Assignment: Reading assignment

"A generation which ignores history has no past – and no future." — Robert A. Heinlein.

Background:

Understanding the historical and theoretical underpinnings of HPC and Big Data allows us to appreciate the evolution of these fields, analyze current trends, and prepare for the challenges of the future.The course **HPC and Big Data** explores foundational concepts, trends, and the visionary ideas that have shaped modern computing systems. In this assignment, we delve into two seminal papers that offer a historical and conceptual foundation for understanding High-Performance Computing (HPC) and Big Data. These papers were published over a decade ago but remain profoundly relevant for their visionary insights.

Paper [1]: "The Anatomy of the Grid: Enabling Scalable Virtual Organizations" by Ian Foster et al. Grid Computing Environments Workshop, 2008. GCE '08 , vol., no., pp.1,10, 12-16 Nov. 2008 doi:10.1109/GCE.2008.4738445 [Download link]

This highly influential paper has been cited more than 2,500 times and compares **Grid Computing** and **Cloud Computing** from multiple perspectives. It highlights their respective strengths, challenges, and essential characteristics, offering a deep understanding of the principles driving distributed computing systems.

Paper [2]: "The Pathologies of Big Data" by Adam Jacobs Magazine Communications of the ACM ,Vol. 52 Issue 8, Aug. 2009. doi:10.1145/1536616.1536632 [Download link]

This paper explores the challenges and complexities associated with handling and analyzing large-scale data. It identifies the potential pitfalls, or "pathologies," of Big Data systems and emphasizes the need for thoughtful design and methodology in data-intensive applications.

Assignment:

1. **Reading and Analysis**

   - Carefully read **Paper [1]** and **Paper [2]**. Focus on the key arguments, insights, and the authors' vision for the future of computing systems.
   - Identify the major themes discussed in both papers, including similarities, differences, and their relevance to modern HPC and Big Data systems.

2. **Reflection**

- At the end of the course, reflect on the content of these papers in the context of what you have learned throughout the course. Consider:
    - How do the ideas in these papers align with the concepts taught in the course?
    - Are there any predictions or insights in the papers that remain valid today? If so, provide examples.
    - In what ways have the fields of HPC and Big Data evolved since the publication of these papers? How do these changes align with or diverge from the papers' predictions?

Submission:

- 1st submission: Submit a Summary of each paper via Canvas.
- 2nd submission: reflection

Note:

1. Submitting after the deadline will result in losing points (1 point for every 30 minutes after the deadline)
2. The use of AI tools is prohibited. Utilizing any AI tools to complete this assignment will not benefit your learning. Ultimately, you will still need to write a reflection based on the course content, which AI cannot effectively accomplish, as it has not attended the classes.
3. If there are signs of AI involvement, quizzes may be introduced to assist in the evaluation process.