

6a.025.UL - An Ontology-based Architecture for Providing Insights

Year 6 - Deep Dive Video

[6a.025.UL_Deep Dive Video \(23:06 minutes\)](#)

Project Description

Objectives:

The objectives of this project include:

- Investigating and building a generalized ontology-based insight generation system for multiple domains
- Developing quantitative performance measures to evaluate our system
- Investigating aggregated information generator algorithm (different concept hierarchies for generating aggregated information), and insight rule generation algorithm
- Create a visual interface for the generic ontology-based insights generation system and deploy the application on cloud

Methods:

Usually organizations look at key performance metrics about customers, partners and various internal divisions – but are unable to capture data-driven insights into what is driving these metrics. Moreover, these tools do not capture knowledge on what has worked historically and what has not worked. Obtaining insights (or prescriptive analysis) that are actionable is a valuable product for an organization rather than data or knowledge.

Ontology-based Insights rule generation:

Prescriptive analytics along with ontology-based approach will improve the decision-making process. Aiming at exploiting the advantages of ontology-based approach and techniques for delivering insights of data, an ontology-based architecture for providing insights. The approach has three phases. In the first phase, we extract the semantics from data stored in a relational database and capture it in the ontology. In the second phase, we gather more domain knowledge by asking the decision maker about the uncontrollable parameters (network mac protocol, network scheduling, network routing, country of the university, year), the boundaries to be used for the discretization of the controllable parameters (number of nodes, transmission range, traffic load, alumni score, award score, hici score) and the performance metrics (delay, jitter, PDR, throughput, publication score, nature science score). This domain knowledge is added to the ontology and used by the rank table generation algorithm to generate rank tables. Finally, in the last phase, insight rules are generated by applying insight rule generation algorithm to each of the rank tables and the insight rules are then encoded and stored in the ontology. Thereafter the decision maker selects a network configuration/university, and the system suggests actions that need to be taken to improve the performance of the network configuration (experiment)/university.

Project Team

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Sumit Shah	IAB Project Mentor	Sumit Shah	Not available	Funded by: CGI
Jay Bardhan	IAB Project Mentor	Not available	Not available	GlaxoSmithKline (GSK)

Project Deliverables

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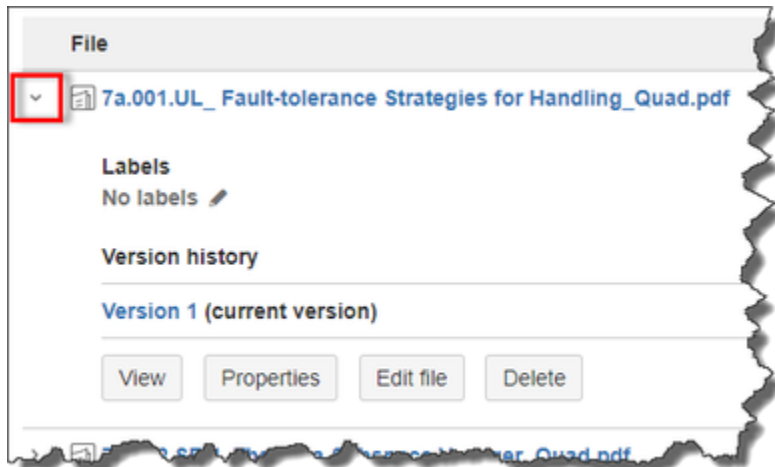
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	Deliverable
1.	Ontologies from the structured data for a few domains
2.	Algorithms that generate aggregated information of an individual (insights)
3.	Development of a proof-of-concept for the ontology-based generation system that delivers an actionable plan

Project Documents

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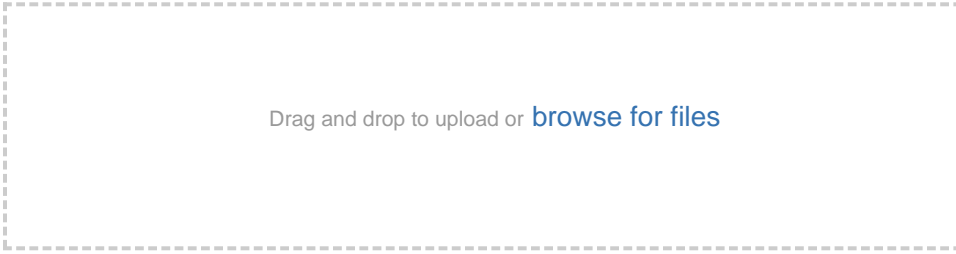


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Aug 01, 2018 by Sally Johnson



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