For my career plan as a data analyst, I am already a professional in the field. However, I still need to improve in some areas. The master's degree in data analytics & data engineering will help close any knowledge gaps. One example is that my communication skills need a lot of work. I struggle with conveying my thoughts professionally and clearly in a group setting. When speaking to a group, I stumble with my words and struggle to outline what I want to say clearly. I hope that with this master's degree, I will improve this skill because clear communication is essential for a data analyst.

Another struggle I want to become more proficient at is the various tools and techniques used by data analysts. My knowledge and skills in Tableau are at a very beginner level. This application is used very heavily within data teams, and my current data analyst job prefers Tableau.

Data cleaning is a skill I also want to improve upon. I can improve it with this degree program and my learning at my current company. Data cleaning is an essential part of my current data analyst role, where it was not used as heavily in my previous data analyst roles. So, there are skills and knowledge gaps I am still filling in.

The **data analyst** collects, analyzes, and interprets datasets. Each industry and company assigns a data analyst with different responsibilities. The data analyst performs various tasks, including collecting, cleaning, preparing, and processing data. The data analyst uses multiple tools and techniques to gather and present their data, from programming languages such as SQL, Python, and R to data visualization tools such as PowerBI and Tableau. The primary goal is to make informed business decisions and reach the best possible outcome based on the interpretation of datasets. (*Course* |, n.d.)

A data analyst's data analytics life cycle includes collecting, cleaning, reporting, and visualization, predictive analysis using algorithms, and making data-driven decisions. The data analyst might have responsibilities that overlap with other roles, such as the business intelligence analyst or data scientist. An example of this is in my role as a data analyst at Starbucks, where I regularly take on the responsibility of a data engineer or data scientist—writing Python code to create predictive models, updating ETL pipelines, and fixing bugs/errors in our databases.

A **business intelligence** analyst focuses on datasets that contain revenue, sales, market trends, and customer engagement metrics. The analyst locates patterns and uses those patterns to find areas of improvement. The analyst's significant goal is to help a business adapt and stay competitive within its select industry. (*Course* |, n.d.)

During the data analytics life cycle, the business intelligence analyst will create reports, forecast using historical data, create dashboards using tools such as PowerBI or Tableau, and analyze, collect, and use data governance to ensure accurate and secure data.

The **data scientist** uses complex statistical, machine learning, and programming skills to interpret complex datasets and create predictive models and algorithms for solving business problems. This role identifies trends, builds models, and makes recommendations. They primarily work with large datasets by creating data-driven solutions using Python, R, and SQL. (*Course* |, n.d.)

A data scientist supports the analytics life cycle through analysis, visualization, cleaning, A/B testing, machine learning, storytelling, and experimentation. They collaborate with other teams, including data engineers, software developers, and business stakeholders. Where the data scientist differs from other roles is in A/B testing and machine learning: conducting tests to evaluate the effectiveness of a strategy or product or building a model to automate decision-making, which can include recommendation engines, fraud detection systems, or chatbots. I have used fraud detection systems in my line of work as a risk analyst at Amazon! (*Course* |, n.d.)

Each of these roles overlaps with one another; they all are gathering and interpreting data. However, an example of where they are different is that some or all of these roles might have other responsibilities when creating data and/or solutions. The data scientist will be expected to write machine learning and artificial intelligence algorithms to achieve their business goals, and the business intelligence analyst will have a specific area of focus, usually sales, marketing, or customer trends. The data analyst can work in many industries and help other more specialized analyst roles gather, clean, and present data. (Reiber, 2024)

For the data analysis, there is an emphasis on correlative analysis and predicting relationships between data sets and known variables. Based on my work history, an example is analyzing a customer's inventory, seeing what they have sold, and comparing it to information I have received that suggests fraudulent or risky behavior. On the other hand, data science will focus on identifying future technology or trends that do not exist yet. (*Course* |, n.d.)

A subset of data science is data mining, which refers to data collection and searching for patterns within that data. The data miner designs algorithms to extract insights from unstructured data sets and validate the findings. Prediction is the most essential part of data mining. Data scientists depend on data mining; in many ways, it is the first step in data science. (*Course* |, n.d.)

Deep learning is an essential branch of machine learning and data science. This field involves taking a neural network with several machine learning techniques combined to solve specific problems. Each framework has many layers of transformation, making deep learning quite complex and profound. (*Course* |, n.d.)

I have identified three career types from the Bureau of Labor and Statistics: Database administration and architecture, data science, and market research analysis. My professional and academic career makes me most qualified for database administration, and it is what I am most interested in doing. I already have the professional experience of a data analyst, and now I want to combine that with being a data engineer, which this master's degree will help accomplish, alongside the work I am already doing as a data analyst and working closely alongside a data engineer on my team at work. (*Database Administrators and Architects*, 2024)

A career goal of mine is to obtain my Master of Science in Data Engineering so I can have more knowledge and skills in my current data analyst role. I also want to be more marketable when and if I am eventually looking for a new job in the data field. I think that my career

strengths, as outlined on Clifton Strengths, set me up for success as a data analyst as well: I enjoy close relationships with others, I have empathy, and I am analytical, consistent, and a developer. These are all essential qualities of being a data analyst.

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