# *Evaluation of LinDA and Comparison with other tools for visualization of Linked Data*



Requirements Specification

Lab Semantic Web Technologies – WS14/15

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# 1. Introduction

## 1.1. Revision History

| Edition | Date | Authors | Remarks |
|---------|------|---------|---------|
| 01 | 11.11.2014 | Rose-Mary Owusuua Mensah, Nishananth Baskaran, Ugochukwu Chimbo Ejikeme, Nikhil Patra | Creation |

## 1.2. Purpose

The purpose of this document is to provide a detailed description of the requirements for the evaluation of LinDA and comparison with other tools for visualization of linked data. It will illustrate the purpose of the evaluation and comparison of the tool in order to make LinDA, serve good purpose for visualization. The concepts will be explained using textual descriptions to illustrate the evaluation and comparison to be carried out.

This document is intended for the Supervisors of our Semantic Web Technologies Lab at the University of Bonn. It can also be used by the stakeholders of Enterprise Information Systems such as software developers, managers and businesses.

## 1.3. Scope

The goal of this project is to provide an evaluation and comparison report about the LinDA visualization tool. The reports will help the LinDA developers to know how users think about the tool and the pros and cons of LinDA compared to other visualization tools already available. The evaluation system will have three categories: environmental setup, assessment and evaluation. Setting the environment up and evaluation will be done by the evaluators and the assessment will be carried out by a group of users. The assessment mainly involves tasks for the user to be carried out in LinDA visualization tool and it ends by scoring the tool based of their experience with the tool. The evaluation system will be designed so simple such that, the users participating in the assessment will not be misguided and the goal of the project will be achieved. The scope of this document is to ensure that the requirements for the evaluation system are mentioned properly. This document serves the evaluators to design the environment, assessment and choose measuring criteria.

### 1.4. Definitions, Acronyms, Abbreviations

- SRS: Software requirement specification.

- LinDA: Linked Data Analytics

- RDF: Resource Description framework is a family of World Wide Web Consortium (W3C) specifications used as a general method for conceptual description or modelling of information that is implemented in web resources, using a variety of syntax notations and data serialization formats.

- Evaluators: A group of people who are involved in understanding the product quality which are: usability, efficiency and scalability and compare the new tool with the already existing tool.

- Users: A group of people who are involved in experiencing the tool and give a feedback on the same.

### 1.5. References

| Reference Name | Reference Link |
|---|---|
| Software Requirements Specification | http://en.wikipedia.org/wiki/Software_requirements_specification |
| Requirements Specification | http://www.sqa.org.uk/e-learning/SDM03CD/page_01.htm |
| Software Evaluation: Criteria Based Assessment | http://software.ac.uk/sites/default/files/SSI-SoftwareEvaluationCriteria.pdf |
| LinDA - Visualising and Exploring Linked Data | http://ceur-ws.org/Vol-1224/paper10.pdf |

## 2. Overall Description

### 2.1. About LinDA Visualization Tool

The aim of the LinDA project is to make the benefits of Linked Open Data accessible to SMEs and data providers by providing libraries for Open Data consumption. One of the main tasks in this context is to build an ecosystem of tools for visualizing Linked Data to assist SMEs in their daily tasks by hiding complexity through automation and an intuitive user interface. To complete this task, a generic visualization workflow is being implemented based on state-of-the-art Linked Data visualization approaches. Most

existing approaches are only usable by a technical audience or limited to certain domains or data representations. LinDA proposes a generic approach for visualization selection in form of a faceted browser that imposes on the user the task of describing the visualization at an unfamiliar level of abstraction.

**LinDA Visualization Workflow:**

- *Select Data*: The user starts with the selection of the dataset which is intended to be visualized.
- *Select Visualization*: Based on the content and format of the selected dataset, the possible visualizations are computed and presented to the user.
- *Configure Visualization*: After choosing the necessary visualization, the user needs to provide necessary input for the application in order to map the data for the visualization selected.
- *Visualize*: Finally, the input is performed and the visualization of the data happens. Along with this, the user can export or share the visualization.

## 2.2. Project Description

The project mainly aims in evaluating the new visualization tool called LinDA. There are some visualization tools available already and they can be used mostly by technical people. LinDA also focuses on people who are novice. In order to see, whether the developers of LinDA have achieved what they want this evaluation is being carried out. The developers wanted to see how the users feel about the interface. Whether the user is able to access the interface without any assistance and whether he is able to visualize the data are the main interest for the developers of LinDA. In addition to this, tasks like how long a user takes to generate visualization, how long the tool takes to generate the visualization will help to know the efficiency of the tool. Finally, the comparison of LinDA with the other visualization tools will help to know the pros and cons of LinDA visualization tool. To summarize, this project mainly focus on the product quality which is usability, efficiency, scalability and comparison with other tools.

## 3. Specific Requirements

### 3.1. Functional Requirements

| REQ_ID | REQ_NAME | DESCRIPTION | PRIORITY |
|--------|----------|-------------|----------|
| 1 | Testing Usability | Should test how the users feel about the interface of the tool and how comfortable they feel in using the tool. | 1 |

| | | | |
|---|---|---|---|
| | | We should be able to know whether the advanced users can understand easily and the beginners can learn easily. We should also see, whether the users can understand the tool's purpose, the tool's basic functions and tool's advanced functions. | |
| 2 | Testing Efficiency | Should test the competence of the tool. We should check how fast the users can visualize with the help of the tool. We should also check how fast the dataset can be loaded in the tool and how fast the tool produces the visualization. | 1 |
| 3 | Testing Scalability | Should test whether the tool can handle large amount of dataset. We should visualize the data from the small size dataset and as well as from a big size dataset. The tool should not behave differently for the big size dataset. | 1 |
| 4 | Compare Tool | Should compare the LinDA tool with the other available tools. The comparison should be based on the metrics that has been measured individually in LinDA. By the end of comparison, we should develop the pros and cons of LinDA | 1 |

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| REQ_ID | REQ_NAME | DESCRIPTION | PRIORITY |
|---|---|---|---|
| | | compared to other tools. | |
| 5 | Testing Effectivity | Should test the different types of datasets supported by LinDA. Also should test, the different types of the charts available in LinDA. | 2 |
| 6 | Testing Installability | Should test how easy to install LinDA, whether the pre-requisites have met, have successfully installed in the target platform, and verify the installation and the like. | 2 |
| 7 | List of Alternative Tools | Should provide a list of alternative visualization tools that will compared with LinDA at the end. | 1 |
| 8 | List of possible datasets | Should provide a list of possible datasets that will be used in the evaluation. | 2 |

### 3.2. Non-Functional Requirements

| REQ_ID | REQ_NAME | DESCRIPTION | PRIORITY |
|---|---|---|---|
| 1 | Usability Test Report | Report should be generated for the usability test done. It should contain the detailed information about how the testing was carried out, users' information, about measurements and the like. | 1 |
| 2 | Efficiency Test Report | Report should be generated for the efficiency test done. It should contain the | 1 |

| | | | |
|---|---|---|---|
| | | detailed information about how the testing was carried out, users' information, about measurements and the like. | |
| 3 | Scalability Test Report | Report should be generated for the scalability test done. It should contain the detailed information about how the testing was carried out, users' information, about measurements and the like. | 1 |
| 4 | Comparison Test Report | Report should be generated for the comparison done. It should contain the detailed information about how the comparison was carried out, tools information, about measurements and the like. | 1 |
| 5 | Technical System Documentation | Document should contain the whole procedure of the evaluation and comparison. It should mainly contain information about users, environment, apparatus, tasks, measurements and the like. | 1 |