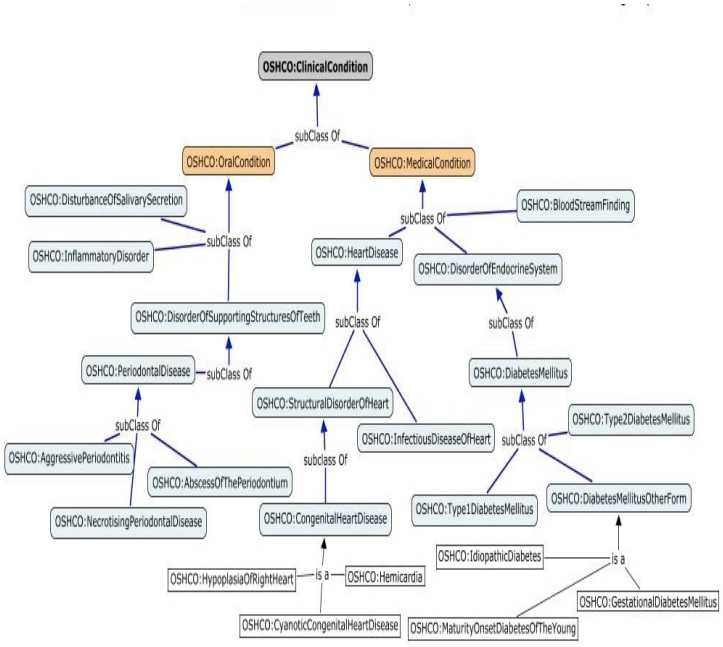
• Step 3: Match synonym sets. LOM then uses WordNet® to produce synonym sets for every term of every pair of terms of the data ontologies temporarily thought to be proportionate. LOM then performs a term-by-term examination of these synonym sets. On the off chance that the sets are identical, then the two terms are equal. For example, LOM confirms that "capacity" and "capacity" match, as do "engine vehicle" and "car.

• Step 4: match sorts. In its last step, LOM utilizes a predefined set of mappings from WordNet® words mapped to SUMO/MILO terms. LOM discovers SUMO/MILO expressions for words in the synonym sets distinguished in step 3, then checks whether every source metaphysics term has a partner term in the objective philosophy. Every progression of the calculation appoints a certainty component score to a couple of coordinated terms.

PROPOSED SCHEME

In our proposed system we design a model for reducing the concept of SCT is a poly-hierarchical which has multiple inheritance or multiple parent classes and the selection of concept to separate the information becomes tedious.

There is no sharing of patient information between dental and medical systems. If the size of the SCT increases then the performance decreases.OWL is used to represent the hospital wards and department records and SWRL represents issues in the heterogeneous health issues.OWL method is used which does not support the reusability of other parts of the ontology.Reasoning about querying becomes tough.Information identification is done using Meta Map and Sem Rep.



In the proposed system ,Sharing of information is done between medical and dental using ICT systems.Guiding frame work is used for reusing ontology and addressing the problems.ICT helps for automatic management of information.A cross domain ontology is created from the scratch of medical and dental domain.May lead to inheritance of error from the parent ontology to our resulting ontology.

Well-established ontology engineering methodologies such as OntoClean [39], Methontology[40] and On-To-Knowledge [41] do not address ontology reuses issues.Use OWL based ontology and reasoning to enable data sharing and interoperability across hospitalwards and departments and in [45], the authors use ontology layering by employing SWRL rules to address the issue of semantically heterogeneous e-health information. The scoring up of values is done finally by using up the searching of the disease ontology and by determining the values in the output screen.

With the first test we obtained that the personalized ontologies contain 8.03%, 5.46%, 9.77%, and 10.84% of the case profile ontology classes when a patient is constrained to have only one of the above mentioned diseases, respectively. If only the classes related to signs and symptoms, interventions, and problem assessments are considered, the percentage of original classes that remain in the personalized ontology are shown below:

Proportional sizes of the personalized ontologies.			
Disease	***s&s* (%)**	**Intervention (%)**	**Problem assessment (%)**
Fever	13.52	4.60	17.67
Cancer	6.92	5.75	12.09
Diabetes	14.47	3.45	26.98
Heart attack	16.35	6.32	27.91

SECURITY ISSUES

In the database of the system ,the data which is stored in the database must be kept secure so to overcome the security we use a login with its public and private key values. So any unauthorized user who login that profile whill not able to open it without knowing the key values .after the logging of the system the data which is stored are used for detecting of the patients disease.

PERFORMANCE EVALUATION

We have performed the operation of finding the disease of the patients .the disease name is used for searching the test ,meaning and the symptoms of that disease. The patients needs to test that he has a particular disease he need to rake certain tests so in the disease ontology he searches the disease name with respect to it , it displays its symptoms and test to be taken by him.

CONCLUSION AND FUTURE WORK

In this project ,we have overcome the reusing the domain knowledge of the representation of real-world phenomenon in an OWL ontology. The applicable restorative also, oral terms must be extricated from the current experimental writing, for example, from companion checked on productions, government wellbeing training sites, what's more, medicinal and dental course books and spoke to as ideas in the subsequent metaphysics. The Meta Map and Sem Rep are the two methods used in the domain knowledge. In the existing system we do not exactly map the score values in the for the patients. So in the future work the score values can be improved to further to exactly say the patients illness in the database.

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