LEARNING GOALS PAPER

This paper outlines how my coursework, assignments, and projects throughout the M.S. in Applied Data Science program at Syracuse University have fulfilled the core learning goals of the curriculum. Each section connects specific learning outcomes to key deliverables, describes their real-world relevance, and reflects on my strengths, challenges, and plans for continued growth.

Over the course of the program, I have worked on hands-on projects spanning multiple domains such as energy forecasting, political campaign funding, cloud-native applications, and recommender systems. These experiences provided me with opportunities to solve complex data problems, design and optimize data pipelines, build predictive models, and develop user-facing applications using cutting-edge tools like Snowflake, dbt, Power BI, R, Python, and PowerApps.

This paper not only demonstrates how each learning outcome has been mapped to meaningful deliverables, but also highlights how these experiences have prepared me for roles in data engineering, business analytics, and cloud-based data architecture. Additionally, it reflects on the conceptual and ethical foundations I've developed, and outlines how I plan to build upon them as a committed lifelong learner and data science practitioner.

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1. Apply Data Science Techniques to Solve Real-World Problems

Projects such as the Household Energy Consumption Forecasting and FEC Individual Contribution Analysis required building regression models, integrating multiple datasets, and extracting insights for policy and business decision-making. These projects enabled me to apply machine learning, statistical reasoning, and exploratory data analysis in high-impact domains like energy management and political funding.

2. Build and Manage Scalable Data Architectures

In both the Finding Frontiers Travel System and Online Recipe-Sharing Platform, I designed ER models, created normalized schemas, and deployed scalable backends using SQL Server and Snowflake. My internship at BioMarin reinforced these skills by enabling me to model and migrate structured data into a production-grade SQL database, complete with constraints and audit triggers.

3. Use Visualization and Communication Tools to Drive Insights

Power BI dashboards developed for the FEC data project, and the Shiny dashboards created for the Energy Forecasting project, helped present complex data and predictive insights to technical and non-technical audiences. These deliverables show my ability to build compelling, data-informed visual narratives.

4. Work Effectively in Teams and Across Disciplines

Group projects like the Recipe-Sharing Platform required close collaboration with teammates to integrate front-end forms, backend logic, and data visualizations. My role in leading development efforts and ensuring alignment across workflows reflects my strength in team communication and cross-functional collaboration.

5. Maintain Ethical, Secure, and Responsible Data Practices

At BioMarin, I implemented role-based access controls and audit mechanisms to track changes to sensitive data. I also adhered to data governance protocols throughout my academic projects, especially while working with real-world election and energy datasets. These practices highlight my commitment to ethical data science.

6. Plan for Lifelong Learning and Professional Growth

I am actively pursuing the AWS Solutions Architect – Associate certification and have completed the Microsoft Azure Fundamentals course. Staying up to date with evolving technologies through MOOCs, certifications, and applied research is part of my long-term career strategy.

7. Works in Progress and Conceptual Influences

Current projects include advanced NLP modeling and Spark-based data pipelines. My learning has been shaped by core texts such as Deep Learning by Goodfellow, Hands-On Machine Learning by Aurélien Géron, and The Art of Statistics by David Spiegelhalter. These works helped me deepen my theoretical understanding and apply that knowledge to practical assignments.

8. Conclusion

This program has equipped me with the skills and mindset needed to excel in data-centric roles. By bridging theory with practice, and aligning each learning outcome with tangible deliverables, I feel confident in my ability to solve real-world problems and embrace lifelong learning as a data professional.