From Class Project to Open Source: Packaging for Outside Development

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Abstract: Open-source software projects are becoming common in software engineering classes. Yet it is often difficult to find an OSS project that is suitable for class use, because of prerequisites or hardware that the class may not possess. One way around this is for instructors to package their own projects for open-source development. Our Expertiza system for collaborative learning has been turned into an open-source project by thoroughly documenting its internal structure, and posting it on the ROSE (Repository for Open Source in Education) site.

Expertiza

There is widespread and growing interest in using open-source software in teaching. Yet observers [1] report that it is difficult to find appropriate open-source projects for use in class. Our contribution is to take an existing software project and make it open source. Doing this successfully requires special effort in documentation and, for lack of a better word, advertising.

Our project is Expertiza [2, 3], a collaborative-learning environment built on peer review: review of submissions by students, feedback from authors to reviewers, evaluations of team members by other team members, and evaluations of reviews by students or instructors. All reviews are done using rubrics. Students may be grouped into teams either by self-selection or according to instructor criteria. Additionally, our Expertiza peer-review system allows instructors to specify a set of topics and have the students choose one. Students might be assigned, for example, to choose one of a set of features to implement for an open-source software project, or to select a topic on which to create a wiki page. Students then submit their work, either explicitly or by putting it on a wiki at the requested address. Their team's work is then reviewed by an individual who is not part of their team. The authors of the work have an opportunity to give feedback to the reviewers at any time. When the instructor has specified more than one round of review, authors then resubmit their work in response to reviewer comments, and reviewers have a final opportunity to review and score the authors' submissions. The final step is *metareviewing*, during which someone who is not party to a review assesses the quality of the review.

Making Expertiza Open Source

This presentation describes our efforts to turn Expertiza into an open-source project. Every time we add a feature, we discover several others that should be added. For

example, we would like to add support for GoogleDocs, enhancements to add social-networking features, support for additional wiki types, and to integrate the system with various learning management systems (e.g., Blackboard, Moodle, Sakai). The project does not have the resources to add all these features itself, but other software-engineering classes might. The author has been in communication with instructors at several other schools who are interested in having their own classes develop Expertiza features.

To make this a reality required thoroughly documenting Expertiza inside and out. The amount of documentation required for external development exceeds that required for internal development, because other developers are not close by to respond to questions. We found that it was necessary to describe all of the classes, and list the functionality of each field in database tables. For each desired change, we needed to list the affected classes and tables, and give suggestions for how the change was to be designed (for example, to encourage the developers to use polymorphism rather than if-statements or code duplication). The presentation will show how a typical change is documented. We also needed to publicize the system, on our ROSE repository [1], through posts on appropriate mailing lists, and contacts at conferences. Two instructors have tentatively committed to having their classes develop Expertiza modules in Spring 2009, and we will give a report on their progress.

References

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[3] Gehringer, E.F, Ehresman, L.M., Conger, S.G., and Wagle, P. 2007. "Reusable learning objects through peer review: The Expertiza approach," *Innovate: Journal of Online Education* 3:5, June/July 2007