Software Development Arena

Summarizing Tools for General Purpose Search Engines

Students:

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External Evaluators and Consulters

- Evaluators:
  - **Vladimir Dobrynin**, Associate, St. Petersburg State University, **Russia** (Expert in information retrieval, well known in Europe).
  - **Mark Sifer**, Professor, the University of Wollongong, **Australia** (Expert in software interface, well known in the world).
  - **Fredric Gey**, Professor at University of California, Berkeley, **USA** (Expert in information retrieval, well known in the world; in Japan, he is one of organizers of NTCIR Workshop led by NII, Tokyo).
- Consulters
  - **Kendall E. Nygard**, Professor, North Dakota State University, **USA** (Expert in software engineering, project management, well known in the world).

Results: Software Developed

- The prototype of the system to search for scientific documents.
  - General Characteristics:
    - ✓It is written in Java.
    - ✓It is fully support service introduced on Slide 8.
    - ✓It uses the Google search engine as a back-end searcher.
  - Special Characteristics:
    - ✓Semantic-based query expansion utilizing WordNet
    - ✓Semantic-based summarization producing indicative summaries

Distinguishing Characteristics of Teaching

- This project is a team-based learning project.
  - It started on October 17, 2007.
- The project combines individual and group work.
- Each team member is responsible for a dedicated topic.
- Once a week, each team member reports about his/her individual work and takes part in discussions.
  - Our team is international: two Japanese and one Russian student.
  - Communication languages are Japanese and English.

Rotation of Project Manager Position

- The role of each team member for each month:
  - Two members are software engineers who are responsible for coding and other materials which relates to software development.
  - One team member is a manager who is responsible for the management of the project.
  - Once a month, the functional roles are rotated, so once in three months, everyone is responsible for the management activity.

Role of the Special Activities

- We pioneered in three types of activities.
  - "Tea" seminars:
    - ✓ Series of meetings with our consulters and evaluators (Prof. Kendall E. Nygard and prof. Mark Sifer) in the "relaxing" atmosphere.
  - Conference participation:
    - ✓ Every member presented a talk at the international conference overseas.
  - Weekly group meetings:
    - ✓ Strong internal criticism during discussions.

Lessons Learned

- Background of each member
  - In our team, one student graduated in chemistry, the second one in computer science, and the third one in system engineering.
    - ✓It is not easy, to achieve the balance in work having such a team.

Lessons Learned

- Development of the students as independent researchers
  - The participation of each student in all the key areas of problem formulation, literature survey, software specification and system evaluation is needed.
    - ✓ We have to work more to find appropriate solution: For example, different level of English and skills in programming is a big problem.

Lessons Learned

- Assessment
  - It is not easy to evaluate individual contribution of each member of the team to ensure that each student meets expected skills.
    - ✓ We did it through individual submission and oral presentation of project reports.

Lessons Learned

- Self-organizing team
  - We was not successful as a self-organizing team: Students were needed the permanent control, directions, and instructions.
    - ✓One of the reason is the initial different level of students.

Lessons Learned

- Job hunting
  - Team work was practically destroyed starting from the beginning of March: Students have different schedules for interview, at different companies, in different cities.
    - ✓ We predicted such situation and did our best to make the negative effect softer. We intensified research in November – February.

Thanks to all

View on the Future

- Rotation of project manager position seems to good solution to provide the students with a team experience of research and software development.
- Presentation of each student at an international conference overseas, this results is crucial to support student growth as researchers.
  - It is very difficult to achieve (scientific results have to be quite high), and funds to travel is not easy to find.

View on the Future

- Face-to-face long hours meetings with external evaluators and consulters are extremely effective.
  - Students get constructive criticism from different angles; they understand better how to defend their view and position, etc.
    - ✓ The university should provide the honorarium for the evaluators and consulters. It will help organizing evaluation and meetings.

View on the Future

- English teachers' assistance
  - Each publication should be subjected to prior editorial review by an English teaching professional.
    - ✓It is not easy for a supervisor who is not a native speaker of English to assist in writing keeping the style of the students as much as possible. The last issue is crucial to grow scientific researchers. This work should not be voluntarily activity.

View on the Future

- Job hunting problem should be taken into account when planning group work and research.