Project: Develop Machine learning Model **FACULTY OF INFORMATION & COMMUNICATION TECHNOLOGY** **UNIVERSITI TEKNIKAL MALAYSIA MELAKA**		
MACHINE LEARNING		
BITI 2223	**SEMESTER 2**	**SESI 2023/2024**

This assignment is to be completed in groups of two members each.

The aim of this project is to allow students to apply machine learning techniques to a real-world problem using RapidMiner. This will help students enhance their understanding and skills in model building, evaluation, and interpretation.

Instructions:

1) The goal of this project is to build a machine learning model based on your use case. You are required to pre-process data, build, evaluate, and interpret your model.

2) You will use the previous case study dataset for this project.
    1. Travel Review Ratings Data Set
    2. EMG data for gestures Data Set
    3. Student Academics Performance Data Set
    4. EEG Steady-State Visual Evoked Potential Signals Data Set
    5. Cargo 2000 Freight Tracking and Tracing Data Set
    6. Breast Cancer Wisconsin (Diagnostic)
    7. Drug Consumption (Quantified)
    8. Myocardial infarction complications
    9. Cervical Cancer (Risk Factors)
    10. Bar Crawl: Detecting Heavy Drinking
    11. In-Vehicle Coupon Recommendation

3) You are required to show in details all the steps in machine learning process. Below are the guidelines for you:
    a. Data Understanding & exploration
    b. Data Pre-processing
    c. Model Development

d. Model Evaluation
e. Model Interpretation

4) You are required to write a comprehensive project report explaining all your steps from data exploration to model interpretation.

Evaluation criteria:

Criteria	**Marks**
Data Exploration and Pre-processing	**20**
⁾ Quality and thoroughness of data exploration. ⁾ Visualize the data to identify patterns and correlations. ⁾ Handling of missing values and data encoding. ⁾ Proper splitting of data into training and testing sets.	
Model Development	**30**
⁾ Selection and justification of machine learning algorithms. ⁾ Use of parameter optimization techniques. ⁾ Comparison of multiple models.	
Model Evaluation	**20**
⁾ Appropriate use of evaluation metrics. ⁾ Analysis of error distributions. ⁾ Clear and accurate presentation of results.	
Model Interpretation	**15**
⁾ Use of feature importance techniques. ⁾ Interpretation of key features.	
Reporting	**15**
⁾ Clarity and organization of the report. ⁾ Depth of analysis and insights.	

DUE DATE OF SUBMISSION & PRESENTATION: 13/6/2024 (Thursday)

SUBMIT THROUGH: ULEARN