جامعة الحسين التقنية
Al Hussein Technical University

ASSIGNMENT BRIEF

HTU Course No: 30202251	**HTU Course Name:** Artificial Intelligence
BTEC Unit Code: L/615/1663	**BTEC UNIT Name:** Artificial Intelligence

Version: 3

Student Name/ID Number/Section	
HTU Course Number and Title	30202251 Artificial Intelligence
BTEC Unit Code and Title	L/615/1663 Artificial Intelligence
Academic Year	2023-2024 Spring
Assignment Author	Batool Alarmouti
Course Tutor	Batool Alarmouti - Mohammad Taha
Assignment Title	Implementing and Improving AI Systems
Assignment Ref No	1
Issue Date	15/04/2024
Formative Assessment dates	From 15/04/2024 to 30/05/2024
Submission Date	09/06/2024
IV Name & Date	Islam Alomari 14/04/2024

Submission Format

Submission Format:

- Technical report (.docx).
- Top-down approach (ipynb).
- Saved model file (.pkl).
- Modified saved model file (.pkl).

Reports Guidelines:

Your submissions should be a soft copy via the eLearning school system. The report should be:

- Written in professional style format.
- Include a cover page: Student name, Class, Assignment Title, and Date.
- Your work must be supported with references using the Harvard reference system.
- Plagiarism more than 15%, shall result in failing the course.

Oral Exam:

- An oral discussion will be scheduled with your instructors to assess your understanding of the assignment.
- Answering all tasks in the report will be evaluated through the oral assessment. So, if any question in the oral assessment for any criteria is not answered at the required level that means you will lose that criterion, even though you answered it in the report and not included directly in a specific question.

Resubmission:

No resubmission, if you lose more than 3Ps.

Unit Learning Outcomes

LO1 Analyse the theoretical foundation of artificial intelligence, current trends and issues to determine the effectiveness of AI technology.

LO2 Implement an intelligent system using a technique of the top-down approach of AI.

LO3 Implement an intelligent system using a technique of the bottom-up approach of AI.

LO4 Investigate and discuss a range of emerging AI technologies to determine future changes in industry.

Assignment Brief and Guidance

You are working as a research and development manager in a research organization specializing in implementing requested intelligent systems by clients. Your role includes implementing the system with all supporting requirements; therefore, you should implement the system and deliver a supporting technical report with the following parts:

Technical Report – Introduction

Write an introduction that contains the following:

- The impact of AI to an area of application (of your choosing) includes a description of Artificial Intelligence fundamentals (philosophical issues of AI) and a description of the types and areas of application to solve current real-word problems.
- Discuss how AI changed the world in the last two decades by Investigating and evaluating the security, ethical and social issues of the developed intelligent system.
- Review the contribution that AI had on individuals and society (use examples).
- The introduction should include a review of at least five relevant resources such as articles, books, and other sources.

Technical Report – Bottom-up Approach

- Investigate bottom-up approaches (techniques and tools) for modern intelligent systems deployment and compare the advantages and disadvantages of these techniques and tools.
- Develop an intelligent system using a bottom-up approach (as a proof of concept).
- Test the system and analyze the test results.
- Deploy the system using Microsoft Azure ml studio as a service (provide a screenshot of the deployment status and endpoint details).
- Modify the system to enhance performance and demonstrate the technical modification to the system using the initial results as benchmark for the performance.
- Critically evaluate the effectiveness of the chosen method and suggest methods of improvement .
- Discuss the issue that can be solved using the developed system.

Technical Report – Top-down Approach

- Investigate top-down approaches (techniques and tools) for modern intelligent systems deployment and compare the advantages and disadvantages of these techniques and tools.
- Develop a chatbot to support the bottom-up approach using top-down approach.
- Test the system and analyze the test results.
- Critically evaluate the effectiveness of the chosen method and suggest methods of improvement .
- Discuss the issue that can be solved using the developed system.

Technical Report – Emerging Technologies

- Investigate and demonstrate an emerging AI technology related to your chosen application .
- Illustrate how three emerging technologies are expected to determine future change in industry of your chosen application.
- Critically evaluate the industrial and social implication of an emerging AI technology.
- Discuss how emerging AI technology might change our future.

Learning Outcomes and Assessment Criteria			
Learning Outcome	**Pass**	**Merit**	**Distinction**
LO1 Analyse the theoretical foundation of artificial intelligence, current trends and issues to determine the effectiveness of AI technology.	**P1** Investigate the top-down approach of AI and its techniques, and show how these techniques have been used to build intelligent systems. **P2** Investigate the bottom-up approach of AI and its techniques, and show how these techniques have been used to build intelligent systems.	**M1** Discuss how AI has changed the world in the last two decades and evaluate the ethical, social and philosophical issues of AI.	**D1** Review the contribution that AI has had on a global basis to individuals and society with the use of examples.
LO2 Implement an intelligent system using a technique of the top-down approach of AI.	**P3** Develop an intelligent system using a top-down approach with a suitable programming language or tool. **P4** Test the system and analyse the results against expected results to identify consistencies.	**M2** Critically evaluate the effectiveness of the intelligent system and suggest methods of improvement.	**D2** Develop an outstanding intelligent system based on a top-down approach to overcome a real-world issue.
LO3 Implement an intelligent system using a technique of the bottom-up approach of AI.	**P5** Develop an intelligent system using a bottom-up approach with a suitable programming language or tool. **P6** Test the system and analyse the test results against expected results to identify consistencies. **P7** Investigate and chose an emerging AI technology and demonstrate how it works. **P8** Illustrate how three emerging technologies are expected to determine future changes in industry.	**M3** Critically evaluate the effectiveness of the intelligent system and suggest methods of improvement.	**D3** Develop an outstanding, intelligent system based on a bottom-up approach to overcome a real-world issue.

LO4 Investigate and discuss a range of emerging AI technologies to determine future changes in industry.		**M4** Critically evaluate the industrial and social implications of an emerging AI technology.	**D4** Discuss how emerging AI technology might change our future.