(SCTP) – ASSOCIATE AI DEVELOPER CAPSTONE PROJECT

Version 1.0

Problem Statement

In today's fast-paced world, businesses and **organizations face the challenge of extracting meaningful insights from the overwhelming amount of data** at their disposal. Traditional methods often fall short, necessitating a more sophisticated and efficient solution. Your project aims to address this gap by **creating an advanced AI-driven data analytics system** capable of automatically analyzing large datasets, uncovering patterns, and generating actionable insights. The primary goal is to empower decision-makers with a tool that enhances their ability to make informed, data-driven decisions in various industries.

What is your MAIN task?

Your task is to **pick a problem statement** and **create an AI/Machine Learning system** that addresses the challenges businesses and organizations face in extracting meaningful insights from the vast amount of data they encounter daily.

What are the REQUIREMENTS?

1. Conduct a thorough literature review to identify existing research and challenges within the chosen technical area.
2. Design and implement an AI model that adheres to best practices and addresses the identified challenges.
3. Evaluate the model's performance using relevant metrics and compare it to existing approaches (if applicable).
4. Analyze the ethical implications of your chosen technical approach and propose mitigation strategies.
5. Document your findings and recommendations in a clear and concise manner.

What is the EXPECTATION?

You are expected to provide a **clear and concise presentation** of your project to the assessor with the following markers and rubrics.

Duration: Max 15 mins for each learner

MARKERS AND RUBRICS

Presentation Markers	Rubrics
1. Introduction and Project Overview	Clear articulation of project purpose and significance, engaging introduction
2. Topic Selection Rationale	Thorough explanation of the chosen analysis topic's relevance, understanding of applications
3. System Architecture and Design	Detailed presentation of system architecture, clear explanation of key component integration
4. Coding and Implementation Highlights	Effective showcase of key codebase aspects, emphasis on clean code practices
5. Testing and Validation Results	Comprehensive insights into testing process, clear presentation of validation results
6. Visualization Demonstration	Effective showcase of data visualization communicating key insights
7. Challenges Faced and Problem-Solving Approach	Honest discussion of encountered challenges, clear presentation of problem-solving strategies
8. Conclusion and Future Work	Concise summary of key achievements, articulate discussion of potential future enhancements
9. Q&A Interaction	Demonstrated ability to respond effectively to questions, display of comprehensive knowledge

DELIVERABLES

- You are expected to put together the following, bundled in a **NAME.zip** file and upload it on CANVAS in the respective assessment:
  - Python Files, Jupyter Notebooks
  - Dataset Files
  - Any other files used for the project
- Final Presentation (**.pptx/.pdf**) to be uploaded separately in the respective assessment on CANVAS:
  - Presentation should include all the details as per the Presentation Markers

SESSION STRUCTURE

- Each day after the attendance in each session, everyone will be put into individual breakout rooms to work on the project
- I will be visiting each of your breakouts to guide and clarify your doubts at regular intervals
- If you get done with your desired project before the stipulated time, you can work on another project to enrich your GitHub profile. However, for the module, at least one project is to be completed
- If two or more of you choose a similar dataset (however try to choose different ones), then there should be sufficient distinction between the modelling and the project. NTUC is strictly against plagiarism
- Last day is reserved for the presentations. Presentation slots will be finalized on mutual discussion among learners
- All the best everyone

THANK YOU!