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Open Source Software Engineering Tools for OMSE



OMSE plans to establish an open source software infrastructure to support the exchange of best software engineering (SE) practices, tools, components and lessons learned among members of the local community including OMSE students, faculty, alumni and affiliated companies.

Oregon Master of Software Engineering (OMSE) program was established to enhance the software engineering capabilities of Oregon software technology companies. The program targets working software professionals providing them with the foundations, principles, processes, methods and tools needed to successfully manage and conduct a range of software-intensive projects.

Open Source Software Evolution in the Classroom: One of the main challenges for software engineering and information technology instructors is to provide students with real-world opportunities for developing software products and systems in a team or project setting. If the software products to be developed and evolved are the same tools that support SE best practices, an effective closed-loop process can be achieved. Our aim is to employ SE tools in support OMSE lectures and assignments. When students undertake practicum projects, they evaluate, compare, enhance and deploy these tools for use in subsequent classes. Open source SE tools provide a unique opportunity for both students and faculty to evaluate and improve such SE tools (see next page).

Initial Evaluations of Open Source Software Engineering Tools: In the spring of 2004, a 3-person team of OMSE students conducting their practicum project examined several emerging software engineering support tools for requirements management, configuration management, problem tracking, change management, project management, design, integration, build, testing, and release. The aim of this work was to “seed” the concept of an open source infrastructure (a “lab”) for the teaching of OMSE courses. A paper entitled “Open Source Software Engineering Tools” by Grove, Matthews, Hickman and Toth which summarizes this work was presented at a recent conference on software quality (see link on Kal’s web page referenced below).

Subsequent Evaluations of Open Source SE Tools: A current cohort of 15 OMSE students is conducting a follow-up evaluation of open source SE tools with the aim of researching, evaluating, installing and deploying several of these tools within a PSU / OMSE GForge site. During the winter term, these students examined a wide range of tools covering the software process and developed a 3-year plan for evolving the OMSE GForge site. In the spring, this cohort will divide into 5 x 3-person teams focused on the first iteration of this plan. Notable open source software engineering tools and suites they are evaluating: GForge; various IDEs and foundation components; ECLIPSE; workflow and requirements modeling tools; design (UML) modeling tools; continuous-integration tools.

Open Source Software Engineering Infrastructure for OMSE: Our primary aim is to significantly enhance SE learning, feed industry with higher caliber resources, and open new employment opportunities for students and graduates:

- OMSE practicum students over multiple years will establish and evolve a software engineering support environment leveraging open source software engineering tools and OMSE best practices;
- Organizations affiliated with OMSE will be provided access to this infrastructure and will thereby be positioned to adopt or adapt tools and offer back feedback, improvements and lessons learned;
- OMSE faculty will incorporate the use of these tools into their lectures, examples and assignments – this will harmonize and enhance course offerings and contain costs for the OMSE program;
- OMSE students will be well-positioned to support the introduction of best practices tools into company projects – they will thereby facilitate process improvements within their corporate cultures.

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