KENT STATE UNIVERSITY
School of Information

LIS 61095 Applied Data and Science

Assignment 1: The Disciplinary Context of Data Science
Due: 9/10/2023

PURPOSES

- Provides an opportunity for you to understand the disciplinary context of data science (DS) within your major.

- Equips you with insights into how the iSchool DS curriculum can enhance your data science education and your specific field of study.

INSTRUCTIONS

1. **Preparation**: Review the learning materials in Modules 1 & 2 before beginning this assignment.

2. **Collaboration**: While discussion with peers is encouraged, the work you submit should be your own.

3. **Submission**: Download the assignment template and use it to add your responses to each question. Submit the completed file through the designated submission page on the class site in Canvas.

PART 1: Article Search

Search for five (5) articles published since 2020 that focus on "data science" in your domain area. Use the template provided below to report your search activities and outcomes.

Tips:

- **Search Strategy**: Use required keywords and exact match syntax for highly relevant results. For instance, in Google Scholar, the "+" and "" symbols can be used for must-match terms or phrases, which will also be highlighted in the search results.
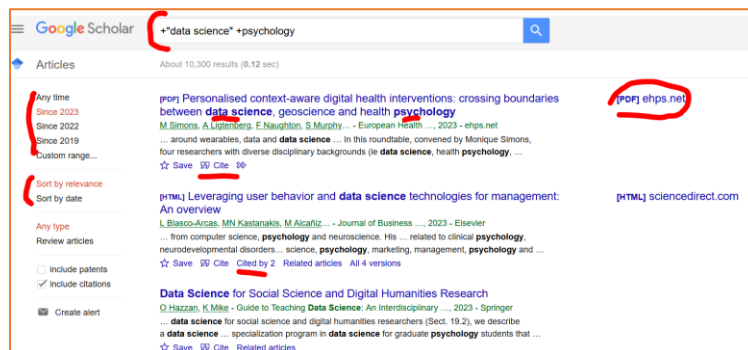
- **Citations**: Google Scholar offers a "Cite" feature to provide citations in multiple formats, including APA.

- **Direct Links**: To obtain a direct link, right-click the full-text link of a selected article in the search results and select "Copy Link."

A sample entry for step 1.3 may look like:

Simons, M., Ligtenberg, A., Naughton, F., Murphy, S., König, L. M., & Winkens, L. (2023). Personalised context-aware digital health interventions: crossing boundaries between data science, geoscience, and health psychology. *European Health Psychologist, 23*(3). https://www.ehps.net/ehp/index.php/contents/article/download/3428/1322

Your report:

1.1 Your domain area: Business Analytics

1.2 Your search strategy

   a) Database(s)/tool(s) commonly used in your domain area besides Google Scholar: -

   b) Search terms applied: 1) "Business" 2) "Business Analytics"

   c) Facets and parameters for refining your search: -

1.3 List the selected articles

List the five articles you've selected, formatted in APA style, and include a direct link to each article.

1. Vicario, G., & Coleman, S. (2020). A review of data science in business and industry and a future view. *Applied Stochastic Models in Business and Industry*, *36*(1), 6-18. https://onlinelibrary.wiley.com/doi/abs/10.1002/asmb.2488

2. Medeiros, M. M. D., Hoppen, N., & Maçada, A. C. G. (2020). Data science for business: Benefits, challenges and opportunities. *The Bottom Line*, *33*(2), 149-163. https://www.emerald.com/insight/content/doi/10.1108/BL-12-2019-0132/full/html

3. Rautenbach, S., de Kock, I. H., & Grobler, J. (2022). Data science for small and medium-sized enterprises: a structured literature review. *South African Journal of Industrial Engineering*, *33*(3), 83-95. http://www.scielo.org.za/scielo.php?pid=S2224-78902022000300008&script=sci_arttext

4. Ahn, S., Couture, S. V., Cuzzocrea, A., Dam, K., Grasso, G. M., Leung, C. K., ... & Wodi, B. H. (2019, June). A fuzzy logic based machine learning tool for supporting big data business analytics in complex artificial intelligence environments. In *2019 IEEE international conference on fuzzy systems (FUZZ-IEEE)* (pp. 1-6). IEEE. https://ieeexplore.ieee.org/abstract/document/8858791/

5. Zenkina, I. (2023, January). Development of Business Analytics in the Context of Digital Business Transformation. In *International Scientific Conference Fundamental and Applied Scientific Research in the Development of Agriculture in the Far East* (pp. 786-794). Cham: Springer Nature Switzerland. https://link.springer.com/chapter/10.1007/978-3-031-36960-5_89

PART 2: Major Takeaways

Summarize the key insights about data science in your domain area as presented in the five articles. Ensure you use proper in-text APA citations. (200-300 words)

In the field of business analytics, data science has emerged as an influential force that is transforming how organizations operate and make choices. At its core, data-driven decision-making is a fundamental outcome of data science, enabling businesses to leverage their data across various functions and management levels. Whether it's predicting employee wage levels, optimizing operations through descriptive, predictive, or prescriptive analytics, or harnessing the power of big data, data science plays a pivotal role.

Digitalization, often synonymous with Industry 4.0, has amplified the impact of data science. It underscores the critical importance of data and analytics in modern business operations. Businesses, large and small, recognize that data is a valuable asset, encompassing the 5Vs: Value, Velocity, Volume, Variety, and Veracity. The explosive growth of data necessitates the emergence of big data analytics, which deals with vast volumes of unstructured data from diverse sources, offering new insights and challenges.

In this evolving landscape, the distinction between business analysis and business analytics is crucial. While both are complementary, the former involves understanding data, while the latter extracts actionable insights. Data science bridges these domains, utilizing machine learning and predictive modeling to create value from data. Its interdisciplinary nature combines mathematical methods, statistics, algorithms, computer science, and practical implementation to extract valuable insights from structured and unstructured data.

Moreover, data science is not limited to large corporations but also holds immense potential for small and medium-sized enterprises (SMEs). SMEs can benefit from data-driven decision-making, provided they address barriers like data quality concerns, infrastructure limitations, and the need for skills. As data science continues to evolve and permeate all aspects of business, it is clear that its significance will only grow, driving organizations toward more informed, data-driven decision-making, and ultimately enhancing their competitiveness in the modern business landscape.

PART 3: Discussion and Reflection

Discuss how the iSchool DS curriculum can enrich both your data science education and your specific field of study, based on what you've learned in Modules 1 & 2 and the key insights from Part 2. (200-300 words)

The iSchool Data Science curriculum offers valuable advantages for my data science education and its application in business analytics. Its interdisciplinary perspective promotes a holistic approach to data analysis, while the focus on ethics and social responsibility equips me with essential skills for making ethical decisions in data-driven contexts. The curriculum's adaptability to emerging trends ensures I stay relevant in the dynamic field of business analytics, and the emphasis on effective communication aids in conveying complex insights to non-technical stakeholders. In summary, the iSchool DS curriculum enhances my ability to perform ethical, context-aware, and socially responsible data analysis in the context of business analytics.

Moreover, while I initially selected this program with the expectation of a stronger practical component, I appreciate the robust theoretical foundation provided in modules one and two. I'm hopeful that the upcoming modules will build upon this foundation by incorporating more practical elements, creating a well-rounded educational experience that combines theory and real-world application to further enhance my skills in data science for business analytics.