

A.

Data analytics and data science are rapidly growing job markets in IT. According to the U.S. Bureau of Labor Statistics, data scientists have a median salary of \$108,020, and demand for the job is expected to increase by 36% over the next 10 years. I began pursuing my MSDA because I want a future career in data science, which is an excellent step toward that goal.

1. I find three careers in data analytics particularly interesting: Data Scientist, Data Analyst, and Data Engineer. A data scientist researches and creates new algorithms and predictive models to provide insights about the future. A data analyst utilizes existing models to provide insight into current business problems. A data engineer builds and maintains an organization's data infrastructure.
  - a. There are several significant differences between these three roles. Data scientists focus on research and developing new models to identify trends and derive trends for the future. In contrast, data analysts apply existing models to find practical solutions to current questions within the organization. Data engineers focus on the virtual infrastructure within which the data is stored and transferred. Data engineers are more interested in effectively maintaining the quality, accessibility, and security of large amounts of data. In contrast, data scientists and analysts are more interested in what insights we can gain from that data.
2. Each role is significant in the data analytics life cycle. All three roles draw from the business understanding phase. All roles must understand the essential questions that need to be answered and their organization's goals and missions so that they can perform their jobs effectively. Data engineers primarily support the data acquisition phase. They ensure that the databases are organized, accessible, and secure. Data engineers also play an essential role in the data cleaning phase. They create clean databases, eliminating duplicates within the databases and organizing data so other roles may easily explore it. Data analysts focus primarily on the data exploration phase. They apply models to their acquired data to identify trends and provide insights. Data scientists are mainly interested in the data exploration and predictive modeling phases. They want to develop new models and algorithms to improve these processes. In addition, all three roles are significant to the data mining phase. Data engineers organize the databases so data mining processes can mine through them efficiently. Data scientists help develop data mining algorithms to improve machine learning. Data analysts examine the trends output by the data mining process to interpret what is relevant to their question. Finally, data scientists and analysts are vital to the reporting and visualization phase. They must be able to utilize visualization tools like Tableau to clearly and simply present their findings to stakeholders to inform their decisions.

B.

ProjectPro describes three disciplines of data analytics: data science, data engineering, and machine learning. Data science utilizes a variety of tools to provide insight into the future. Data engineering focuses on constructing and maintaining the infrastructure to store and transfer an organization's databases. Machine Learning is a tool used by many roles within data analytics

that uses statistical principles and algorithms to provide deep insight into data that humans may find more challenging to recognize. Data science focuses more on analyzing large amounts of data using statistical methods and tools like machine learning.

In contrast, data engineering provides the pathways for all organization members to retrieve this data efficiently. While data scientists have to alter their strategies and methods based on their dataset and desired insights frequently, machine learning algorithms, once they are properly trained, should be able to automatically update themselves as they learn more and more about the data. All three roles play critical yet varied parts in the data analytics life cycle.

1. Three types of careers from the U.S. Bureau of Labor and Statistics are data scientist, financial analyst, and budget analyst. Data scientists, whose median yearly salary is \$108,020, focus on drawing business insights from data. Financial analysts, whose median yearly salary is \$99,890, guide companies on utilizing their funds to maximize profit. They will recommend specific investments, watch for economic trends, and advise organizations on how to make the most money. Budget analysts, whose median yearly salary is \$84,940, assist organizations in developing budgets. They will analyze proposals from various departments, monitor an organization's spending practices, and help top managers make cuts and reallocate funds when necessary.
2. My strong math and problem-solving skills would serve me well in any of these careers. I also possess the strong communication skills necessary for any of these roles. My strong background in physics and calculus helps ensure I am prepared for those aspects. Data scientists and financial analysts require powerful computer skills, a skill set I hope to continue building throughout my MSDA coursework. While I possess strong computer skills in some fields, I will use my coursework at WGU and some independent projects to improve my skills in tools like Python, SQL, and Tableau. I am also working to build the business acumen necessary for all three roles since I don't have much experience in the business world as a teacher. Receiving certifications like my MSDA will help increase my potential to excel in these careers.

C.

My career goal is to become a data scientist. My MSDA program will help me build my skills in necessary tools like Python, SQL, and Tableau. The data science track I'm on will also allow me to develop my business acumen and familiarize myself with machine learning. If I can accomplish my goal, I will be capable of providing value to any organization that brings me in, and I will be able to improve my current standard of living.

1. The CliftonStrength assessment identified my top five themes: relator, analytical, context, learner, and individualization. My strengths as a relator will help me build relationships within my data analytics team and with stakeholders within the organization. Strong collaboration within a data analytics team is vital to ensure the best possible output for the stakeholders.

My analytical skills will assist me in solving complex problems in the workplace. These analytical skills can help me strengthen my coding skills and will assist me in developing models and algorithms.

My strength in context implies that I enjoy and excel in looking at the past, noticing patterns, and applying those relationships to the future. This theme is perfect for the world of data analytics. This strength will allow me to analyze data and previous models, identify patterns and trends, and consider how those patterns and trends will continue. This theme also allows me to examine previous data analytics work and learn what was successful and what can be changed to improve next time.

My strength as a learner helps me pick up new information quickly. In a constantly developing field like data science, it is vital to rapidly pick up on the latest industry trends and practices. Enjoying learning and being skilled at it is an essential strength in data analytics.

My recognition of individualization will be a great strength when working in a data analytics team. This strength identifies my ability to recognize an individual's strengths and weaknesses and utilize everyone to the best of their abilities. While this may not be a vital skill early in my career, if I begin to climb the ladder, this will prove to be very important in organizing teams in projects and optimizing the performance of those around me.

### **Works Cited**

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