

Weekly Progress Report

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Domain: Agriculture

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Week Ending: 06

I. Overview:

This week, the primary focus was on understanding USC_TIA and contributing to Python projects. Additionally, efforts were made to leverage learning resources for skill enhancement.

II. Achievements:

1. USC_TIA Familiarization:

- Explored USC_TIA documentation to grasp core functionalities.
- Successfully executed basic tasks, showcasing initial proficiency.

2. Python Project:

Project Name: Prediction of Agriculture Crop Production in India

- Contributed code to this project that mainly focuses on **predicting crop yield** using a machine learning approach.

3. Learning Python:

- Acquired proficiency in essential Python libraries, such as **NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, Random Forest regression**.
- Applied Python skills to real-world problems within USC_TIA context.

II. Challenges:

1. USC_TIA Integration:

- Encountered challenges during model training and tuning with RandomForestRegressor, particularly in optimizing hyperparameters to improve prediction accuracy.
- Ongoing efforts to troubleshoot and ensure successful training and tuning.

2. Python Project Complexity:

- Faced complexity in understanding **Feature Engineering** in this project.
- Seeking guidance to overcome challenges and enhance understanding.

IV. Learning Resources:

1. USC_TIA Documentation:

- Utilized USC_TIA official documentation for reference and troubleshooting.
- Attended relevant webinars and online tutorials to deepen understanding.

2. Python Learning Resources:

- Engaged with the full python course on YouTube (freeCodeCamp.org) to strengthen Python skills.

V. Next Week's Goals:

1. USC_TIA Enhancement:

- Address integration challenges and explore advanced USC_TIA features.
- Collaborate with peers to contribute to USC_TIA improvement discussions.

2. Python Project Development:

- Tackle more complex tasks within the Python project to increase contribution.
- Seek feedback from mentors and peers for continuous improvement.

VI. Additional Comments:

“After wrapping up the project, I successfully built a crop yield prediction model that I’m really proud of. It all started with cleaning and preparing the data—fixing inconsistencies, handling outliers, and making sure everything was standardized and ready for analysis. From there, I focused on selecting the most important features to keep the model efficient and manageable. I then worked on fine-tuning the Random Forest model to make sure it was performing at its best. Once the model was trained, I evaluated its predictions using various metrics and made adjustments along the way to improve accuracy. By the end of it all, the model was able to predict crop yields with impressive accuracy. I also made sure to document every step of the process, so the workflow is clear for future use or improvements. This project has been a great learning experience, and it’s given me a solid understanding of building machine learning pipelines from start to finish. “