ICT505 Data Analytics

Assessment 4 – Individual Assignment

Overview

This assignment involves comprehensive research on the use of machine learning methods for detecting malicious websites. Students are required to delve into various machine learning algorithms, explore their application in cybersecurity, specifically for malicious website detection, and evaluate their effectiveness using academic literature. The assignment ends with a detailed report that combines all the research findings. This report is organized in a clear way to show a thorough understanding of ML in malicious website detection.

Problem Statement

This is an individual assessment task. Each student is required to submit a report of approximately 2500 words. This report should consist of:

1. An abstract that summarizes your findings in 150-200 words. (2 points)

2. An introduction section which explain about machine learning algorithm for malicious website detection, why this topic is interesting and important to the other researchers and explain the history of the topic. (6 points)

3. A literature review section which surveys three latest techniques from academic research papers regarding the malicious website detection. The aim of this part of the report is to demonstrate deep and thorough understanding of the existing machine learning techniques for security data analytics. (12 points)

4. A section describes one of the datasets that other researchers used for malicious website detection, which includes the construction of datasets, and the features identified for classification. (4 points)

5. A methodology section that depicts the workflow of malicious website detection that describes the process of conducting malicious website detection. (4 points)

6. This unit requires you to use APA system of referencing. See Sydney International's quick reference guide. It should be used in conjunction with the online tool Academic Writer: https://extras.apa.org/apastyle/basics-7e/#/. All reports must include at least 5 academic references which must be done using APA7 reference style. (2 points)

Timelines and Expectations

Case Study Report and presentation (40%: 30% Report and 10% Presentation(10min))

Individual Report Due (Week 12, Friday, 11:59 PM). Students should present their work in class during Week 12, within a 10-minute timeframe.

Expected word count 2500 words

Students are expected to submit their assessments via Turnitin on Moodle.

Learning Outcomes Assessed

The following course learning outcomes are assessed by completing this assessment task:

ULO1: Exhibit comprehension of the fundamental principles of data analysis, including theoretical frameworks and methodologies, applicable to business and social contexts.

ULO2. Exhibit high level of expertise in assessing data analytics methods critically to solve real-world problems.

ULO3. Exhibit ability to critically draw from and evaluate research and data at an industry and organisational level to formulate effective strategies and plans.

ULO4. Exhibit high level of written and verbal communication skills relevant to the planning, design, and implementation of a technical solution.

Submission

All assessments must be submitted through Turnitin on Moodle.

Marking Criteria / Rubric

Refer to the attached marking guide.

Case Study Report Marking Guide

Weighting: 40% (30% Report and 10% in class presentation)

Assessment Criteria:

Criteria	Excellent	Good	Satisfactory	Unsatisfactory
Abstract (2 marks)	Succinctly summarizes all key findings clearly	Summarizes key findings with minor omissions	Provides a general summary with some omissions	Incomplete summary or missing
Introduction (6 marks)	Provides an engaging and thorough introduction	Adequately introduces the topic	Introduces topic with some clarity issues	Introduction lacks clarity or relevance
Literature Review (12 marks)	Demonstrates comprehensive understanding	Demonstrates good understanding	Shows basic understanding with gaps	Limited understanding shown
Dataset Analysis (4 marks)	Detailed and accurate analysis of dataset	Good analysis with minor inaccuracies	Basic analysis, some important details missing	Analysis is poor or incomplete
Methodology (4 marks)	Methodology is well-detailed and clear	Methodology is clear with minor gaps	Methodology described but lacks details	Methodology is poorly described
Referencing (2 marks)	Flawless APA7 referencing	Minor errors in APA7 referencing	Multiple errors in APA7 referencing but still clear	Poor use of APA7 referencing