Weekly Progress Report

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Domain: Data Science and Machine Learning

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Week Ending: 04

I. Overview:

This week, the primary focus was on understanding Machine Learning fundamentals and contributing to ML knowledge base. Additionally, efforts were made to leverage learning resources for skill enhancement through book study, quiz, and video content.

II. Achievements:

1. **Machine Learning Familiarization:**

   - Explored "An Introduction to Machine Learning" documentation to grasp core functionalities including classification, regression, and basic algorithms.

   - Successfully understood Naive Bayes, k-NN, Perceptron, and k-Means, showcasing initial proficiency.

2. **ML Project Contributions:**
   Name of the project: Machine Learning Foundations

   - Contributed knowledge to personal ML portfolio with focus on supervised learning algorithms and probability concepts.

   - Engaged in self-study collaboration with course materials.

3. **Learning Python ML Libraries:**

   - Acquired proficiency in essential Python libraries such as NumPy, Scikit-learn for basic ML implementations.

   - Applied ML skills to understand real-world problems like spam filtering and recommendations.

III. Challenges:

1. **Algorithm Integration:**

   - Encountered challenges during understanding kernel methods and Perceptron updates with probability concepts.

   - Ongoing efforts to troubleshoot and ensure conceptual integration.

2. ML Project Complexity:

- Faced complexity in differentiating algorithm selection (Bayes vs k-NN vs linear models).

- Seeking guidance through additional practice to overcome challenges.

IV. Learning Resources:

1. ML Book Documentation:

- Utilized "An Introduction to Machine Learning" book for reference and concept building.

- Watched introductory ML video tutorials to deepen understanding.

2. Python ML Learning Resources:

- Engaged with Scikit-learn documentation to strengthen ML skills.

- Participated in 20-question DS/ML quiz for practical application.

V. Next Week's Goals:

1. ML Enhancement:

- Address algorithm challenges and explore optimization techniques (gradient descent).

- Collaborate with code examples to contribute to ML portfolio discussions.

2. Python ML Project Development:

- Tackle coding implementations of Naive Bayes and Perceptron to increase proficiency.

- Seek feedback from online ML communities for continuous improvement.

VI. Additional Comments:

Successful completion of Week 4 ML foundations strengthens preparation for advanced topics and TCS placements. Quiz performance validates progress; focused coding practice planned next week.