Fields Report (and Report Report)
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1 Fields Report

Computer science, information technology and software engineering are closely related fields that, on the surface, seem indistinguishable. Many college freshmen have a hard time deciding which major to declare because of this. Or, once they choose, what to do with their degree. While identifying their similarities is easy, to do so for their differences we will first have to delve into what each field entails. Then, we can explore some options that computer scientists have upon graduation.

The first distinction is hardware. While computer scientists and software engineers must have a base knowledge of computer hardware, information technology specialists must have a much more thorough, hands-on knowledge of these physical components and their function with software. The role of an information technology specialist is to understand, maintain, fix, and attend to the hardware and software being used by their client or company. Information technology specialists are, in short, those that deal with the day-to-day problems and maintenance of technology that is already developed, built, and in use by their client or company. Therefore, skills such as, communicating well with customers/co-workers, interpreting or identifying an issue with the hardware and/or software based on interactions with the customer/co-worker and the 'broken' equipment, and being able to fix or provide guidance on those issues, are all skills that information technology specialists put to use on a daily basis. In comparison, these are skills that a computer scientist and software engineer may occasionally use, but do not make up the primary skills or duties necessary for their fields.

Another distinction is purpose. We've discussed that information technology specialists maintain systems and guide customers or companies through doing the same. In this regard, they are very much the face of technology. Software engineers and computer scientist have a more 'behind-the scenes' role. Using a film set as an analogy, software engineers may be the lights, sound and make-up effects crew, while computer scientists operate on a producer/executive level. The lights, sound and make-up crew are given instructions on what the client wants, and it is their job to use the tools they have to create this vision. In the field, software engineers would be tasked with a product, whether this is a phone app or a video game or the idea of what the clients wants their program to do. The software engineer's job is to correctly interpret this vision and to develop it from an idea to a marketable product using engineering standards and processes for testing, quality and obtaining licensing.

It should be noted that, while software engineers do meet with clients and must be able to extrapolate their job from the client's description, these interactions are fewer and less frequent than those an information technology specialists experiences. Further, while information technology specialists may often work on jobs individually or alone, it's common for a project to be assigned to teams of engineers. In such cases, those engineers working on the project may have never met the client, as a project leader/manager may be the only or one of the few to do so. Additionally, due to the same reasons, an information technology specialists is usually solely in charge of a job, but software engineers may only be in charge of parts of the project.

With all of that said, a computer scientist has even less interaction with clients. Computer scientists typically don't have a direct contribution to a product nor direct interactions with their audience/clients. Recalling the film set analogy, computer scientists are those coming up with the script and finding the funding to get the movie to happen at all. In terms of technology, computer scientists are those developing the algorithms, creating new languages, doing research on ways to use and improve computers. Their field is based more on logic, development and theory. In other words, computer scientists create the tools that software engineers use to create their products, which information technology specialists maintain and deal with every day. Clearly, the three are closely related and must often work with each other in order to succeed.

Now that we understand the distinction between the three fields, what are some examples of jobs that computer scientists can get with their degree? One would be to become a computer science educator. This can range from basic at the high school level up to specialized at a university program. Either way, this route helps continue the profession by developing strong, ethical and inspired computer scientists. Next, security. With the increasing availability to information online, cyber-security is a lucrative job that can range from small companies protecting customer data, to developing new encoding and decoding algorithms for the NSA. Computer scientists going into the security field may need to pursue a graduate level-degree, but aren't likely to face unemployment in the increasingly cybernetic world. Last, one could become a computer and information systems manager. It's not as cool-sounding as cybersecurity, but taking up a job in this field can place you in a managerial position, and possibly as Chief Technology Officer (CTO) of a company. If you've ever wondered, Facebook's CTO is Michael Schroepfer, who at 39 years old has almost twelve million dollars worth of stock, as well as an annual salary of approximately $352k, not including bonuses. This job can entail overseeing a project's day-to-day operations, meeting with project leaders to oversee and offer guidance in their projects, or managing the computing infrastructure of a large company.

Although I'm not pursuing a career in computer science, my professional interests share similarities with this field. With a concentration in combinatorics and graph theory, algorithms, efficiency, and abstract and logical thinking and interpreting of problems will have a lot to do with my concentration. Additionally, in order to conduct research in my field, I will have to dabble in computer science applications, such as machine learning.

2 Report Report

Before I began writing this report, I read the rubric carefully and wrote down the main requirements of the assignment. This helps me focus on each requirement and makes the overall assignment seem less overwhelming. Then, I wrote down key things to include or points I wanted to make through the report. For example, an introduction, similarities between the fields, differences between the fields, the three sub-fields of computer science to mention, and my future interactions with the field. This was my basic outline.

Next, I researched the information I needed. The links provided gave me some useful information, but I also read some articles beyond those to fully understand the topic before writing about it. Once I'd gather enough information, I tried thinking of concrete examples to show the difference between the fields. I double checked that these lined up with the information that I got from my research. By then, I could write simple sentences in each section of the outline to use as a guide when writing.

Although I organized the report one way originally, writing the report deviated from that order. That's okay. I double checked that all the points I wanted to make were still included in the written report, and rewrote some sections to include those that I'd missed. At this point, I checked the report for flow. Although the similarities and differences aren't strictly in separate sections, I decided the comparison of hardware and purpose, and how those affect client/audience interaction, was a more natural sequence to contrasting the three fields.

Lastly, I re-read the report for grammatical, syntax and punctuation errors. I also checked for the word requirement at this point, and oops. My bad. I considered editing down the report, but found no areas to trim without sacrificing content. Again, sorry about that.