**INTRODUCTION TO ARTIFICIAL INTELLIGENCE COM526**

Note: You will need to combine **Week 1 to Week 5** activities in a portfolio to be submitted as one document for your AE1 assessment. Please insert the number of words for each section.

**WEEK 1 ACTIVITIES**

The answers to the following tasks must be included in the portfolio.

1. Define in your own words the following terms in relation to AI and intelligent agents:
2. Turing test: A test developed by Alan Turning to define intelligence. The test involves three parties on computer, a human, and the interrogator, to pass the computer must fool the interrogator in thinking that it is a human. The Turing test on a basic level would essentially tests if the computer is able to perform these four “skills” as stated in “**Artificial intelligence: a modern approach**” by **Stuart Russell and Peter Norvig**

Natural Language Processing

Knowledge Representation

Automated Reasoning

Machine Learning

Artificial Intelligence: A Modern Approach

1. Rational act: For an Agent, acting rationally is the process of using given knowledge and facts to move forward reaching either the best outcome or best expected outcome based on one’s goals.

Artificial Intelligence: A Modern Approach

1. Agent: An agent is something that is able to produce an effect through actions, computer agents execute actions to achieve results such as operate autonomously, perceive their environment, persist over a prolonged time period, adapt, and pursue defined goals.

Artificial Intelligence: A Modern Approach

1. Agent function: The function of an agent is to act for the user or other program to complete a pre-defined goal.

Artificial Intelligence: A Modern Approach

1. Environment: The environment for an agent would be anything that the agent is able to perceive through sensors. Environment is the task provided before a given agent, environments come in all types, some are more difficult for agents than others.

This is best shown in a figure taken from “**Artificial Intelligence: A Modern Approach**”

A picture containing text, clock, screenshot

Description automatically generated

1. Percept: The inputs received by the agent through sensors from ones surrounding environment.

Artificial Intelligence: A Modern Approach

1. Action: after a solution is found the execution phase will commence in which the agent will make use of its solution to help guide its actions. An agent’s actions are generally not just one single action if the environment is known but instead a map.

Artificial Intelligence: A Modern Approach

Please include references and examples in each. Feel free to be creative and support your answers by adding diagrams, smart charts etc, where appropriate.

1. General AI vs Narrow AI

Some computer algorithms are capable of mimicking human intelligence, to reason and solve problems on their own, and to apply previously acquired knowledge on completely new types of problems.

Which category or domain do these algorithms fall into? **Choose A or B below and explain your choice in a paragraph.**

1. Artificial Narrow Intelligence (Narrow AI)
2. Artificial General Intelligence (General AI)

**Option B (General AI):** I have chosen option B (General AI), as general AI has the ability to solve multiple types of problems (even ones it has never seen before) whether it’s with previously acquired knowledge or newly provided information. Narrow AI on the other hand is specific to its field, as stated in the question if a narrow AI agent were to be given a new type of problem to what it is used to it would not be able to solve it.

**References:**

Russell, S, & Norvig, P 2016, Artificial Intelligence: a Modern Approach, EBook, Global Edition : A Modern Approach, Pearson Education, Limited, Harlow. Available from: ProQuest Ebook Central. [15 September 2021].

MONETT, D., LEWIS, C.W.P., THÓRISSON, K.,R., BACH, J., BALDASSARRE, G., GRANATO, G., BERKELEY, I.S.N., CHOLLET, F., CROSBY, M., SHEVLIN, H., FOX, J., LAIRD, J.E., LEGG, S., LINDES, P., MIKOLOV, T., RAPAPORT, W.J., ROJAS, R., ROSA, M., STONE, P., SUTTON, R.S., YAMPOLSKIY, R.V., WANG, P., SCHANK, R., SLOMAN, A. and WINFIELD, A., 2020. Special Issue “On Defining Artificial Intelligence”—Commentaries and Author’s Response. *Journal of Artificial General Intelligence,***11**(2), pp. 1-100.

WANG, P., 2019. On Defining Artificial Intelligence. *Journal of Artificial General Intelligence,***10**(2), pp. 1-37.