Dear Mom and Dad,

        For as long as I can remember, you have always been curious about my chosen major of software engineering and what exactly that entails. In the past I have likely told you that software engineering is a broad field that can apply to anything involving a computer. In reality, even I didn't know exactly what the differences were between computer science, software engineering, and information technology was until I began taking courses related to these fields. After having gained some insight on the differences of these fields, I feel more confident in my ability to accurately explain to you what each field focuses on as well as my decision to specifically study software engineering.

        In general, computer science could plainly be described as the study of computer technologies and the algorithms that make up those technologies. Unlike other fields of science and engineering, computer science focuses on both the theory and real-life application of algorithms and computer systems. Algorithms, or a series of unambiguous steps to solve a problem, represents the theoretical part of computer science. Many experts of the field design and create algorithms so that they can be used by computers to perform real-life tasks for industrial, commercial, and scientific purposes. Due to how broad computer science is, many professionals view it as the foundation from which more specialized fields such as computer engineering, software engineering and information technology come from.

        Computer engineering stems from the application of computer science in the form of physical hardware. Computer science relates to computer engineering by requiring experts to understand how computer systems and hardware interact with each other. By understanding this relationship, computer engineers are able to develop smaller and more powerful components/computers with each passing year.

        Software engineering is another branch of computer science that mainly focuses on creating, maintaining, and operating software in computer systems. Software engineering relates to computer science by specializing in the design and implementation of algorithms to computer systems to perform specific tasks. Various forms of software include operating systems on computers such as Windows or macOS, database programs for schools or hospitals to keep track of student/patient records, and software like JavaScript or C# that can be used for website development.

        Information technology is a field that uses computers to manage, share, and store information in various forms for different applications. Unlike computer and software engineering, information technology is a field that uses computer science in the broadest sense by using hardware and software as a means to manage information. Examples of occupations that are based off of information technologies include network services/support, updating software, creating infrastructure to support communications, and producing hardware such as servers that can support multiple computers.

While each field dives into different aspects of computer science, I personally am most interested in pursuing a career related to software engineering. My reasoning behind this decision, is due to my overall curiosity and desire to learn various coding languages such as Java or C++. Not only due I want to learn how to learn how utilize these programming languages, but I also enjoy the abstract process of being able to develop an algorithm to solve a problem. Along with my curiosity and enjoyment of solving problems, the field also shows signs of growth and stable job prospects. By studying software engineering, I feel as though I would have the rare opportunity of being able to make a comfortable living while also being able to enjoy my career.

Your son,

Jean Paul

Report on the Report:

While writing this report, one of the most challenging aspects of the writing process was being able to address/convey the topic of computer science fields to the audience (a letter to my parents) in a way that sounded realistic. The way I approached this challenge, was to focus on being as clear and concise with my descriptions of the various computer science fields as possible. I also did my best to limit my usage of technical words related to each field as possible, while at the same time explaining the technical words I did use like "algorithm". I also felt that the use of first-person in my letter helped to convey that I was writing a personal letter to my parents rather than a standard academic essay. In terms of critical thinking, I utilized the "Five Why's" technique as a way to analyze and evaluate my motivations for choosing software engineering as my field of interest. By using this technique, I felt as though I was able to convey to the reader why I choose software engineering, why I liked it, why I felt it was a good field to study, and why it would be a good career path. In terms of information literacy, my research involved looking at job descriptions/definitions for each field and their relationship to computer science. My process for arriving to my definition for each field involved looking at the common themes that each description provided for each field and creating my own version of each description the highlighted their key themes.