



School of Computer Science

COMP47470: Big Data Programming

Critical Review Project

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Description:

In this project, you are required to critique a seminal research article in the field of databases and big data.

The link "Seminal Articles for Critical Review" on the following page has a zip file containing seminal articles in the field of databases and big data.

<https://brightspace.ucd.ie/d2l/le/content/249607/Home>

The directory "BigDataProgrammingTools" contains research articles on the popular NoSQL and BigData tools such as Hadoop, Spark, Storm, Samza, Cassandra, BigTable, Apache MLlib, Apache Giraph, and Amazon Dynamo.

The directory "ClassicalAndConceptual" contains research articles on breakthrough concepts such as relational databases, NoSQL and NewSQL, column versus row stores, eventual consistency and CAP theorem.

You will see a pdf document also in the same directory "COMP47470_2023_CR_Paper_Assignment.pdf". Please open the pdf, find your name and get the associated paper assigned to you for critical review. The zip file will have a PDF of the paper.

Your critique must contain the following:

1. A synopsis of the research article's main proposal. It can be a condensed version of the abstract written in your own words.
2. Explain the gap in the prior art that the article highlights. You can use a concept diagram to classify the concepts in the field and show where the article's proposal fits.
3. Present the context (related work). What are the limitations of the prior art that motivated the authors to propose their work?
4. What are the article's main contributions?
5. Give a high-level overview of the solution proposed by the authors. Does the solution solve the identified problem?
6. Describe the scientific method employed by the authors. Is it sound?
7. Analyse the experimental results and conclusions. Do they validate the hypothesis?
8. Briefly estimate the impact of the research work in the field since it was published. Some metrics are the number of citations, commercial success, and ranking in DB engines (<https://db-engines.com/en/ranking>).
9. Finally, you can write what you liked/disliked about the paper, any defects you identified, what could have been done to further improve the paper,

and what are related papers that you think had similar impact and are more profound.

Submission Instructions

1. You can use any text editor to prepare your report. For example: Word, Google Docs, LaTeX. However, the submission must be in **PDF** format.
2. The report should not be over **4 pages (A4 size)** long, excluding references. Please use a **font size of 12**.
3. Please provide legible citations. Formal citations in BibTeX format are not mandatory. However, authors, title, year, and journal/conference/workshop titles are mandatory.
4. Please use Brightspace to make the submission (**Brightspace -> Assessment -> Assignments**).

Some Guidelines

There are a few good essays online providing methodologies for critically reviewing research articles. The following are a couple:

How to Read a Paper

by S. Keshav

<https://web.stanford.edu/class/ee384m/Handouts/HowtoReadPaper.pdf>

Art of reading a journal article: Methodically and effectively

R. V. Subramanyam

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3687192/>

Weightage towards Final Grade: 10%