

TOBIE-WebUser Interface

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Bonn, 11.10.2017, Summer Semester 2017



Problems

1. Employment Problem
2. Data Visualization
3. 3. Trend Analysis



Relevance and Importance

1. For job seekers who are meeting some problems during job finding.
2. The contribution of our project improves employment problem by visualizing result more intuitively for users.



Challenges

1. Transfer data in csv files into that can be manipulated by web browser.
2. Choose proper visualization techniques to enable users to analyze in an efficient way.



Proposed Solution

1. Build an interactive front-end web user interface, using database to store data from csv files.
2. Create page “keyword structure” to show inter-relationship between skills.
3. Create page “strategic diagram” to display the centrality and density of each cluster.
4. Create page “skill occurrence” to display top 10 skills with most skill occurrence.



Implementation Details

1. Build a website by implementing yii2 framework.
2. Using MySQL as database.
3. In page “keyword structure”, the graph is based on force-directed graph though D3.
4. In page “strategic diagram”, chart is based on Highcharts demo Bubble chart.
5. In page “skill occurrence”, chart is based on Highcharts demo stacked bar.



Use Cases

1. Users' Use case 1:
----Enable users changing time through time-span.
2. Users' Use case 2:
----Select the nodes/edges to display more detail information.
3. Administrators' Use case 3:
----Upload csv files.



Demonstration

<http://localhost:8080/tobie-visualization/>

TOBIE Visualization

[Keyword Structure](#) [Strategic Diagram](#) [Occurrence of Skills](#) [CSV](#) [Logout \(admin\)](#)

TOBIE PROJECT VISUALIZATION

TOBIE is short for Trend Analysis Ontology-based Information Extraction system, which is capable of processing unstructured or semistructured data, to extract information, integrate it into a coherent knowledge base and perform trend analysis on top.

Particularly, we want to enable users to discover inter-relationships at the level of individual postings, among others, such as to analyse which skills are typically sought for in combination.

Page "Connection Structure" shows the relationships between each skill, in which the line show the strength and co-occurrence of two skills. The radius of nodes indicates the occurrence of each skill. Nodes in the same cluster are in the same color.

Page "Structure Diagram" shows the centrality and density of every cluster as a bubble chart. In this page, the cluster is corresponding to that in page "Connection Structure".

Page "Occurrence of Skills" shows the top 10 occurrence of skills for each country and month in descent way.



Lessons Learned

1. Learn how to build a website by implementing a framework.
2. Learn how to make data visualization by using javascript library, as D3, Highcharts, JQuery.
3. Learn how to corporate with teammates to do a project.



Conclusions and Future Work

1. Focus on building an build an interactive front-end web user interface for trend analysis.
2. Making a visualization with data by extracting from the content of job advertisements in EU countries labor market.
3. Create more pages to fulfill new requirements as TOBIE system grows.
4. create charts with time line to display the skills occurrence and which cluster a skill belongs to over all time.



Q & A

Thank You !