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:	MOHAMED AZLAN AMEER OLI
Metric Number:	MCS241050
Student Email & Phone:	azlan1996@graduate.utm.my
Project Title:	Deep Learning Approaches for Fraud Detection in Transactions for E-Commerce
Supervisor 1:	
Supervisor 2 / Industry Advisor (if any):	

SECTION B: Project Proposal

Introduction:

In today's digital world, the number of online transactions has increase rapidly, especially with the rise of online payment and e-commerce. This facility made human to manage their transactions easy but it has led to a significant of financial fraud particularly in credit card and mobile-based money transfers. As a result, banks and online businesses are seeking advanced, automated solutions to quickly and accurately identify fraudulent activities (Nama & Obaid, 2024).

Problem Background:

The shift towards cashless payments and the rise of online transactions have introduced fresh challenges in the realm of fraud detection. Traditional approaches, which frequently depend on manual inspections or basic rule-based systems, are finding it tough to handle the vast today's financial data. Additionally, because fraudulent activities are much less common than legitimate transactions, traditional models often struggle to identify them accurately. This imbalance in the data, alongside the ever-changing strategies of fraudsters, underscores the necessity for more intelligent and adaptable detection systems (Nama & Obaid, 2024).

Problem Statement:

Despite the progress in machine learning and deep learning, current fraud detection systems still face significant hurdles. They often fail to accurately identify fraudulent transactions due to the overwhelming number of legitimate transactions, the dynamic nature of fraud techniques, and the demand for real-time analysis. There is a clear need for a more effective and responsive model that can reliably detect fraud in mobile money transfers, minimizing both false alarms and missed cases (Nama & Obaid, 2024).

Aim of the Project:

This project aims to is to investigate and implement the deep learning-based approach, specifically using Recurrent Neural Networks (RNNs) and Convolutional Neural Network (CNN), to detect fraudulent activities in e-commerce transactions especially for credit card. Next, to develop a dashboard using Power BI tool for visualization of the method used to identify the fraud detections.

Objectives of the Project:

The objectives of this research include:

1. To investigate the deep learning-based approach for fraud transactions detection.
2. To implement the method used for fraud transactions detection based on deep learning method.
3. To develop a dashboard for visualization based on approached method.

Scopes of the Project:

The scopes of this project are bounded under the following constraint to accomplish this work:

1. The study utilizes the dataset of the standard datasets Credit Card Fraud Detections (for now).
2. The experiment related will be developing in Python programming using 'Keras' framework.
3. The proposed model used Convolutional Neural Network (CNN) and Recurrent Neural Networks (RNNs).

Expected Contribution of the Project:

Expected contributions of this project is to investigate and evaluate various deep learning models for detecting fraud in e-commerce. By implementing methods such as Convolutional Neural Networks (CNN) and Recurrent Neural Networks (RNN), we aim to identify the most effective strategy for real-time fraud detection by the visualization dashboard. The findings will assist in the development of more intelligent and secure solutions to safeguard e-commerce platforms against fraudulent behavior in digital era.

Project Requirements:

Software: Google Colab, Python

Hardware: Computer, 8gb Ram, GPU Nvdia

Technology/Technique/ Methodology/Algorithm: Research Framework, Kaggle Dataset.

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?

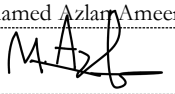
SECTION C: Declaration

I declare that this project is proposed by:

[/] Myself

[ ] Supervisor/Industry Advisor ( )

Student Name: Mohamed Azlan Ameer Oli



Signature

17/04/2025

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