

# Weekly Progress Report

**Name:** Ayan Memon

**Domain:** Data Science and Machine Learning

**Date of Submission:** 24 - 02 - 2025

**Week Ending:** 04

## I. Overview:

This week, I focused on building a strong foundation in **Machine Learning**. I started by watching an **introductory video** and reviewing a **presentation** on key Machine Learning concepts. Additionally, I studied the book "**Introduction to Machine Learning**" by **Alex Smola and S.V.N. Vishwanathan**. To reinforce my understanding, I completed a **quiz** covering the topics I had learned.

## II. Achievements:

### 1. Video & Presentation Study:

- Watched an **introductory video on Machine Learning**.
- Reviewed a **PowerPoint presentation** covering key ML concepts, algorithms, and real-world applications.

### 2. Book Study:

- Read "**Introduction to Machine Learning**" by **Alex Smola and S.V.N. Vishwanathan**.
- Developed a solid understanding of core **ML algorithms**, including:
  - **Supervised and Unsupervised Learning**
  - **Linear Regression, Decision Trees, and Clustering**

### 3. Quiz Completion:

- Completed a **quiz on Machine Learning** concepts.
- Assessed knowledge on topics such as **data preprocessing, model evaluation, and different ML algorithms**.

## III. Challenges:

### 1. Complex Topics:

- Advanced concepts like **feature selection** and **hyperparameter tuning** were challenging and required additional effort to understand.

### 2. Time Constraints:

- Managing time between **reading, video study, and quizzes** while balancing other tasks was slightly difficult.

#### IV. Learning Resources:

- **"Introduction to Machine Learning"** by Alex Smola and S.V.N. Vishwanathan.
- **Introductory Machine Learning video and PowerPoint presentation.**
- **Online quizzes and exercises** to test understanding of ML concepts.

#### V. Next Week's Goals:

1. **Continued Learning:**
  - Study more advanced **Machine Learning topics**, including:
    - **Neural Networks, Deep Learning, and Reinforcement Learning.**
2. **Practical Applications:**
  - Apply **basic ML algorithms** to small datasets to understand their **real-world implementations.**
3. **Project Development:**
  - Begin integrating **Machine Learning techniques** into the following projects:
    - **Crop and Weed Detection**
    - **Predicting the Lifetime of a Bearing in Manufacturing**

#### VI. Additional Comments:

This week provided a **strong foundation in Machine Learning**, and I am eager to apply these concepts to **real-world problems and projects** in the upcoming weeks.