SEMANTIC WEB

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Abstract: -**This paper introduces the traditional web and its limitations, and how these limitations can beovercome by putting the lights on a new interesting approach for the web which is the Semantic Web. The most common technologies that can be used to construct such smart web are discussed briefly, and then itscurrent layered architecture models as proposed by Tim Berners-Lee and others are evaluated to alleviatediscrepancies and weak points. An enhanced architecture obeying layered architecture evaluation criteria andstandard principles is proposed. This enhanced model is evaluated and contrasted against other models.**

Keywords:- **SPARQL , Query processing , Query Optimization, Semantic web, RDF, OWL.**

I. INTRODUCTION:-

The Semantic Web is an evolving extension of the World Wide Web in which the semantics of information and services on the web is defined, making it possible for the web to understand and satisfy the requests of people and machines to use the web content. The form of semantic web derives from World Wide Web Consortium (web as a universal medium for data, information, and knowledge exchange).

The semantic web comprises a set of design principles, collaborative working groups, and a variety of enabling technologies. Some elements of the semantic web are expressed as prospective future possibilities that are yet to be implemented or realized. Other elements of the semantic web are expressed in formal specifications. Some of these include Resource Description Framework (RDF), a variety of data interchange formats in semantic web. (e.g. RDF/XML, N3, Turtle, N-Triples), and notations such as RDF Schema (RDFS) and the Web Ontology Language (OWL), all of which are intended to provide a formal description of concepts, terms, and relationships within a given knowledge domain.

II. PURPOSE:-

Humans are capable of using the Web to carry out tasks such as finding the Finnish word for "monkey", reserving a library book, and searching for a low price on a DVD. However, a computer cannot accomplish the same tasks without human direction because web pages are designed to be read by people, not machines. The semantic web is a vision of information that is understandable by computers, so that they can perform more of the tedious work involved in finding, sharing and combining information on the web.

Semantic publishing will benefit greatly from the semantic web. In particular, the semantic web is expected to revolutionize scientific publishing, such as real-time publishing and sharing of experimental data on the Internet. This simple but radical idea is now being explored by W3C HCLS group's Scientific Publishing Task Force.

The idea of a 'semantic web' needly coming from some marking code other than simple HTML is built on the assumption that it is not possible for a machine to appropriately interpret code BASED ON NOTHING BUT THE ORDER relationships of letters and words. If this is not true, then it may be possible to build a 'semantic web' on HTML alone, making a specially built 'semantic web' coding system unnecessary.

III. TECHNOLOGIES:-

The semantic web technologies comprises the standards and tools of XML, XML Schema, RDF, RDF Schema and OWL that are organized in the Semantic Web Stack. The OWL Web Ontology Language Overview describes the function and relationship of each of these components of the semantic web:

XML provides an elemental syntax for content structure within documents, yet associates no semantics with the meaning of the content contained within. XML Schema is a language for providing and restricting the structure and content of elements contained within XML documents. RDF is a simple language for expressing data models, which refer to objects ("resources") and their relationships. An RDF-based model can be represented in XML syntax. RDF Schema is a vocabulary for describing properties and classes of RDF-based resources, with semantics for generalized-hierarchies of such properties and classes.

OWL adds more vocabulary for describing properties and classes: among others, relations between classes, cardinality equality, richer typing of properties, characteristics of properties (e.g. symmetry), and enumerated classes.

ARCHITECTURE:-This is the architecture of semantic web.

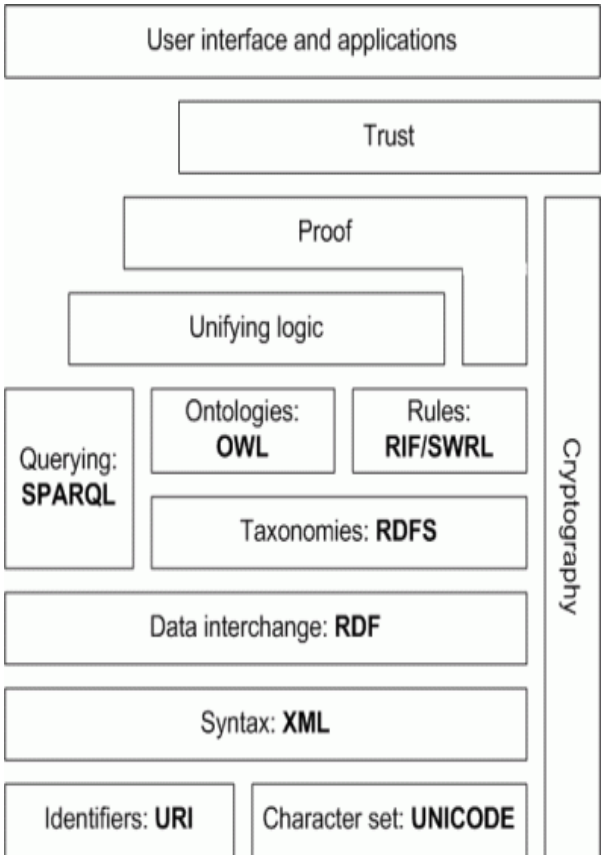

Fig 1

IV. ARCHITECTUREOF SEMANTIC WEB

Layers of Semantic Web:-

- *Internationalized Resource Identifier (IRI):*-This layer generalization of URI, provides means for uniquely identifying semantic web resources. Semantic Web needs unique identification to allow provable manipulation with resources in the top layers.
- *Unicode*:-Unicode layer serves to represent and manipulate text in many languages. Semantic Web should also help to bridge documents in different human languages, so it should be able to represent them.

- *XML*:-XML layer is a markup language that enables creation of documents composed of structured data. Semantic web gives meaning (semantics) to structured data.
- *XML Namespaces*:-This layer provides a way to use markups from more sources. Semantic Web is about connecting data together, and so it is needed to refer more sources in one document.

- *Resource Description Framework (RDF)*:-This layer is a framework for creating statements in a form of so-called triples. It enables to represent information about resources in the form of graph - the semantic web is sometimes called Giant Global Graph**.**
- *RDF Schema (RDFS)*:-This layerof semantic web provides basic vocabulary for RDF. Using RDFS it is for example possible to create hierarchies of classes and properties.
- *Web Ontology Language (OWL)*:-This layerof semantic web extends RDFS by adding more advanced constructs to describe semantics of RDF statements. It allows stating additional constraints, such as for example cardinality, restrictions of values, or characteristics of properties such as transitivity. It is based on description logic and so brings reasoning power to the semantic web.
- *SPARQL is a RDF query language*–This layer of semantic web can be used to query any RDF-based data (i.e., including statements involving RDFS and OWL). Querying language is necessary to retrieve information for semantic web applications.
- *RIF* :-This layer of semantic web is a rule interchange format. It is important for allow relations, for example, to allow describing relations that cannot be directly described using description logic used in OWL.

- *Cryptography*:-This layer is important to ensure and verify that semantic web statements are coming from trusted source. This can be achieved by appropriate digital signature of RDF statements.
- *Trust*:-Trust layer to derived statements will be supported by (a) verifying that the premises come from trusted source and by (b) relying on formal logic during deriving new information.
- *User interface*:-User interface is the final layer that will enable humans to use semantic web applications.

V. CONCLUSIONS:-

In this paper in semantic web, we make a brief survey of the existing literature regarding intelligent semanticsearch technologies. We review their characteristics respectively. In addition, the issues withinthe reviewed intelligent semantic search methods and engines are concluded based on fourperspectives differentiations between designers and users' perceptions, static knowledgestructure, low precision and high recall and lack of experimental tests.

In the future, our work will focus on the deeper and broader research in the field of intelligentsemantic search, with the purpose of concluding the current situation of the field and promote thefurther development of intelligent semantic search engine technologies.some technology are very most important in semantic web.

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