

Reflective Journal

In this module, I developed a deeper understanding of the machine learning process and how it can be applied across different domains. One of the most valuable insights was distinguishing between the three main types of machine learning which is supervised, unsupervised, and reinforcement learning. Supervised learning stood out as particularly useful for prediction tasks, such as estimating delivery times or identifying fraudulent transactions. In contrast, unsupervised learning demonstrated its importance in uncovering patterns, like grouping customers with similar behaviors, while reinforcement learning illustrated how intelligent systems can adapt to changing environments, such as self driving vehicles.

I also gained a clearer perspective on the full workflow of machine learning. I learned that building a successful model does not simply involve training instead, it requires a systematic process that begins with collecting and cleaning data, followed by feature selection, model training, evaluation, and finally generating insights. This highlighted the importance of data preparation, as the quality of the data directly influences model performance. The use of evaluation metrics, such as accuracy for classification tasks or mean absolute error for regression, showed me how critical it is to measure outcomes in a meaningful way. Furthermore, I recognized the significance of handling different types of data, whether numerical, categorical, text-based, or image based.

I found it interesting to think about how transportation and logistics companies could apply these concepts. For example, supervised learning could help predict delivery times, while

reinforcement learning might be used to optimize routes in real time. Considering these applications allowed me to connect theoretical knowledge to real world challenges.

Reflecting on this module, I now see machine learning not only as a technical field but also as a practical tool that can bring value to industries and society. Moving forward, I am curious to explore how data privacy, fairness, and interpretability affect the deployment of machine learning systems. I believe engaging in these issues will help me develop a more responsible and well rounded understanding of the subject.