John Talbot - Undergraduate Student (School of Computer Science)

"I'd love to be able to *see* what's happening"

Background

Age: 20

Occupation: Undergraduate Student

School: School of Computer Science, University of Birmingham

Technology Level: As a computer scientist, John is highly comfortable using any kind of technology and has good intuition if he needs to pick up anything new.

Description

John is a second year Computer Science Student at the University of Birmingham. As part of his 2nd semester John is taking the Computer Systems & Architecture module. Although he is taking this as a compulsory module, he looks forward to it as, to him, it is a bit of a change of pace compared to some of his other modules.

John is a very prepared student, and so likes to keep up to date with all of the module content, and reinforce this knowledge into his head so that, come the time for revision, he need only refresh his memory, rather than essentially learn the course from scratch. For this reason, he really likes to make sure he has a good understanding of all the content.

Although John is a very highly skilled programmer in high-level programming languages, he never did a Computing course at A-level (he learnt and honed his programming skills in his personal time over the few years before arriving at university). This meant that all of the content on the components of the CPU and assembly language were all completely new to him and so he feels he has to spend more time than others going through all of the lecture material to gain a good understanding.

In order to help him wit h this, he commonly uses the simulator software recommended by the course lecturer known as Spim simulator. This lets him run his code and check information about the registers as it is running. However, he finds the presentation of this information really bland and in some cases he finds himself getting more confused about the material.

John has looked about on the internet to try and find better software (he always checks online for good supplementary material for all of his courses) but couldn't find anything useful. He would love to see a more visual version of the simulator released such that he can improve his knowledge of the computers architecture and also hopefully boost his marks in the process.

Goals

- Wants to get a really good mark in the Computer Systems & Architecture module.
- Wants to be able to write (and understand) low level assembly language code in an easy to use, user-friendly environment.
- Wants a better understanding of the internal running of a CPU, particularly with topics such as pipelining and the fetch-decode-execute cycle.

Current Frustrations

- At the moment, in order to help him complete the assembly language coding part of the module, John is having to use the Spim-simulator software. Although he understands it simulates well, he finds the software really difficult to use as there is no visual aspect, just text displays of registers and memory. This makes him quite annoyed when using the software for any substantial amount of time. The software doesn't help him understand the content any better, he just uses it to check his assignments work and that is it.

Scenarios

- Write and run (with error checking) some MIPS compatible assembly code in a comfortable easy to use way to complete assignments.
- Run some algorithms on a simulator to watch how the internals of the CPU are working
- Get descriptions of the all of the CPU components so that he can learn and remember them for his exam.
- Revise his knowledge of high level algorithms.