SCHOOL OF COMPUTING
Faculty of Engineering

Project Proposal Form MCST1043
Sem: 2 Session: 2024/25

SECTION A: Project Information.

Program Name:	**Masters of Science (Data Science)**
Subject Name:	**Project 1 (MCST1043)**
Student Name:	CHAU AI VIN
Metric Number:	MCS241033
Student Email & Phone:	chauaivin@graduate.utm.my | 018-7761223
Project Title:	Sentiment Analysis of Online Customer Reviews to Predict Product Success in E-Commerce Platforms
Supervisor 1:	
Supervisor 2 / Industry Advisor(if any):	

SECTION B: Project Proposal

Introduction:

In the digital age, customer reviews on e-commerce platforms such as Amazon and Shopee play an important role in shaping product perceptions and influencing purchasing decisions. These reviews contain valuable insights about customer satisfaction and, if analyzed effectively, can help predict the future success of a product. This project proposes the use of sentiment analysis techniques to examine the emotional tone of customer reviews and explore their relationship with product performance indicators such as ratings and sales. By applying natural language processing (NLP) and machine learning, the research aims to provide actionable insights to support data-driven business decisions in the competitive e-commerce environment.

Problem Background:

E-commerce platforms generate a large number of customer reviews that provide valuable insights into product satisfaction. However, most businesses rely solely on ratings, ignoring the deeper meaning within the review text. Without effective sentiment analysis, these insights cannot be leveraged, limiting the ability to predict product success or respond to customer concerns in a timely manner. This project aims to bridge this gap by analyzing customer sentiment to help predict product performance.

Problem Statement:

Despite the large number of customer reviews on e-commerce platforms, many businesses lack effective tools to analyze the sentiment behind these reviews and use it to predict product success. This leads to missed opportunities to identify underperforming products, improve customer satisfaction, and make informed business decisions. A data-driven approach is needed that can extract and interpret customer sentiment to support strategic planning and product improvements.

Aim of the Project:

The aim of this project is to use machine learning techniques to analyze customer review sentiments on e-commerce platforms to explore their relationship with product performance and develop a predictive model that can accurately predict product success based on sentiment patterns.

Objectives of the Project:

1. To develop and apply sentiment analysis techniques on customer reviews from e-commerce platforms.
2. To examine the relationship between sentiment patterns and product performance indicators such as sales and ratings.
3. To compare the accuracy of different machine learning models in predicting product success based on review sentiment.

Scopes of the Project:

This project focuses on using sentiment analysis to analyze English customer reviews for selected e-commerce platforms. It will use publicly available datasets and apply machine learning models to predict product performance. The research is limited to one product category and does not include real-time or multilingual analysis.

Expected Contribution of the Project:

The project is expected to provide insights into the relationship between customer sentiment in online reviews and product success on e-commerce platforms. It will provide a predictive model to help companies identify potential product performance trends early, allowing them to make smarter marketing, inventory and product development decisions.

Project Requirements:

Software: Python, Jupyter Notebook and Anaconda

Hardware:
- Intel i5 or equivalent processor
- 8GB RAM (16GB recommended for faster processing)
- Stable internet connection for accessing datasets and tools

Technology/Technique/ Methodology/Algorithm: Natural Language Processing (NLP), Sentiment Analysis, Machine Learning Algorithms and Model Evaluation Techniques

Type of Project (Focusing on Data Science):

[√] Data Preparation and Modeling

[ ] Data Analysis and Visualization

[ ] Business Intelligence and Analytics

[√] Machine Learning and Prediction

[√] Data Science Application in Business Domain

Status of Project:

[√] New

[ ] Continued

If continued, what is the previous title? .....

SECTION C: Declaration

I declare that this project is proposed by:

[√] Myself

[ ] Supervisor/Industry Advisor ( )

Student Name: CHAU AI VIN

CHAU AI VIN — 6/4/2025

Signature **Date**

SECTION D: Supervisor Acknowledgement

The Supervisor(s) shall complete this section.

I/We agree to become the supervisor(s) for this student under aforesaid proposed title.

Name of Supervisor 1: .....

Signature **Date**

Name of Supervisor 2 (if any): .....

Signature **Date**

SECTION E: Evaluation Panel Approval

The Evaluator(s) shall complete this section.

Result:

[ ] FULL APPROVAL [ ] CONDITIONAL APPROVAL (Major)*

[ ] CONDITIONAL APPROVAL (Minor) [ ] FAIL*

***** Student has to submit new proposal form considering the evaluators' comments.

Comments:

Name of Evaluator 1: .....

Signature ..... **Date** .....

Name of Evaluator 2: .....

Signature ..... **Date** .....