Week 7 – Introduction to Machine Learning (Summary)

This week I got my first proper introduction to Machine Learning. I learned that ML is basically about teaching computers to learn from data instead of hardcoding rules.

There are two big types:

1. Supervised learning – where the data already has answers (labels). The computer learns from these examples so it can predict outcomes for new data. Like predicting house prices or classifying emails as spam. Algorithms here include things like linear regression, decision trees, and SVMs.

2. Unsupervised learning – where there are no answers given. The computer just tries to find hidden patterns or group things together, like clustering customers with similar buying behavior. K-means clustering and PCA are examples of this.

I also understood the main categories of ML problems: regression (predicting numbers), classification (predicting categories), and clustering (grouping things).

On the practical side, I got hands-on with scikit-learn, which is a Python library that makes ML much easier. I practiced building a simple linear regression model — loading data, splitting it into training and test sets, training the model, making predictions, and then checking how well it performed.

Finally, there was a project-style exercise: using these ideas to build a prediction model for something like house prices. That gave me a sense of how ML connects theory with real-world use cases.

In short, this week was about building a mental foundation: what ML is, the different types of learning, the kinds of problems ML can solve, and getting my first taste of actually coding a model.