Task 2:

Careers and Career Goals

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A: CAREER PLAN

My career plan after graduation is to become a Data Engineer. I am currently working as a Data Analyst Intern, which allows me to build experience working with data, writing queries, cleaning datasets, and helping teams make decisions using data. I enjoy the technical side of data and have developed a strong interest in infrastructure and automation. That's why I am pursuing the Data Engineering track in my MSDA program.

If I am not able to get a job as a data engineer right away, I would be open to working in a role like business analyst, cloud data analyst, or even continuing as a data analyst until I gain the skills and experience needed. My long-term career goal is to specialize in cloud-based data engineering and eventually move into a leadership role in building and managing big data platforms.

A1: ROLES OR CAREERS IN DATA ANALYTICS

When creating my career plan, I considered the following three professions:

1. **Data Engineer** – A data engineer's job is to design and maintain systems that move, store, and organize large amounts of data. They often work on ETL (Extract, Transform, Load) pipelines and manage databases, data warehouses, and data lakes. They make sure that analysts and scientists have the clean and structured data they need to work with.

2. **Machine Learning Engineer** – A machine learning engineer builds systems that can learn from data and make predictions. They train and deploy machine learning models, using algorithms, large datasets, and statistical tools. Their job is to create smart systems that can automate decisions or recognize patterns.

3. **Cloud Data Engineer** – A cloud data engineer does similar work to a data engineer but focuses on cloud platforms like AWS, Azure, or Google Cloud. They create cloud-based data storage, pipelines, and security systems that help companies process and access data from anywhere.

A1a: DIFFERENCES BETWEEN ROLES OR CAREERS

Even though all three careers deal with data, they each serve a different purpose. A data engineer is focused on building pipelines and managing the structure of the data. A machine learning engineer is focused on using that data to build and train models that can learn and improve over time. A cloud data engineer takes the work of a data engineer and puts it into a scalable and secure cloud environment.

Machine learning engineers are more focused on math and algorithms, while data engineers and cloud data engineers are more focused on systems and tools. All three roles are technical, but each uses different tools and has different priorities.

A2: HOW ROLES SUPPORT THE DATA ANALYTICS LIFE CYCLE

The data analytics life cycle includes the following phases: business understanding, data acquisition, data cleaning, data exploration, data modeling, data mining/machine learning, and reporting/visualization. Here is how each of the three roles supports the life cycle:

1. **Data Engineer** – A data engineer supports many phases of the data life cycle, especially data acquisition, cleaning, and transformation. They build the pipelines that bring data from raw sources into a usable format for analysis. They often work behind the scenes to make sure data is reliable and accessible.

2. **Machine Learning Engineer** – A machine learning engineer focuses on modeling, mining, and learning from data. They build systems that can identify patterns and make predictions. Their work is critical in the modeling phase of the lifecycle, and they often rely on data that's been cleaned and prepared by engineers.

3. **Cloud Data Engineer** – A cloud data engineer supports the entire data lifecycle by making it scalable and secure. They handle everything from storage and processing to monitoring and optimization, allowing companies to run their data analytics workflows in the cloud without delays or risks.

B: COMPARISON OF DATA ANALYTICS DISCIPLINES

The ProjectPro website compares many disciplines in data. Here are three examples that helped me think about my own path:

1. Data Science vs Machine Learning

Data science involves working with structured and unstructured data to gather insights, make visualizations, and support decision-making. Machine learning is a part of data science that focuses on using algorithms and data to build systems that can learn over time. Machine learning is more predictive, while data science can also be descriptive or diagnostic.

2. Data Science vs Data Engineering

Data engineering focuses on making data usable by designing pipelines and storage systems. Data science focuses more on analyzing that data to get insights. Data engineers are like the

builders and plumbers of the data world, while data scientists are the ones using the tools and data to find answers.

3. Data Science vs Data Analysis

Data analysis is usually more focused on descriptive work, like creating charts and reports. Data scientists go a step further by using statistics and programming to test ideas, build models, and find trends that others might not see. Data analysts focus more on what has happened, and data scientists look into why it happened or what might happen next.

B1: CAREER TYPES

Since I have a bachelor's degree in information technology, I explored career options related to my field by reviewing data from the Bureau of Labor Statistics (2024). I focused on three roles that align with both my background and future goals: database administrator, computer network architect, and data scientist. Below is a summary of the academic background and job outlook for each:

1. Database Administrator
- Typical Entry-Level Education: Bachelor's degree
- Common fields of degree include: computer science, information systems
- Work Experience in a Related Occupation: None
- Number of Jobs, 2023: 141,900
- Job Outlook, 2023–33: 9% (Faster than average)

2. Computer Network Architect
- Typical Entry-Level Education: Bachelor's degree
- Common fields of degree include : computer science, information technology, network engineering
- Work Experience in a Related Occupation: 5 or more
- Number of Jobs, 2023: 177,800
- Job Outlook, 2023–33: 13% (Much faster than average)

3. Data Scientist
- Typical Entry-Level Education: Bachelor's degree (some positions may prefer a master's or doctoral degree)
- Common fields of study: data science, computer science, IT, mathematics, or statistics
- Work Experience in a Related Occupation: None
- Number of Jobs, 2023: 202,900
- Job Outlook, 2023–33: 36% (Much faster than average)

B2: ACADEMIC SKILLS AND NEEDS

To better understand the skills required for the careers I researched, I reviewed academic expectations and professional requirements listed by the Bureau of Labor Statistics for each role:

Database Administrator

- Academic Skills: Strong understanding of database management systems (DBMS), SQL, and relational database theory

- Required Knowledge: Computer programming, systems analysis, data modeling, and cybersecurity principles

- Additional Needs: Familiarity with database platforms such as Oracle, MySQL, or Microsoft SQL Server, as well as backup and recovery techniques

Computer Network Architect

- Academic Skills: Proficiency in networking concepts, hardware systems, routing protocols, and network security

- Required Knowledge: Computer architecture, telecommunications, and network design

- Additional Needs: Hands-on experience with LAN/WAN technologies, VPNs, firewalls, and knowledge of cloud networking and enterprise infrastructure

Data Scientist

- Academic Skills: Advanced statistics, data mining, machine learning, and data visualization

- Required Knowledge: Programming languages like Python or R, mathematics, and algorithm development

- Additional Needs: Experience with big data platforms (e.g., Hadoop, Spark), working knowledge of SQL, and the ability to communicate data-driven insights clearly

As someone with a Bachelor's in Information Technology, I already have a solid technical foundation in systems, computing, and databases. My current internship and MSDA coursework are helping me build further expertise in Python, SQL, cloud technologies, and analytical tools. I plan to supplement my education with industry certifications such as AWS and Power BI, while continuing to develop the specialized skills needed to succeed in one of these advanced data careers.

C: CAREER GOAL

As I mentioned above, my career goal is to become a data engineer, with the long-term goal of growing into a leadership role in cloud data infrastructure or data platform engineering. I enjoy the technical side of data work, especially building systems that help manage, move, and organize large volumes of data across an organization. I am currently working as a data analyst intern, which gives me hands-on experience working with real-world datasets, SQL, and reporting tools.

Because the field of data engineering is growing quickly, I am confident that continued learning and practical experience will help me reach my goal. If I face challenges entering the field immediately, I would consider working in a related role such as a data analyst, business intelligence developer, or cloud analyst while building my skills and certifications. Either way, I plan to stay focused on a technical career in data and work my way toward a position where I can design and manage data systems that support business success.

C1: CLIFTONSTRENGTHS REFLECTION

According to my personalized CliftonStrengths assessment, my top five strengths are Developer, Futuristic, Individualization, Consistency, and Relator. These strengths align closely with the three careers I am considering: data engineer, machine learning engineer, and cloud data engineer. Below is how each strength supports my success in those roles:

- Developer – I enjoy helping others grow and succeed. As a data engineer, I can create systems and tools that help analysts and scientists work more efficiently. In a cloud data

engineering role, this translates to building secure pipelines that support the needs of the entire organization. As a machine learning engineer, this strength supports the development of smart, evolving models that serve real user needs.

- Futuristic – I am motivated by thinking ahead and imagining new possibilities. This strength helps me stay focused on long-term trends in technology like cloud infrastructure, artificial intelligence, and automation. Whether I am designing scalable systems as a cloud data engineer, optimizing data models as a machine learning engineer, or improving pipelines as a data engineer, this mindset helps me anticipate future needs and stay ahead of emerging tools.

- Individualization – I notice what makes people and systems unique. This helps me tailor technical solutions to fit the specific needs of a team or project. In all three roles, this strength allows me to adapt workflows, models, or storage solutions based on business requirements or user behavior.

- Consistency – I value fairness, structure, and efficiency. This is essential in data engineering, where systems must be secure, repeatable, and well-documented. In cloud data roles, this helps me follow best practices for scalability and access control. In machine learning, it ensures I maintain ethical standards and consistency in model evaluation and deployment.

- Relator – I build deep and trusting relationships. All three roles require collaboration with other teams. Whether I am gathering requirements, debugging issues, or presenting model results, this strength helps me communicate clearly and work effectively across departments.

Together, these strengths provide a strong foundation for success in any of the three careers I'm exploring. They support my technical growth, help me collaborate with others, and keep me focused on both current goals and future opportunities in the data field.

References

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