**Assignment 2.1 – Ethical and Licensing Considerations in Open-Source MLOps**

**Assignment Overview**  
In modern Machine Learning Operations (MLOps), open-source software and datasets play a central role in model development, training, deployment, and monitoring. From GPU-accelerated frameworks like TensorFlow and PyTorch to sentiment analysis tools like FinBERT, these components often come with specific licensing terms and ethical obligations. Proper citation and license compliance are not only matters of academic integrity, but they are also critical for legal compliance, reproducibility, and professional ethics in AI engineering.

In this assignment, you will research, analyze, and articulate the importance of correctly citing open-source applications used in MLOps pipelines, with a focus on:

* Ethical responsibilities in acknowledging contributions.
* Legal obligations under licenses such as **Apache 2.0** and **Creative Commons CC0 1.0**.
* Risks of non-compliance in commercial and research contexts.
* Best practices for integrating and documenting open-source tools in reproducible ML workflows.

**Assignment Requirements**

1. **Paper Length & Format**
   * Length: 2 full pages (excluding title page and references).
   * Format: Microsoft Word document, double-spaced, APA 7th edition formatting.
   * Include in-text citations and a properly formatted reference list.
2. **Content Structure**  
   Your paper must address the following sections:

**a. Introduction**

* + Define open-source software in the context of MLOps.
  + Briefly describe the importance of utilizing open-source software for MLOps.

**b. Ethical Importance of Citation**

* + Discuss why ethical citation is essential in software engineering.
  + Explain how it promotes transparency, accountability, and community trust.

**c. Licensing Considerations**

* + Compare and contrast **Apache License 2.0** and **Creative Commons CC0 1.0** Deed.
  + Explore two other open-source licenses.
  + Explain redistribution, modification, and attribution requirements for each license type.

**d. Risks of Non-Compliance**

* + Discuss legal, reputational, and operational risks of violating open-source licenses in MLOps pipelines.
  + Include potential consequences for research publications and commercial deployments.

**e. Best Practices for Compliance**

* + Outline methods for tracking and citing open-source components in projects (e.g., LICENSE tables, model cards, and attribution files).
  + Recommend tools or workflows for automated license compliance checking.

**f. Conclusion**

* + Summarize why proper citation and licensing compliance should be embedded into the MLOps lifecycle.

**g. Sources & References**

* + Minimum of **3 scholarly or authoritative sources** (license documents, academic articles, or official software documentation).
  + Use APA formatting for both in-text citations and the reference list.

| **Criterion** | **Points** | **Description** |
| --- | --- | --- |
| **Content Depth** | 30 | Demonstrates critical understanding of citation ethics, licensing, and their impact on MLOps. |
| **Accuracy** | 20 | Correctly explains license terms (Apache 2.0, CC0 1.0) and their application to course-relevant tools. |
| **APA Formatting** | 20 | Follows APA formatting for structure, in-text citations, and references. |
| **Clarity & Cohesion** | 15 | Well-organized, logically structured, and free of grammatical errors. |
| **Examples & Evidence** | 15 | Uses concrete, relevant examples from course materials and external scholarly sources. |