QUALIFI ASSESSMENT DOCUMENT

Qualifi Level 4 Diploma in Artificial Intelligence

Assignment brief – Unit 5

Qualification	AID 405 Introduction to Deep Learning
Unit Reference	X
Qualification Reference (RQF)	X
No of Credits	**20**

Contents

Introduction

Prior to attempting this coursework assignment, Learners must familiarise themselves with the following policies:

- Centre Specification Can be found at https://qualifi.net/qualifi-level-4-diploma-in-artificial-intelligence/
- Qualifi Quality Assurance Standards
- Qualifi Quality Policy Statement

Assignment Guidelines

All work must be submitted in a single electronic document (.doc/.docx file). The assignment must be the Learner's own work and not copies of theories or models. Direct quotes should be kept to a minimum, and shown in inverted commas. Models described and other quotes used must be properly attributed and referenced as appropriate. Learners must acknowledge or reference any sources that have been used to complete the assignment, listing reference material and web sites used.

Plagiarism and Collusion

In submitting the assignment Learner's must complete a statement of authenticity confirming that the work submitted for all tasks is their own. The statement should also include the word count. Plagiarism and collusion are treated very seriously. Plagiarism involves presenting work, excerpts, ideas or passages of another author without appropriate referencing and attribution. Collusion occurs when two or more learners submit work which is so alike in ideas, content, wording and/or structure that the similarity goes beyond what might have been mere coincidence.

Appendices

Separate Appendices should not be used. Any use of tables, graphs, diagrams, Gantt chart and flowcharts etc. that support the main report should be incorporated into the back of the assignment report that is submitted. Any published secondary information such as annual reports and company literature, should be referenced in the main text of the assignment but not included.

Confidentiality

Where a Learner is using organisational information that deals with sensitive material or issues, they must seek the advice and permission from that organisation about its inclusion. Where confidentiality is an issue, Learners are advised to anonymise their assignment report so that it cannot be attributed to that particular organisation.

Word Count Policy

In total, the assignment should be between 3000 – 4000 words. Learners must comply with the required word count, within a margin of +10%.These rules exclude the index (if used), headings and information contained within references and bibliographies. When an assessment task requires learners to produce presentation slides with supporting notes, the word count applies to the supporting notes only.

Marking and grades

Qualifi uses a standard marking rubric for all assignments, and you can find the details at the end of this document.

Unless stated elsewhere, Learners must answer all questions in this document.

Unit Title	AID 405 Introduction to Deep Learning
Unit Reference (RQF)	B
No of Credits	20

Learning Outcomes and Assessment Criteria

Learning Outcomes When awarded credit for this unit, a learner will:	**Assessment Criteria** Assessment of this learning outcome will require a learner to demonstrate that they can:
1. Understand basic machine learning concepts that apply when developing deep learning models.	1.1 Explain key concepts in machine learning
	1.2 Explain the process of data preparation / cleansing.
	1.3 Discuss the functions of classifier and ensemble in Machine Learning.
2. Understand how to develop basic deep learning models	2.1 Explain key concepts of deep learning models
	2.2 Assess the use of these key concepts in deep learning modelling.

3. Be able to apply Neural network models to carry out simple tasks using popular frameworks	3.1 Describe the purpose and deliverable outcome of Neural network models used in deep learning
	3.2 Select an appropriate Neural network model for an image classification.
	3.3 Model a selected Neural network model onto a given dataset.
4. Be able to interpret results using prepared sample data to preprocess deep learning models.	4.1 Select appropriate metric to evaluate the results of an image classification model
	4.2 Analyse the results produced and summarize how the deep learning model can be further improved

Referencing and Professionalism

A professional approach to work is expected from all learners. Learners must therefore identify and acknowledge ALL sources/methodologies/applications used. The learner must use an appropriate referencing system to achieve this. Marks are not awarded for the use of English; however the learner must express ideas clearly and ensure that appropriate terminology is used to convey accuracy in meaning.

Submission of Assignments

All work must be submitted in a single electronic document (.doc/.docx file) in your Learning Portal or to submit to the Assessor/Centre Administrator.

ASSESSMENT TASKS

Task 1 FORMATIVE TASK Basic Machine Learning

FORMATIVE TASK

Instruction: Write a briefing paper for your department about basic machine learning. Your briefing must contain the following things:

- An outline of the key concepts in machine learning
- Identify and explain how data is prepared and cleaned for use
- A discussion of the functions of classifier and ensemble in Machine Learning

Formatting:

850-1150 words

Justified alignment

Single-spaced

12pt Times New Roman font

Use an appropriate referencing system for footnotes and citations

Task 2 SUMMATIVE TASK Neural Networks in Practice

SUMMATIVE TASK

Instruction: Your team has been asked to use a neural network to gain insight into the workings of your organisation. The resulting report must include the following:

- An outline of the concept of deep learning, and how neural network models can be used to this purpose through appropriate metrics (LO 2.1, 3.1, 4.1))
- Identify and explain how these concepts can be used in an appropriate neural network model (LO 2.2, 3.2, 3.3)
- An evaluation of the quality of the insight into your organisation provided by the neural network, and any potential revisions to the network that might take place (LO 3.3, 4.2)

Assessment Criteria Assessment of this learning outcome will require a learner to demonstrate that they can:
2.1 Explain key concepts of deep learning models 2.2 Assess the use of these key concepts in deep learning modelling.
3.1 Describe the purpose and deliverable outcome of Neural network models used in deep learning 3.2 Select an appropriate Neural network model for an image classification. 3.3 Model a selected Neural network model onto a given dataset.
4.1 Select appropriate metric to evaluate the results of an image classification model 4.2 Analyse the results produced and summarize how the deep learning model can be further improved

Formatting:

1850-2150 words	12pt Times New Roman font
Justified alignment	Use an appropriate referencing system for
Single-spaced	footnotes and citations

Learners are required to complete all tasks.

Mark Scheme

Grade	Distinction		Merit	Pass		FAIL	
Mark	80-100	70-79	60-69	50-59	40-49	30-39	0-39
Content (alignment with assessment criteria)	Extensive evaluation and synthesis of ideas; includes substantial original thinking	Comprehensive critical evaluation and synthesis of ideas; includes coherent original thinking	Adequate evaluation and synthesis of key ideas beyond basic descriptions; includes original thinking	Describes main ideas with evidence of evaluation; includes some original thinking	Describes some of the main ideas but omits some concepts; limited evidence of evaluation; confused original thinking	Largely incomplete description of main issues; misses key concepts; no original thinking	Inadequate information or containing information not relevant to the topic
Application of Theory and Literature	In-depth, detailed and relevant application of theory; expertly integrates literature to support ideas and concept	Clear and relevant application of theory; fully integrates literature to support ideas and concepts	Appropriate application of theory; integrates literature to support ideas and concepts	Adequate application of theory; uses literature to support ideas and concepts	Limited application of theory; refers to literature but may not use it consistently	Confused application of theory; does not use literature for support	Little or no evidence of application of theory and relevant literature
Knowledge and Understanding	Extensive depth of understanding and exploration beyond key principles and concepts	Comprehensive knowledge and depth of understanding key principles and concepts	Sound understanding of principles and concepts	Basic Knowledge and understanding of key concepts and principles	Limited and superficial knowledge and understanding of key concepts and principles	Confused or inadequate knowledge and understanding of key concepts and principles	Little or no evidence of knowledge or understanding of key concepts and principles
Presentation and Writing Skills	Logical, coherent and polished presentation exceeding expectations at this level; free from errors in mechanics and syntax	Logical, coherent presentation demonstrating mastery; free from errors in mechanics and syntax	Logical structure to presentation; makes few errors in mechanics and syntax which do not prohibit meaning	Orderly presentation; minor errors in mechanics and syntax	Somewhat weak presentation; errors in mechanics and syntax may interfere with meaning	Confused presentation; errors in mechanics and syntax often interfere with meaning	Illogical presentation lacking cohesion; contains significant errors that interfere with meaning
Referencing	Advanced use of in-text citation and references	Mastery of in-text citation and referencing	Appropriate use of in-text citation and referencing	Adequate use of in-text citation and referencing	Limited use of in-text citation and referencing	Inadequate use of citation and referencing	Little or no evidence of appropriate referencing or use of sources

Instructor's Comments

Marking Directions:

1. For each of the criteria listed in the first column, circle one box in the corresponding column to the right which best reflects the student's work on this particular assessment activity (e.g., project, presentation, essay).

2. Provide specific feedback to a student about each of the criteria scores he/she earned by writing comments and suggestions for improvement in the last row titled "Instructor's comments."

3. To arrive at a mark, total the boxes and divide by 5 to arrive at a final mark

Criteria	**Score**
Content	50
Application of Theory and Literature	40
Knowledge and Understanding	50
Presentation/Writing Skills	40
Referencing	40
Total Score	220/5 = **44, Basic**

Qualifi Information

HEAD OFFICE

7 Acorn Business Park

Commercial Gate, Nottingham

Nottinghamshire

NG18 1EX

LONDON OFFICE

Golden Cross House

8 Duncannon Street, London

WC2N 4JF

info@qualifi.net