

Ontology Development for Bugtracking Information System

Sumit Kumar Mishra

Assistant Professor,
Babu Banarasi Das Northern Indian Institute of
Technology,
Lucknow, UP,

Dr. V. K. Singh

Professor. & Head - I.T.,
Babu Banarasi Das National Institute of Technology &
Management,
Lucknow. India

Abstract - Ontology Development For Bug tracking Information System makes use of the semantic web and it used for valid bug information retrieve from the software company which help for software company in web based projects and other information like handling bugs, tracking old issues in software, searching for bug history in previous software.

Keyword - RDF, SPARQL, OWL, Web Semantic

1. INTRODUCTION

Software company develops many web based software projects. A Bug Tracking information system detect the bug in software projects and give the proper solution for resolving these bug. In Ontology development for Bug tracking Information System we develop Bug tracking ontology and apply this ontology for information retrieval mechanism as a knowledge base for retrieving and managing acquaintance in a field of Software.[1,15]

1.1 Proposed System

The Proposed System consists of the Bug Tracking ontology. The Bug Tracking Ontology is built in Protégé 4.3. This ontology provides for the framework of the Bug tracking ontology System. DotNetRDF which is a RDF API used in Microsoft Visual Studio for implementing Semantic Web Solution is extensively exploited over here. A SPARQL query is submitted to the DotNetRDF API which in conjunction with ASP.NET provides results as queried by the SPARQL interface. So the request and response is handled by the system.[15]

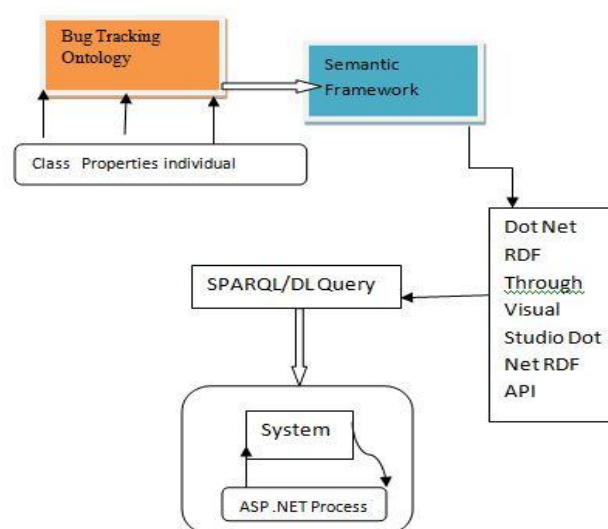


Fig.1. Bug Tracking information system Model

2.0 BUG TRACKER ONTOLOGY DESIGN

Bug tracker ontology is based on Web based project which consists Bug_Classes that is related directly Bug_information system. According to formal definition ontology consists 4 tuples $\langle C, I, R, A \rangle$ to design basic ontology we define all tuples.[4,5]

- Class(C)
- Instances (I)
- Relationship(R)
- Axioms(A)

2.1 Classes and properties of Bug Tracking Ontology

A class provides an abstraction mechanism for grouping data members with same type characteristics [6], whilst a property is often used to identify the non hierarchical relationships between domain and range (denoted as $R(\text{domain}, \text{range})$). Web Ontology language(OWL) provides two types of properties: data property and object property. Data property is define attribute or data items while object property is a binary relationship between two classes. Bug ontology define relationship between super class and subclass and Things represent the super class Bug tracking information system.

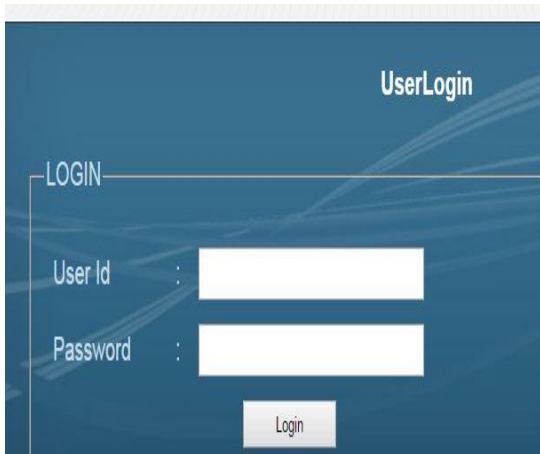


Fig.2 User Login System

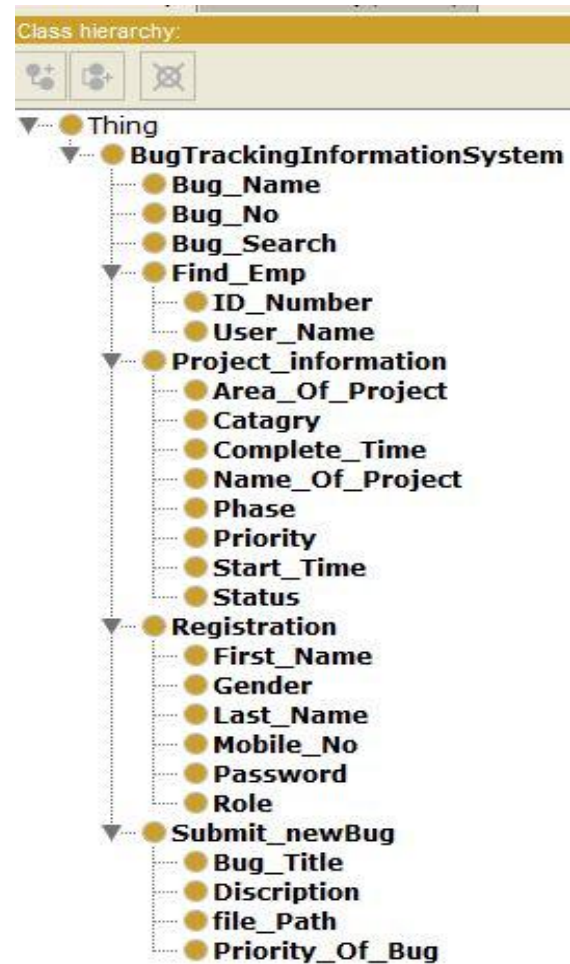


Fig.3 Class hierarchy Bug Tracking Information system

3. BUG PROJECT SYSTEM

With the help of this information system we submit new bug in Bug Database and set its priority on the basis of complexity of software. Also we add the part of the program where bug found.

Fig.4. Bug Submit File

4. SPARQL Query for related to Bug Ontology

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl:
<http://www.w3.org/2002/07/owl#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX rdfs:
<http://www.w3.org/2000/01/rdf-schema#>
SELECT *
where {
?element
<http://www.semanticweb.org/rs/ontologies/2014/9/Bug-25#hasBugName> ?BUG_NAME.
?element
<http://www.semanticweb.org/rs/ontologies/2014/9/Bug-25#hasBugID> ?Related_Bug_ID.
{ SELECT ?Related_Bug_ID
where
{
?element<http://www.semanticweb.org/rs/ontologies/2014/9/Bug-25#hasRelatedBug_ID> ?Related_Bug_ID.
?element<http://www.semanticweb.org/rs/ontologies/2014/9/Bug-25#hasBugPriority>
<http://www.semanticweb.org/rs/ontologies/2014/9/Bug-25#3>.
}
}
}

```

5.RDF(Resource description Framework) FILE FOR BUG TRACKING INFORMATION SYSTEM

```

<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE rdf:RDF [
  <!ENTITY rdf 'http://www.w3.org/1999/02/22-rdf-syntax-ns#'>
  <!ENTITY rdfs 'http://www.w3.org/2000/01/rdf-schema#'>
  <!ENTITY xsd
'http://www.w3.org/2001/XMLSchema#'>
]>
<rdf:RDF xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#">
  <rdf:Description
rdf:about="http://www.semanticweb.org/dell/ontologies/2015/0/untitled_ontology-6#EmployeeIdafa14055-6a5a-45f2-b2343-7cd5f3ca64">
    <ns0:Bugsearch
xmlns:ns0="http://www.semanticweb.org/dell/ontologies/2015/0/untitled_ontology-6#">BugName</ns0: Bugsearch >
    <ns1: Projectinformation
xmlns:ns1="http://www.semanticweb.org/dell/ontologies/2015/0/untitled_ontology-6#">Webbased</ns1: Projectinformation >
    <ns2:Registraion
xmlns:ns2="http://www.semanticweb.org/dell/ontologies/2015/0/untitled_ontology-6#">redWheat</ns2: Registraion >
  </rdf:Description>
</rdf:RDF>

```

6. WORKING OF SOFTWARE

This interface provide a basic searching features .with the help of Bug tracking information system we search any bug which is affected to running mode project in software company we can resolve easily. This interface based on semantic web concept so extracting the information is done very rapidly. In project development time if developer found new bug than this interface provide a basic feature submitting new bug concept. With the help of this concept developer add new bug in bug tracking ontology based information system. This interface look like a search engine also that involves semantic web concept you can find bug information on similar matters by searching through.

7. CONCLUSION AND FUTURE SCOPE

The future scope of our work is to apply the potential of Knowledge Representation[12,13,14] along with reasoning in the Web context. The use of semantic web in Bug tracking Information System helps the machine to take the appropriate decision regarding software.

8. REFERENCES

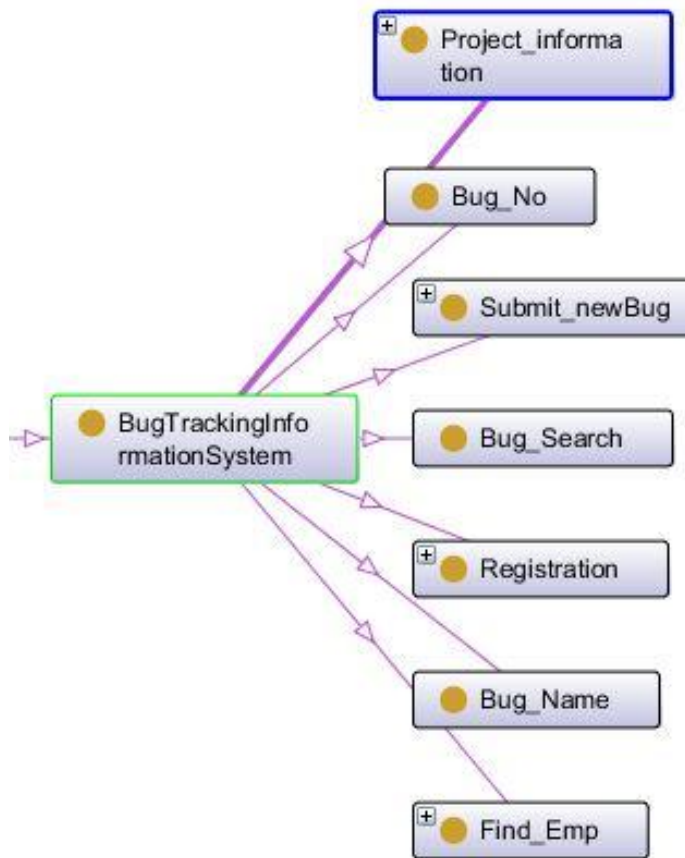


Fig.5. Bug Tracking Information System Ontology

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About Authors

- [1] SUMIT KUMAR MISHRA received his B.Tech degree from U.P.T.U. in 2013. Currently he is Assistant Professor, Babu Banarasi Das Northern Indian Institute of Technology, Lucknow Uttar Pradesh, India.
- [2] Dr. V.K. SINGH Prof. & Head - I.T., Babu Banarasi Das National Institute of Technology & Management, Lucknow. India.