CSE 4939W Week 12 (Spring 2025) - Sage Pia

2/24/2025

For this week, I gave the site a sizable overhaul. I added support for three file preparation methods: local upload, download from URL, or inline text. No matter the method, the input is saved locally and posted to a URL that Grafana can grab data from. I plan on implementing support for different file extensions. For now, the interface has options for CSV, JSON, XML, and XLSX (Excel/Google Sheets), but I only tested that CSV works.

Benchmarking Large Language Models for Time Series Analysis

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Time Series Analysis Data Upload

Time Data Field: date
Target Data Field: OT
Upload Method: From my Computer
Datatype: CSV Select a file: Browse... ETTh1.csv
Delimiter (optional):
Generate forecasts!

Clicking the ”Generate forecasts!” button performs forecasts on the data with the Chronos Tiny BOLT model. Once the predictions conclude, the output is posted to another tab for Grafana to process. The user is given a link to a snapshot that displays the input and output forecast in Grafana.

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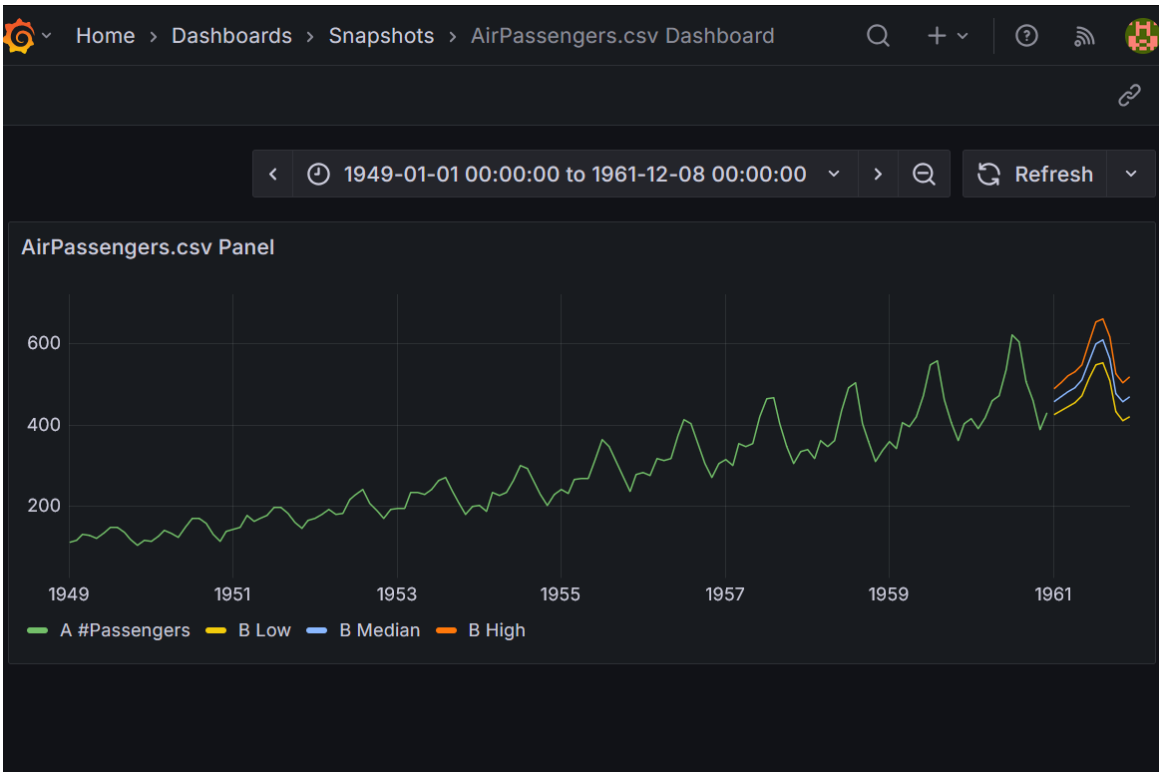
Click below to see results in Grafana

Link

Initially, it seemed Grafana time series data had to be manually configured to be displayed. However, with some research and help from deepai, I discovered that Grafana dashboards could be built with JSON files. After much trial and error, I eventually figured out how to automatically create Grafana dashboards with dynamic column names. That is, we can now create dashboards without manually typing data.

Going further, I also figured out how to generate Grafana snapshots from the backend. Since we don't want anyone directly editing the app, the link users are given goes directly to a fresh snapshot, rather than the dashboard. For now, I am constantly overwriting the same dashboard because I need a consistent ID to reference when making snapshots. After some testing, this seems to jeopardize older snapshots that have their data overwritten. Additionally, we will need to investigate their sharing privileges, as the data would not show when I loaded the snapshot from a private tab.



I also added a few more pages to the website to display project related info. For example, this is the references tab.

Benchmarking Large Language Models for Time Series Analysis

Chronos

- Ansari, A. F., Stella, L., Turkmen, C., Zhang, X., Mercado, P., Shen, H., Shchur, O., Rangapuram, S. S., Arango, S. P., Kapoor, S., Zschiegner, J., Maddix, D. C., Mahoney, M. W., Torkkola, K., Wilson, A. G., Bohlke-Schneider, M., & Wang, Y. (2024). Chronos: Learning the Language of Time Series. arXiv preprint arXiv:2403.07815.
- Paper
- Repository

One Fits All

- Zhou, T., Niu, P., Wang, X., Sun, L., & Jin, R. (2023). One Fits All:Power General Time Series Analysis by Pretrained LM. https://arxiv.org/abs/2302.11939.
- Paper
- Repository

This Project

- Repository

For next week, we should discuss the sliding window, as I was unsure how it should be implemented. Additionally, if someone needs work, they could focus on designing CSS templates to make the site prettier.