A Return to Programming – Teaching a First Programming Course for Senior Level IT Students

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EXECUTIVE SUMMARY

Computer programming courses are taught in most Information Technology (IT) programs in one format or another. Some programs teach more than one programming course in some kind of a sequence or order, while others may limit the covering of programming topics to a single or a couple programming courses. In most IT programs, a first programming course is typically taught at the first or the second year of their programs. Advanced or higher level programming courses are often taught at the junior or senior level courses. In other words, by the time most of the IT majors get to their senior year, they already have completed at least one programming course. It is not often heard of that a first programming course be taught during the last or the senior level of the academic year of an IT student. This paper discusses just that: teaching a first programming course for senior level students.

A faculty member in an Information Technology related program considered teaching a programming course for senior level students enrolled in the IT program for the first time. This created an atypical situation for the faculty in terms of course coverage and materials for the course, as the norm is to teach a first programming course typically at a freshman or sophomore level. This faculty member had to decide what to teach in this course in this unique situation. He had to select the programming language for this level of students, the programming model, and the examples that would be illustrated in the course. The same faculty member decided to do some research regarding the selection of content and course coverage for this atypical course of first programming in the senior level IT program. The experience of this faculty member and his research in this regard is illustrated in this paper.

Keywords: First programming for seniors, Programming courses and senior students, Complexity of programming

INTRODUCTION

Information Technology (IT) experts agree that students in IT related major(s) need to take at least one programming course as part of their curriculum (Bills & Biles, 2005; Kaplan, 2010; Malan & Halland, 2004). Different standard curriculums that are developed to suggest content for IT related programs agree with this notion and provide suggestions for teaching programming courses in all IT programs (Bills and Biles, 2005).

In most IT programs, teaching programming starts at the first or second year of the student curriculum, with most students taking what is termed as a first or beginner level programming course that works as a pre-requisite to other programming courses. It is not often that a first programming course is taught at a junior or senior level. Instead, most IT students acquire the knowledge of at least one programming course by the time they get to their junior or senior year. An IT faculty member at a university in Western Pennsylvania faced a unique situation regarding the teaching of a programming course. This faculty member had to teach all three senior level courses in this IT program. He realized that the senior students in this IT program had not taken any programming courses by the time they had registered to take his courses. This IT program does not require their students to take any programming courses. After more research, this faculty member concluded that it would be best for the students to learn a programming language before graduation. Thus, he decided to teach a first programming course for this group of students in this IT program. The experience of this faculty member and the