**Data Analytics Competency Assessment**

**1. Introduction to Data Analytics**

During my time in the MS-CISBA program, I completed several courses in the Data Analytics domain:

* **CIDM 6308 – Seminar in Data Analytics (Dr. Chen, Summer 2024)**
* **CIDM 6305 – Quantitative Analysis in Business (Dr. Barthel, Spring 2022)**
* **CIDM 6320 – Econometrics (Dr. Barthel, Fall 2023)**

CIDM 6308 provided a broad and foundational understanding of data analytics concepts, including data preparation, regression modeling, business intelligence, and machine learning through tools like Tableau and RapidMiner. CIDM 6305 and 6320 offered deep dives into quantitative modeling, forecasting, and econometric methods using R and Excel, helping me better understand regression theory, hypothesis testing, and model evaluation.

Together, these courses significantly enhanced both my theoretical understanding and hands-on capabilities in analytics, laying a strong foundation for Capstone integration.

**2. What I Know (Strengths)**

Through these courses, I developed proficiency in several areas:

* **Data Preparation and Integration**: Using Excel, SQL, and Python, I cleaned, normalized, and transformed data for analytics projects.
* **Data Visualization**: CIDM 6308 introduced me to Tableau, which I used to build dashboards summarizing KPIs. I also learned how to select appropriate visual formats to convey data stories.
* **Regression & Econometric Modeling**: CIDM 6320 expanded my abilities in linear regression, hypothesis testing, and model comparison using R and RStudio.
* **Predictive Modeling**: RapidMiner (CIDM 6308) and supported learning supervised/unsupervised methods, including decision trees and clustering.

**3. Where I Am Weak**

While I have demonstrated strong competency in working with advanced analytics topics during assignments and projects, I find that my retention of complex forecasting techniques tends to fade when I step away from them for a period of time. I recognize that I do not yet have the “muscle memory” to apply certain advanced methods confidently without frequent reference to documentation or prior examples. To address this, I am highly interested in further strengthening my skills by taking CIDM 6362 Advanced Business Forecasting to deepen my knowledge and develop a stronger instinctual grasp of these techniques.

**4. What I Wish I Knew**

* **Information Visualization Techniques**: I regret not being able to take **CIDM 6312 – Seminar in Information Visualization**, taught by Dr. Chen in Spring 2025. This course covered best practices for visual communication, perceptual design, storytelling with data, and tailoring dashboards for specific audiences using tools like Tableau, PowerBI, and Python/R. I feel these skills would have significantly strengthened my ability to build effective and engaging visual narratives for analytics projects.

Looking back, I recognize the need to deepen knowledge in:

* **Model Evaluation Metrics**: CIDM 6308 introduced confusion matrices, precision, recall, and AUC—areas I intend to explore more thoroughly.
* **Automated Pipelines and Scheduling**: CIDM 6351 introduced tools like Airflow conceptually; I aim to explore them further through self-directed projects.
* **Data Storytelling**: Strengthening the narrative around insights, especially when communicating findings to a non-technical audience, remains a priority.

**5. Supporting Evidence**

Key projects and assignments from these courses include:

* **Tableau Dashboard Project** (CIDM 6308): Visualized sales and churn metrics using multiple views. [To be added to GitHub]
* **Econometrics Data Projects** (CIDM 6320): Estimated multiple regression models and interpreted R output. [PDFs and .R files archived]
* **DataCamp Certificates**: Completed foundational and advanced modules in data engineering and analytics. [Certificates available upon request]

These items will be uploaded to my DataAnalytics folder in the Capstone GitHub repository.

**6. Capstone Readiness and Integration**

The skills developed in these courses directly supported the core of my Capstone prototype:

* **ETL Workflow (CIDM 6351)**: I used Python and pandas to load, clean, and structure data extracted from public bank offer websites for analysis.
* **Data Analysis and Scoring (CIDM 6308 / CIDM 6320)**: I applied statistical thinking and structured rule-based logic to create a custom scoring system that evaluates bank bonus offers based on multiple user-defined criteria. This allows the user to filter and prioritize options according to effort and potential reward.
* **Data Visualization (CIDM 6308)**: I developed a horizontal bar chart using matplotlib in Python to present the advisor scoring results in an intuitive, visual format to support user decision-making.

Data Analytics integrates with:

* **Data Management**, by working with structured and cleaned data tables prepared through my data pipeline
* **Software Systems**, by embedding analytics directly into the modular prototype notebook interface
* **Cybersecurity**, by raising awareness of responsible data handling practices and minimizing unnecessary storage or exposure of sensitive information

**7. Conclusion**

Overall, I feel well-prepared in foundational and intermediate analytics. My progression from guided visualization and analysis to building scalable ETL pipelines and interpreting models equips me for success in the Capstone. I am confident that the skills gained through CIDM 6308, 6351, 6305, and 6320 will provide analytical rigor and technical credibility to my final deliverables.

CIDM 6305 Book – “Business Analytics: Data Analysis and Decision Making” (5th or 6th edition) by Albright and Winston, Cengage Learning (ISBN-13 978-1133629603, ISBN-10 1133629601)