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**CIDM 6325/70/MS-CISBA Capstone**

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**Data Management Assessment**

**What do I know?**

Competencies, skills, and knowledge where I am the most confident and proficient.

Databases:

Relational Databases: Demonstrated proficiency in managing and manipulating relational databases, including MySQL and PostgreSQL, by effectively utilizing their respective functionalities, such as creating, updating, and deleting records, and ensuring their security and stability.

NoSQL Databases: Capable of handling NoSQL databases to manage unstructured and semi-structured data, ensuring optimal data retrieval and storage in environments that demand flexibility and scalability.

SQL Management:

Complex Queries: Proficient in developing and executing complex SQL queries to retrieve, modify, and manage data across various database structures, ensuring data accuracy and accessibility.

Optimizations: Applying optimization strategies like indexing, query rewriting, and utilizing execution plans to ensure efficient data retrieval and management, ensuring high performance and resource conservation.

Data Integrity and Consistency:

ACID Principles: Implementing ACID properties to ensure that all database transactions remain accurate, consistent, and secure, thereby maintaining the integrity of the database even in the face of errors and failures.

Normalization: Employing normalization techniques to minimize data redundancy and dependency by organizing fields and table of a database, ensuring structured, clean, and reliable data storage.

**Sample of Work:**

DataCamp Assignments: Engaged in rigorous practical assignments provided by DataCamp, enabling me to delve deeper into various aspects of database management, including database design, normalization techniques, and management of hypothetical data scenarios.

Scenario-based Learning: Engaged in real-world-like database management scenarios such as creating, optimizing, and managing an e-commerce database, applying theoretical knowledge to practical situations.

Hands-on Practice: Actively utilized the hands-on assignments to apply theoretical knowledge into practice, ensuring that the theoretical knowledge gained is effectively translated into practical skills.

Feedback and Improvement: Valued feedback received from DataCamp assignments has been critical in identifying areas of improvement and refining my database management skills, ensuring a continuous learning and improvement cycle.

<https://github.com/Jom123410/280222/blob/master/Copy_of_CIDM6352_Homework_2_Instructions.ipynb>

**Where am I weak?**

Competencies, skills, and knowledge where I am the least confident and proficient.

Big Data Platforms: Limited hands-on experience with platforms like Apache Hadoop and Apache Spark.

Real-time Data Processing: Need more exposure to real-time data stream processing using platforms.

Graph Databases: Limited knowledge in graph-based databases and their practical implementations.

**What do I wish I knew and/or don't realize I am missing?**

Hands-on experience with cloud-based data warehousing solutions like Amazon Redshift.

Deep understanding of the challenges in data migration across heterogenous systems.

Advanced data indexing techniques for faster retrieval in large-scale databases.

**Samples and Sources of Knowledge:**

Courses: Completed Data & information Management Systems" which enhanced my understanding of normalization and indexing.

Books: "Database System Concepts" by Abraham Silberschatz has been a guide throughout my journey in data management.

Projects: Successfully migrated legacy data to a modern relational database system, ensuring minimal downtime.

**Summary Statement:**

Throughout my journey in data management, I've come to appreciate the critical role it plays in any data-driven decision-making process. While I confidently navigate traditional database systems and SQL, my enthusiasm for delving into modern data technologies remains unabated. This mix of foundational strength and eagerness to learn ensures I am poised to contribute significantly in diverse settings, especially as data continues to be the lifeblood of modern enterprises.

**Preparedness for Portfolio and Capstone:**

Armed with a comprehensive understanding of data management principles and having undertaken multiple projects, I am ready to showcase my skills in a detailed portfolio. This portfolio will be a testament to my ability to manage, manipulate, and govern data – foundational to any analytical or developmental process. My readiness extends to the capstone, where I'm eager to integrate data management with other domains, underscoring its centrality in holistic solutions.

**Contribution Towards the Capstone:**

Why Data Analytics is integratable with Data Management: Properly managed data ensures accuracy, timeliness, and relevance in analytics. One can't get valuable insights from poorly managed data.

How Data Analytics is integratable with Data Management: Systems that ensure clean, consistent, and complete data provide the very foundation upon which analytics tools and algorithms operate.

Integration with Prior Work: Projects such as e-commerce database design and others ensured data was well-structured and reliable, forming the base layer upon which analytics could be applied.

**Final Statement:**

"Data Management is the unsung hero in the world of Data Analytics. The integrity of the insights we derive is directly proportional to the quality of our data management practices. As I've seen in my projects and coursework, this intertwining of data management and analytics is non-negotiable. This synthesis extends to software systems that use this data and the necessary measures to protect it, ensuring a comprehensive, integrated approach to modern data challenges."