An Interactive, Graphical Simulator for Teaching Operating Systems

Extended Abstract

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ABSTRACT

We demonstrate a graphical simulation tool for visually and interactively exploring the processing of a variety of events handled by an operating system when running a program. Our graphical simulator is available for use on the web by both instructors and students for purposes of pedagogy. Instructors can use it for live demonstrations of course concepts in class, while students can use it outside of class to explore the concepts. The graphical simulation tool is implemented using the React library for the fancy UI elements of the Node.js framework and is available as a web application at https://cpudemo.azurewebsites.net. The goals of this demonstration are to showcase the demonstrative capabilities of the tool for instruction, share student experiences in developing the engine underlying the simulation, and to inspire its use by other educators. An article describing this software simulation and demonstrating its pedagogical capabilities is available at https://arxiv.org/abs/1812.05160.

CCS CONCEPTS

• **Social and professional topics → Computing education**; • **Applied computing → Computer-assisted instruction**; • **Software and its engineering → Process management**; **Scheduling**.

KEYWORDS

Node.js; operating systems pedagogy; process scheduling; React library; semaphore processing.

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