

ACM SIGCSE Special Project Report Software History Examples

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1 Project Summary

This project was to collect, organize and share important software system examples for use in teaching software history. The project identified important examples, worked with relevant institutions, and is publishing those examples on the web in easily accessible and reusable modules. Examples are from many areas of software including databases, operating systems, programming languages, artificial intelligence, graphics, networking, and software engineering. The intent of these examples is to make important examples accessible, and to identify the context of the innovation and why these examples are important. These examples include source code, other relevant context, explanation, and references.

2 Project Status and Results

The project is largely complete and results are being compiled into a public website at <http://software-history.net>. As per the project plan several archives were visited to gather important examples. The institutions visited with support from this project were:

- Computer History Museum Archives
- Charles Babbage Institute Archives
- Massachusetts Institute of Technology Archives

In addition, a number of historical software examples were found online that are also included in this work. Some of the examples that are being included in the web site are the following:

- Compatible Time Sharing System's (CTSS) Time-Sharing Scheduler as one of the first examples of time-sharing (written in MAD),
- ELIZA original source code (written in MAD-SLIP)
- Adventure game (written in FORTRAN)
- Autoflow system (for drawing flowcharts) as example of one of the first software patents (written in RCA 501 Assembly)
- SketchPad system (written in TX-2 Assembly)
- FORTRAN I (written in IBM704 Assembly)
- THE Operating System (Dijkstra's OS implementing Semaphores, written in Assembly)
- LT (Logic Theorist), written in LISP precursor (Information Processing Language, IPL) and considered one of the first AI programs

- Dartmouth BASIC Compiler (Assembly)
- 1988 (Morris) Internet Worm (disassembly version)
- Early UNIX Source Code (assembly before 1972, C after 1972) with code for Pipes (pipe.c).

These examples are being assembled and organized into general topics (like operating systems, AI, databases, networking, etc.).

2.1 Project Status

The original project was proposed to have four phases as follows:

- Phase 0: Identify a prioritization method and which types of software-related artifacts to collect and organize
- Phase 1: Identify specific target software systems to attempt to include along with their locations
- Phase 2: Collect and organize software examples
- Phase 3: Publish and organize into re-usable resources

Phases 0, 1, and 2 are complete. Phase 3 is mostly complete will continue to be developed to incorporate more examples and to more fully flesh out the site to support teaching using these examples. Students and this PI are continuing to work to include more examples.

3 Report of Spending

The status (See Table 1) of project spending in relation to the original budget is as follows: The budget was largely adhered to with a goal of minimizing travel expense and max-

Expense Category	Planned	Actual
Travel as required to repositories	\$3,300	\$3,151
Effort to organize and format content	\$1,500	\$1,837
Hosting Costs	\$0	\$12
Identification, Collection, and copy costs	\$200	\$0

Table 1: Expenses: Planned and Actual

imizing the amount of funds available for student workers to help develop the historical software examples on the web site. A domain (software-history.net) was purchased so that the content could be more easily found and is included under hosting costs. Identification, Collection, and copying costs were kept at zero by using scanners and cameras at the archives to avoid duplication expenses.

4 Summary

This project was successful in finding and publishing to the web important software examples as well as explaining and developing them into examples suitable for classroom use. With this base development of the website and examples, work will continue to enhance the content. The funding projected by ACM SIGCSE significantly helped to move this work forward and is very much appreciated.