Contents

Group Team Members

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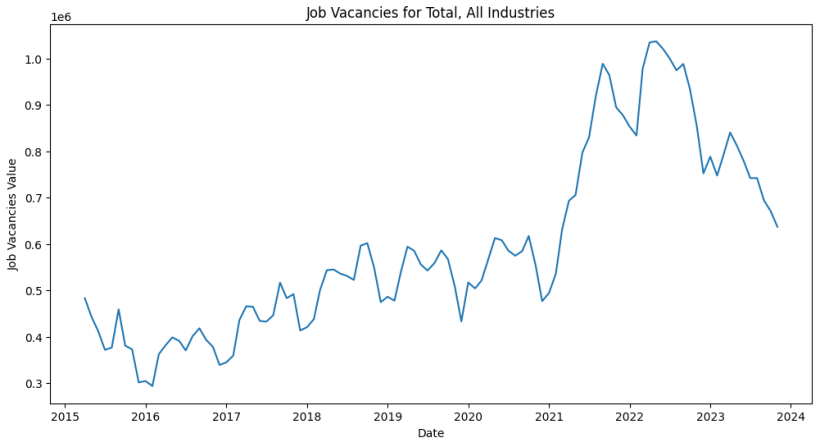
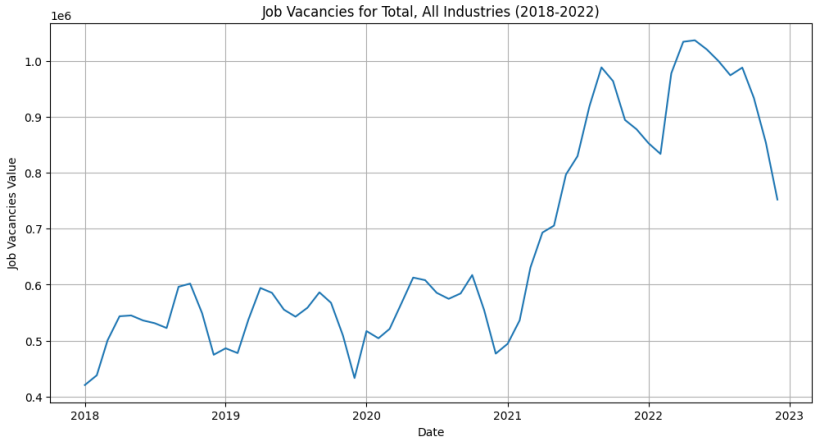
Plots

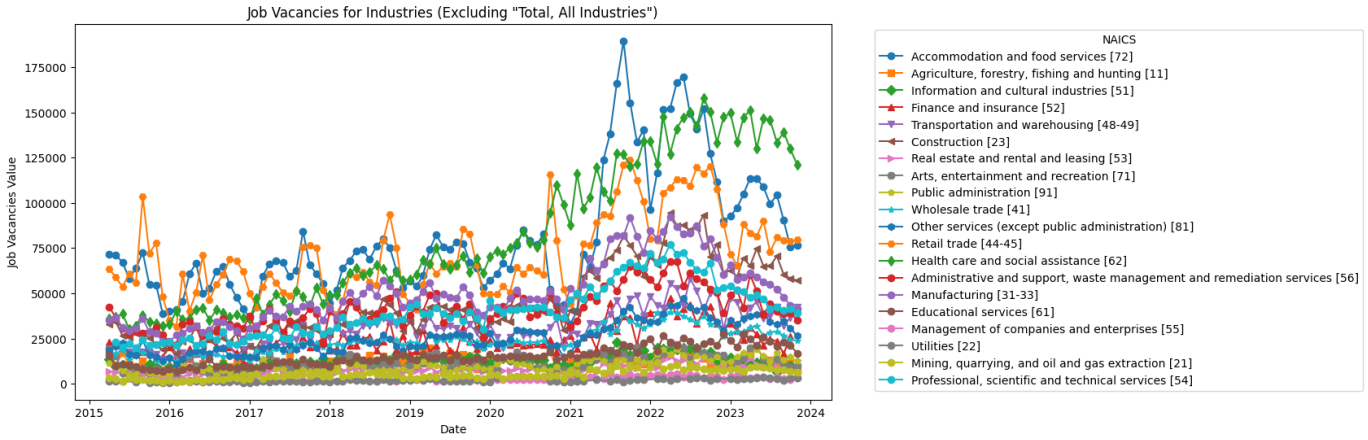
1.

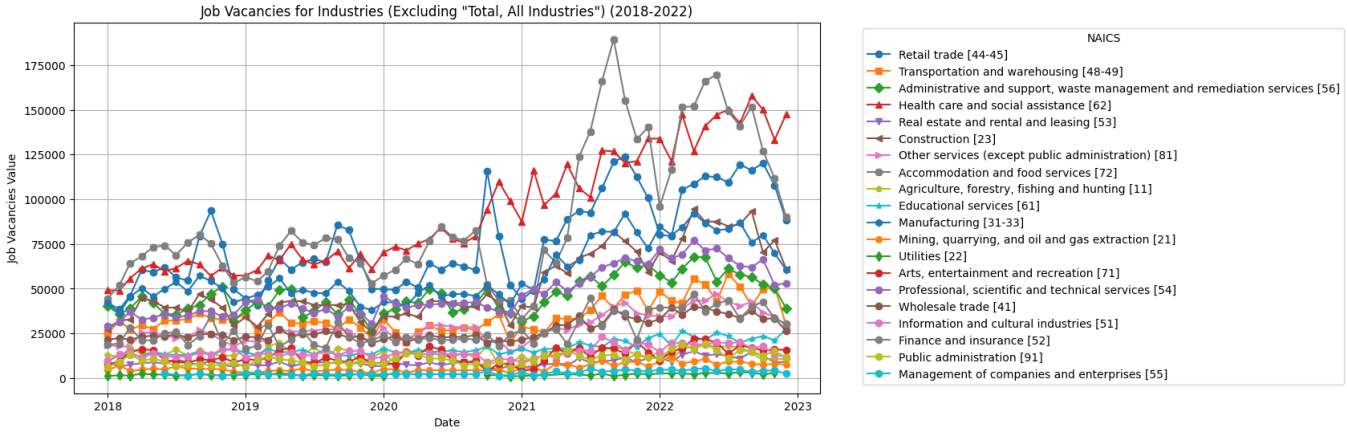




In this step we have predicted the 2020 missing values using ARIMAX model, where we used the mean volume of stock market for each month as an auxiliary regressor. We can see that ARIMAX is perfectly following the pattern for the value of job vacancies and fits very well (assuming nothing happened in 2020!) in the total industries plot, the patters in being followed by the model. We can see better in the 2018-2023 plot!

2.





In the plot 2018-2023 for all the industries, we can see each industries' job vacancy value better!

Project status

The real challenge arises post-2020. In our predictions in the 2020, we assumed no significant events occurred (No pandemic!). Testing the model's adaptability to new patterns reveals it performs well up to that point. However, after 2020, data patterns shift, making prediction difficult with only one factor, the "Stock Market Volume." The challenge persists in identifying real-time external data that correlates with industries. Certain industries may have weaker ties to stock market volume, necessitating the discovery and utilization of more pertinent datasets.

We've observed that ARIMAX is excelling in our data analysis. This success is attributed to incorporating external datasets as regressors along with dates. Our focus in this project lies in generating industry job vacancy values. Once achieved, we aim to employ our model to forecast industry-specific employment and total hours paid.