7-2 Project Two: The IT Professional

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* **IT Disciplines: To begin your report on careers within the information technology field, define the distinction between computer science, information systems, engineering, and information technology:**

While there are associated factors between computer science, information systems, engineering, and information technology, they each have definitive traits. For instance, computer science can uniquely be defined as studying computers and computational systems, studying how users intermingle with them, and optimizing a system's use. In contrast, information systems can be defined as a study that focuses on compartmentalizing data and where data is collected, stored, or distributed. Furthermore, engineering correlates with applying the practical principles of math, science, and technology to create or maintain data systems. Lastly, information technology involves using information infrastructures to manage and provide data.

* **What roles and careers within the IT field are related to these disciplines?**

The data scientist's role coincides with a computer science discipline; to elaborate more, the primary focus is analyzing computational data sets to leverage the data to solve issues. The system administrator's role aligns with an information system discipline; a system administrator is responsible for the maintenance and accessibility of an organization's data. The IT engineer role befits an engineering discipline because it is responsible for applying baseline engineering skills to oversee an organization's computer system. Lastly, the network administrator role is an ideal fit for an information technology discipline because the role's primary responsibility is providing technical support for an organization's network infrastructure.

* **What tools and technologies are most applicable to these disciplines?**

Project Management tools such as confluence would apply to computer science. Asset Management software would be a practical tool for an information systems role. GitHub is an ideal tool for positions that align with an engineering discipline. Lastly, servers would be a tool that a person interested in a role aligned with an information technology discipline would leverage recurrently.

* **What distinguishes a script from a program?**

The primary differentiating element between a script and a program is that scripts are compiled, whereas programs are interpreted/translated. To elaborate more, programming is a set of coding that requires a compilation step and is triggered before run time. Conversely, Scripting is a set of coding that does not require a compilation step and is carried out at runtime.

* **How would an IT professional use scripting in their work? How would they use programming?**

For IT professionals, Scripting can be used to create dynamic websites. For instance, a Web Designer could utilize Scripting to systematize elements for a website. To elaborate more, a web designer can leverage Scripting to extract visitor data. Additionally, Scripting can be used to create Embedded, Pop-up, or Value proposition forms.

Programming can elevate software programs' input/output flow for IT professionals. To elaborate more, Computer Programmers can leverage programming to detect and eliminate coding errors. Specifically, a Computer Programmer can debug source code/s and apply a fix/es to software programs so that the program operates as proposed.

* **Describe a potential case where an IT professional would use scripting language in their work. Describe a potential case where an IT professional would use a programming language in their work.**

A case where a webpage's plug-ins are unresponsive, the images are not scalable, and files are inaccessible would be a case where an IT professional would use scripting and markup languages such as JavaScript and CSS to make the webpage more synergistic. For instance, a developer could leverage a markup language such as CSS coding to improve the scalability of webpage images. Also, a developer could utilize JavaScript coding to make the webpage elements, such as plug-ins and files, executable and accessible.

A case where a company would like a secure cloud-based collaboration service created is a scenario where a computer programmer would leverage a programming language such as C#. For example, a computer programmer could build a cloud service in C# that could amplify secure data storage and provide a forum where users can interact in real-time.

**• Tools and Technologies: Next, within each of your identified careers, describe the tools and technologies specific to your chosen IT roles. •Training and Certifications: Finally, identify education, training, and certifications necessary for chosen IT roles:**

The computer science discipline is most aligned with my career aspirations. This is because a computer science discipline offers an array of desirable, transferable technology skills. Additionally, career opportunities aligned with computer science are generally lucrative. For example, an entry-level computer science position I am interested in is a data scientist role; the role's primary focus is analyzing computational data sets to leverage the data to solve issues. An ideal mid-level computer science position I am interested in would be a Quality Assurance Analysts role; like a data scientist, a quality assurance analyst identifies and reports computer programming anomalies. Lastly, an ideal senior-level computer science position for me would be a Computer and Information Research Scientists role which strategizes the most optimal way to leverage computing technology.

A data scientist would utilize recurrent software: Microsoft Excel and Power BI for creating reports and analyzing data and Jupyter Notebook for collaboration and presentations. For hardware, a data scientist would need a computer with a minimum RAM size of 16GB. In addition, a test repository software such as JIRA would be required for a quality assurance analyst; for hardware, a quality assurance analyst would need a computer with a high processing capacity and a robust cooling system. Finally, a computer and information research scientist may use SAS or Apache as software tools. A computer and information research scientist would need a computer with a minimum RAM size of 16GB, an additional SSD, and a comprehensive processor for hardware.

The minimum required education for a data scientist, and a quality assurance analyst is a bachelor's degree; according to the US Bureau of Statistics, no on-the-job experience is required. An ideal certification for a data scientist would be an IBM Data Science Professional certificate that provides a candidate with the baseline knowledge of data science methodologies, identifies tools for data sciences, and validates a candidate's problem-solving capabilities, which are transferrable skills. The training and certificate are available through Coursera. A Certified Six Sigma Black Belt (CSSBB) certification is ideal for a quality assurance analyst. The training and testing for the certification are available through the American Society for Quality. The training provides a candidate with insight into the core competencies of Six Sigma principles and the DMAIC data management methodology, which are transferrable skills. The minimum education for a computer and information research scientist is a master's degree; according to the US Bureau of Statistics, no on-the-job experience is required. An ideal certification for a computer and information research scientist would be a Certified Master Black Belt (MBB) certification. The training and certification are offered through ASP. The training will provide metrics to expand upon a candidate's ability to overcome technical challenges, which are transferable skills.

Citations

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