Hands-on Project
CSC 8350 Advanced Software Engineering
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Dr. Xiaolin Hu
Computer Science Department, Georgia State University

Description:
Each student is required to form a two-member group to work on a software engineering hands-on project (Note: the hands-on project group and the literature review group may be different). The hands-on project must belong to one of the following two types:

1. A modeling project based on DEVS using DEVSJAVA (or other software modeling tools if approved by the instructor).
2. A project based on cutting-edge tools related to software engineering, such as program analysis tools, automated software test tools, extreme programming tools or supporting tools, and other cutting-edge tools.

For the type 1 projects, the projects will use the Discrete Event System Specification (DEVS) formalism and the DEVSJAVA environment. Each group will define a problem in one of the topical areas listed below and specify the goal of its modeling and simulation study. Students may also choose their own topic areas (e.g., related to their Master or Ph.D. thesis) after discussing with and granted by the instructor. In the project, students will develop models and run simulations in DEVSJAVA, collect simulation results and conduct preliminary analysis of the results.

Suggested Topical Areas:
- Wired or wireless network modeling and simulation
- Health care system modeling and simulation
- Smart home/smart grid modeling and simulation
- Business (workflow) process modeling and simulation

For the type 2 hands-on projects, the projects cannot be based on the existing examples provided by the tools. You need to develop your own project or examples. It is desirable (although not required) for the projects to be “extended” from the advanced topic review (but keep in mind that a hands-on project needs to be a concrete project instead of a review).

Each group needs to finish a project report and give a 13-minute presentation and demonstration at the end of the semester. For type 1 project, the project report should include descriptions of the problem, the developed models (including diagrams and some pseudo code), simulation results (including snapshots of the simulation, and some preliminary analysis of the results), and a conclusion section. For type 2 project, the project report should include an introduction, a section describing the tool or methodology used, a section describing the examples developed, a result/outcome section, and a reflection/discussion/conclusion section. The reflection/discussion/conclusion section is an important section, which should describe what have been learned, and/or discussion and evaluation of the tools that are used. For example, if your project is to develop an example based on a tool or method, you need to put more emphasis on the software engineering aspect (e.g., evaluation of the development tool/method) instead of simply developing the example.

The project report will be 9-10 pages (Times New Roman, 12 font size, single space, and single column) excluding the cover pages.