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# A Tool for Visualizing Skill Requirements in ICT Job Advertisements

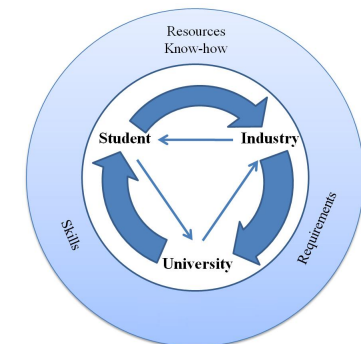
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Porras

e-Learning'11, Bucharest, Romania, 26th  
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# Motivation & background



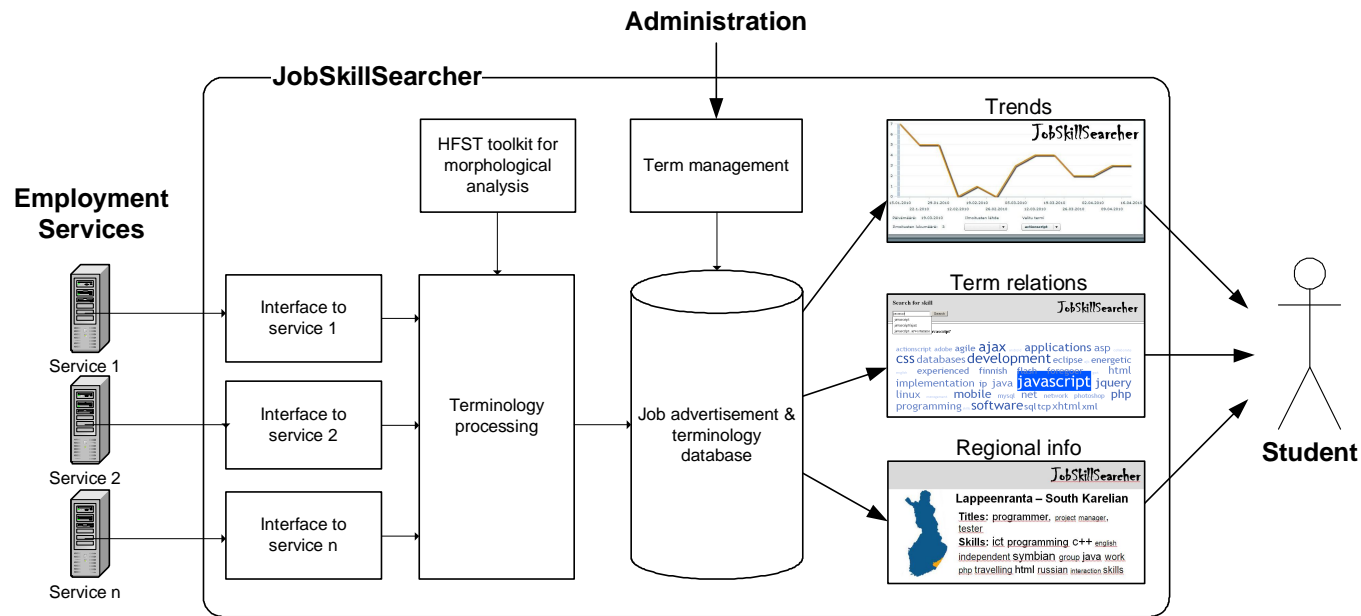
- Students do not have a clear picture of
  - What skills are demanded for different job positions
  - How these skills are related to and support each other
- Job advertisements are a good source to find out the topical requirements in the industry
- Human research over the advertisements have been completed over the years
  - Number of listed skills in ICT advertisements have had a rising trend already since the 70's
  - However, reading through and analyzing advertisements requires considerable human resources
  - Studies normally in the United States job markets
- Currently most of the advertisements available in web sites
- Therefore *JobSkillSearcher* was implemented



# The application in brief



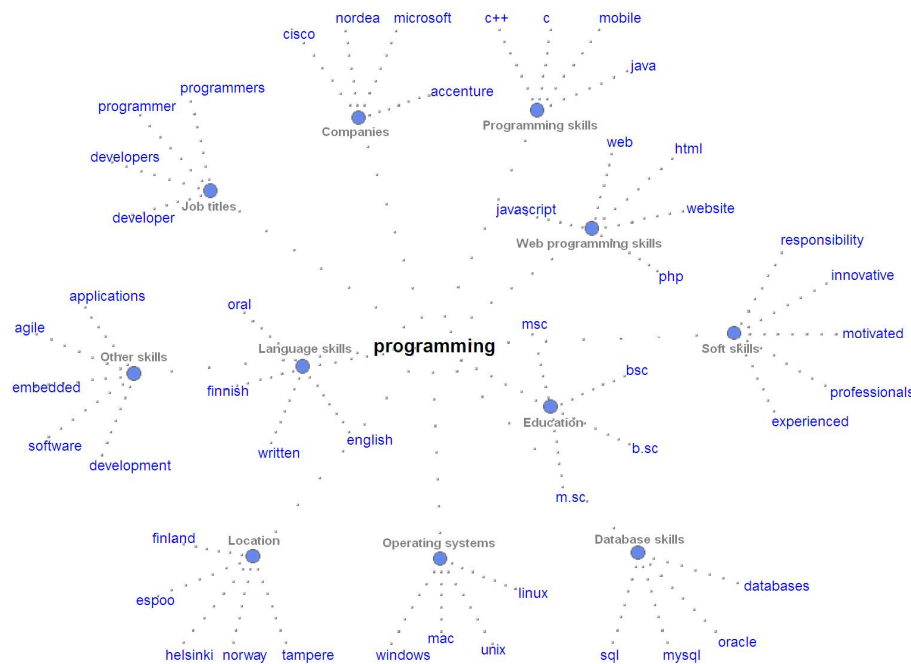
- Can be divided in three parts
  - Retrieve & store
  - Identify & analyze
  - Represent



# Students – the primary target



- Getting a picture of
  - Skills (technical, soft, language,...) that are demanded for different job positions
  - Supportive (technical) skills
  - Trends
  - Demands based on more special restrictions (location, company,...)



# Teachers



- Sometimes students might need some **motivation** for the topics taught in the course
  - The requirements of industry can be used to prove the value of the topics
- **Evaluating** the content of the topic
- Case: Web programming -course

- Exercise 1  
Create yourself a HTML-page...
- Exercise 2  
Modify the layout of your page using CSS...
- Exercise 3  
Verify the content of the form using JavaScript...
- Exercise 4  
Create a script using PHP to...
- Exercise 5  
Use PHP...
- Exercise 6  
MySQL
- Exercise 7  
Create a form that uses Ajax to update...

Search for skill

Results for term 'html'

- html (137)
- css (83)
- javascript (75)
- php (69)
- sql (62)
- web (62)
- mysql (55)
- osaaminen (52)
- english (47)
- java (44)
- kokemus (43)
- suomen (42)
- development (41)
- developer (40)
- osaamista (38)
- software (33)
- jquery (27)
- xhtml (27)
- finland (26)
- helsinki (26)
- suomi (26)
- finnish (25)
- linux (25)
- applications (24)
- xml (24)
- englannin (22)
- ajax (21)
- internet (21)

# Current state of *JobSkillSearcher*



- *JobSkillSearcher* has been running since March 2011
  - 3.800+ advertisements
  - 370.000+ words included in all advertisements in total
  - 48.000+ individual words in database
  - 2.300+ terms categorized as skills (including synonyms and conjugated terms) + 1.000+ Finnish company names, municipalities,...
- Preliminary evaluations
  - 10,2 skills per advertisement recognized in average
  - Compared to the results of manual investigation of random advertisements, “hit percentage” is good
    - Vocabulary still to be slightly improved
    - “Comparison algorithms” more demanding challenge
  - A considerable number of advertisements in which not a single recognizable term was found!

# Conclusions



- A software tool for analyzing job advertisements can
  - Provide reliable results of the demanded skills in industry
  - Provide real-time information about job markets
  - Decrease the need of human work
  - Bring the information typically used for research purposes and in institutional level for the end users – students
  - Highlight issues, such as social or soft skills, whose importance is not necessarily been recognized
  - Bring out also some regional emphasis in demands



Thank you.

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