1. Summarise main points from Week 1 and 2

- **Week 1:** We started with the basics of Machine Learning (ML). We looked at how it's used in the real world, got a handle on what ML actually means, and learned about the main kinds: supervised (learning with labeled examples) and unsupervised (finding patterns on its own). We touched on different types of models (linear and non-linear) and how to figure out if a model is any good. We also brushed up on the math bits like vectors and matrices, which are used to handle the data.
- **Week 2:** This week went a bit deeper into how data is set up for ML (feature vectors and matrices) and the probability side of things. We covered ideas like chances of things happening together or one after another (joint and conditional probability) and Bayes' Rule, which is pretty handy. We talked about random variables (things that can take on different values) and how those values are spread out (distributions). Then we got practical with "data wrangling" – basically, how to clean up messy data. This included dealing with missing information, getting numbers onto a similar scale (scaling/normalisation), and turning text data into numbers so the computer can work with it.

2. Summary of reading list – external resources, websites, book chapters, code libraries, etc.

External Resources/Websites:

- List comprehension- https://www.w3schools.com/python/python_lists_comprehension.asp
- One-Hot Encoding - https://www.youtube.com/watch?v=G2iVj7WKDFk
- One-Hot Encoding vs Label Encoding - https://medium.com/aimonks/label-encoding-vs-one-hot-encoding-making-sense-of-categorical-data-1181914501f3
- MinMaxScaler - https://www.youtube.com/watch?v=siMPmxOvgNE

Book Chapter

- Chapter 1: The Current State of Machine Learning, Book Hands-on Machine Learning with Scikit-Learn, Keras, and TensorFlow

Code Libraries:

- UUID - https://docs.python.org/3/library/uuid.html
- Numpy.Random.Randint - https://numpy.org/doc/2.1/reference/random/generated/numpy.random.randint.html
- Random.Choice - https://www.w3schools.com/python/ref_random_choice.asp
- Zip - https://www.w3schools.com/python/ref_func_zip.asp
- Matplotlib.pyplot - https://www.w3schools.com/python/matplotlib_pyplot.asp
- Pandas.Dataframe.transform - https://pandas.pydata.org/docs/reference/api/pandas.DataFrame.transform.html
- MinMaxScaler - https://scikit-learn.org/stable/modules/generated/sklearn.preprocessing.MinMaxScaler.html

3. Reflection on knowledge gained by reading contents of the week 1 and 2 with respect to machine learning.

- From the contents of Week 1 and Week 2 I got the idea of how machine learning pops up in everyday life, and the key difference between teaching a computer with examples (supervised) versus letting it find patterns itself (unsupervised). Knowing there are different model types (linear/non-linear) gives me an idea that there isn't just one way to do things. Seeing vectors and matrices again reminded me how important they are for organizing the data that ML models chew on.
- Week 2 really showed how much probability plays a role in ML. Things like conditional probability or Bayes' rule aren't just abstract math; they're baked into how some algorithms work and how we interpret results. Thinking about data in terms of random variables and their distributions helps make sense of it all.
- The biggest practical takeaway was probably about data wrangling. Learning how to fill in missing spots, scale numbers so they're comparable, and change text into numbers feels like a super important first step before you can even think about building a model.

4. Attempted Week 1 and 2 Quiz results

Week-1 quiz

Your work has been saved and submitted

Written 11 March, 2025 9:41 AM - 11 March, 2025 9:42 AM • Attempt 2 of unlimited

Your quiz has been submitted successfully, the answer(s) for the following question(s) are incorrect.

Attempt Score	**10 / 10 - 100 %**
Overall Grade (Highest Attempt)	**10 / 10 - 100 %**

Done

Week 2 quiz

Your work has been saved and submitted

Written 14 April, 2025 6:14 PM - 14 April, 2025 6:14 PM • Attempt 2 of unlimited

Your quiz has been submitted successfully, the answer(s) for the following question(s) are incorrect.

Attempt Score	**10 / 10 - 100 %**
Overall Grade (Highest Attempt)	**10 / 10 - 100 %**

Done