**MLOA Experiment 9**

PART B

(PART B : TO BE COMPLETED BY STUDENTS)

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| Class: B | Batch: B2 |
| Date of Experiment: 17/3/2024 | Date of Submission: 30/3/2024 |
| Grade: |  |

**B.1 Documentation written by student:**

**Title: Hybrid approaches to optimization and machine learning methods: a systematic literature review**

* The paper presents a systematic literature review on hybrid methods involving optimization and machine learning techniques for clustering and classification.
* The objective is to identify the potential of methods and algorithms to overcome the difficulties of one or both methodologies when combined.
* The review includes works published since 1970, providing a numerical overview of the research in this field.
* A SWOT analysis of the ten most cited algorithms is performed, highlighting the strengths and weaknesses of the pure algorithms and exploring the opportunities and threats that have been explored with hybrid methods.
* The paper aims to identify notable works and discoveries involving hybrid methods in clustering and classification, as well as the difficulties of pure methods that can be strengthened through hybrid approaches.
* The research questions addressed in the paper include the difficulties of classical optimization and machine learning algorithms, and the methods or techniques already developed to combine optimization and machine learning for improved performance.

**B.2 Observations and learning:**

Summarized the provided research paper titled: “Hybrid approaches to optimization and machine learning methods: a systematic literature review.” Learnt about the inherent strengths and weaknesses of classical algorithms from both clustering and classification domains, underscoring the need for hybrid approaches that can leverage their complementary capabilities.

**B.3 Conclusion:**

Performed a thorough review of the paper titled "Hybrid approaches to optimization and machine learning methods: a systematic literature review."