TWINS OF WINDS -

SOI 2024

Perfectly Imperfect

Aiswarya M S

Pallavi

Aabha

Our Contribution

Our team worked cohesively to complete this project of Preicting sea surface temperature using ML Model, with each member contributing to all phases of the work from data collection and preprocessing to model development and evaluation.

We three started working with our independent models which were based on Polynomial regression.We finally chose xgb model as it showed maximum accuracy.

This collaborative effort resulted in a robust and reliable model for predicting sea surface temperatures, which can significantly aid in climate pattern forecasting. The project showcases our ability to work together effectively and demonstrates our collective expertise in data science and machine learning.

Through this journey, we have demonstrated that teamwork, when combined with technical expertise and a shared commitment to excellence, can lead to significant achievements in the realm of predictive modeling and climate forecasting.

Aiswarya M S(Team Leader)

Each of us started coding our separate models. I have started coding a separate model by watching YouTube videos and other information on ML. First, I began with Polynomial Regression, which had attained a maximum accuracy of 91.5%. I filled the nan values by interpolation method. Later on, I tried neural networks as suggested by our mentor which reached an accuracy of 94.46% but even when I tried changing parameters, it couldn't cross 94.46%. Then I tried Random Tree regressor as suggested by our mentor which attained an accuracy of 95.15%. Later, Pallavi's model of random tree got an accuracy of 96.48%. Then I combined my code, Pallavi's code, and Aabha's code into a single code, added graphs, correlation matrix, and created predicted csv files. Finally, We chose the xgbooster model with a maximum accuracy of 96.60% when n_estimators is 1000 and 96.65% when n_estimators is 2000 when the nan values were filled with mode. I have done the documentation part and coordinated our project.

Pallavi

I was able to understand the logic of all the models and codes. We had started with polynomial regression and we tried different degrees, I got accuracy of 92% for degree 5. When our mentor told us about random forests, I spent all day in developing the code for it and finally got an accuracy of 96.4% which was the highest until then. I also tried other models such as SVR and neural networks. Later Aiswarya learnt about the xgbooster model and then we worked on it to gain maximum accuracy. Now I have gained interest in machine learning (a subject which I was earlier scared of!).

Aabha

Tried to understand all the models told by mentor, Aiswarya ,Pallavi and I tried to code for the same. For polynomial regression, I got 91% accuracy and later we switched to random forests and then xgbooster model.

Special Thanks to Our Mentor Aum Thaker for his invaluable guidance and feedback throughout the project.