

ICT304 Tutorial 1

Due: Week 3– Submit the tutorial to your tutor during your tutorial session in week 3. External students will submit via LMS, and your tutor will contact you to arrange for your demo session.

Note:

- You must provide answers and discussions in a PowerPoint file, which must be self-explanatory. You may be asked by your lecturer/tutor to present your answers during your tutorial session.
- You need to provide references to the sources used to answer your questions. Visit the library website to learn how to do proper referencing. See <https://www.murdoch.edu.au/library/support/referencing-guides>
- If the question requires you to describe the installation steps, the code, or the program, you may also need to demonstrate them to your lecturer/tutor.
- **You are discouraged from using AI tools like ChatGPT to answer your questions, and if you use such tools, you must declare or reference the part that you use them. See <https://libguides.murdoch.edu.au/APA/generativeAI> for information on how to make reference to it.**

Tutorials:

- 1) What are the differences or similarities between Artificial Intelligence, Machine Learning and Deep Learning? Demonstrate your understanding using examples.
- 2) What are Generative AI and LLMs? How are these two concepts related?
- 3) What are the advantages of using fuzzy logic? Provide real world examples to explain the concept.
- 4) What is System Engineering? Describe the project life cycle phases using a real-world example.
- 5) Develop an AI system such that it can be used to classify the two species of rice grain using the data provided at <https://archive.ics.uci.edu/ml/datasets/Rice+%28Cammeo+and+Osmancik%29>
 - a) Select an AI technique that can be used to establish such a classification model.
 - b) Explain and justify why the AI technique is selected for establishing the model.
 - c) Is any pre-processing of data required? If yes, what are the pre-processing methods used?
 - d) Provide the accuracies of your model. What validation method was used? What are the performance metrics used? Explain why.

In your submission, you must also provide the following.

- i) The user manual explains how to set up the development environment – including any packages and libraries that need to be installed.
- ii) Provide the source code so that someone can install and do the training and testing of the model and duplicate your results.

- iii) Discuss how to improve the model's accuracy for future revision.
- 6) Choose a software tool for each of the following categories, and you will need to use these tools for your project – **this is a mandatory requirement for the project**. Note that some software tools might have more than one of the categories in one tool. State them clearly.
- i) Project Management Tool
 - ii) Version Control Tool
 - iii) Collaboration Tool
 - iv) Team Communication Tool

Provide a user manual to explain the steps of how you can set these up for your team. You can include screenshots in your user manual to illustrate the steps.

NOTE: Your user manual must be as clear as possible and provide details for every step.