1. What are the three main types of machine learning, and how do they differ from each other?

* Supervised Learning, unsupervised learning and reinforcement learning are the three main types of machine learning. Supervised learning is needed a manpower to put some data and train the machine to work on its own. Unsupervised learning has unlabeled data, where the machine tries to find patterns or group data with predefined labels. Reinforcement learning is where you put some data the machine recognizes it wrong and from its mistake it will learn on its own and find some result based on what you gave.

1. Can you provide examples of real-world applications of machine learning across different industries?

* I think what come in my mind when I heard the word “real-world applications” what I would say are the machine form industry of healthcare (x-rays, predicting patients’ possible sickness), automotive (self-driving cars), and marketing (online shopping), bank transactions (Gcash, PayPal). This application has the ability of machine learning to recognize large number of datasets and make predictions and decision.

1. What is the significance of data preprocessing in the machine learning project lifecycle?

* Data preprocessing is a risk in machine learning projects because it will need to secure the quality and accuracy of the data. The steps are cleaning the data, handling missing values, normalizing features and transforming data into a suitable format for the model that we use. Proper data preprocessing can bring improvements to the model’s performance

4. Define overfitting in the context of machine learning models and explain how it can be mitigated.

* Overfittings happen when the machine learning model learns too much about the data that we input, so when we put some new data, it won’t affect the data that has been stored to the machine learning model. To avoid overfitting the techniques that we can use are cross-validation, pruning some old data’s, regularization and simplifying the model (reducing the number of features).

5. What are some common algorithms used in supervised learning, and what types of problems do they solve?

* The common algorithms that usually use in supervised learning are linear regression (for predicting continuous values), decision trees (for classification and regression), logistic regression (for binary classification), and k-nearest neighbors (for classification and regression). These algorithms that I say are used to fix the problems where the relationship between input and output data is known, like predicting prices, classifying email as spam, and recognizing handwriting.