

Introduction

Throughout the last decade, inequalities in the criminal justice system have been exposed, bringing a demand for reform.^{1,2} CW NOLA has trained over 100 court watch volunteers to complete surveys during proceedings in order to increase the transparency of New Orleans court systems. They evaluate the fairness and efficiency of all professionals involved in the court system, such as police officers and judges.³ Our goal was to restructure their data workflow and design an interactive data dashboard to effectively host and communicate their findings and perform additional data analysis.

Problem Statement



Figure 1 (Top): Current data flow of Survey Monkey Data

- Tedious, expensive process to organize data
- Review data intermittently and release an annual 100-page report
- Mis-aligned data in current process
- Uncompiled court docket data source

Figure 2: Sample Observation Form

Methods and Approach

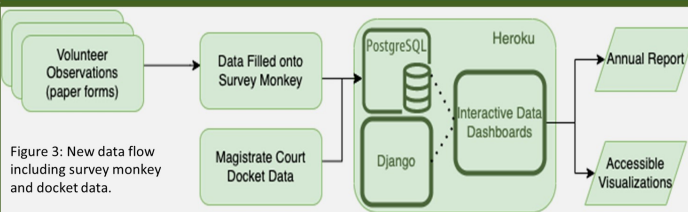


Figure 3: New data flow including survey monkey and docket data.

To consolidate their data flow, we built a more persistent way of holding their data on the backend, as well as producing an interactive user interface which can create convenient visualizations. To do this we have used:

- Heroku cloud platform → host database and site
- Django web framework: → queries database
- PostgreSQL → relational database
- Supplemented CW NOLA data with Magistrate Court Dockets

Database and Dashboards

Our dashboards allow CW NOLA to drill down on their data interactively:

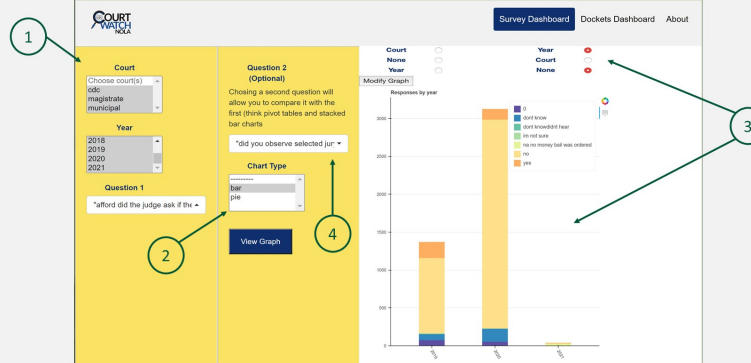


Figure 4: CW NOLA Dashboard Overview

Functionalities for Court Watch Data:

- 1 Hierarchical query structure for court type, year and question
- 2 Various visualization types including bar chart & pie chart
- 3 The ability to group by court or year to stack
- 4 Combine questions to create pivot tables

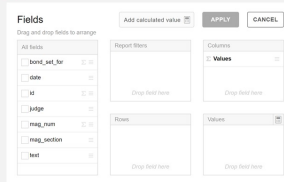


Figure 5: Pivot Table Builder Interface

Functionalities for Docket Data:

- FlexMonster API integrated with PostgreSQL
- User built pivot table and displays

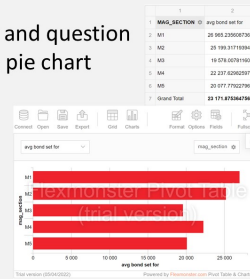


Figure 6: Average Set Bond Price by Magistrate Section, Bar Chart

Impact

Each year when Court Watch NOLA releases their findings, the process of combing through the data is tedious, especially to ensure all data is appropriately interpreted. The simple question of the number of volunteers can take hours to compile. With our solution, analysis takes just a few clicks.

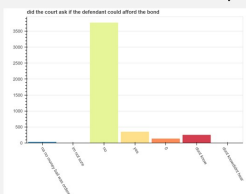


Figure 7: Observation Data for if the Judge asked about Affording bond

In our data analysis, few judges have asked if the defendant can afford bond. This type of question can be created into the following visualization, which allows CW NOLA to achieve its mission of promoting transparency, equity, and justice. CW NOLA can use these informative visualizations in outreach on social media and reports.

Discussion and Conclusion

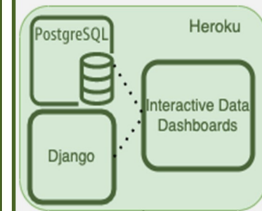


Figure 8: Framework and Project Outputs

The dashboards grant easy access to valuable data to further CW NOLA's mission. The process of combing through the data can occur regularly, as the data is always available, instead of annually. The backend development is also a crucial output of our project. By migrating the Survey Monkey data to Heroku/PostgreSQL, the data is preserved in a more reliable and persistent way. Now that the data is hosted in a relational database, querying and further analysis of the data is simpler and faster. With our framework, updates can be made in order to modernize their data flow as needed.

Future Work

We have developed a framework which is primed for more features. The following are our recommendations to improve performance:

- Update button to load new data
- Time series visualization functionalities
- NLP Sentiment analysis on open ended responses
- Specific observation note lookup for open ended descriptions

References

1. Clooney Foundation For Justice. (2021). *Justice for Victims of Unfair Trials*. Trial Watch. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1371&context=ajacourtreview>
2. Woolf, N., & Yim, J. (2021). *The Courtroom-Observation Program of the Utah Judicial Performance Evaluation Commission*. University of Nebraska - Lincoln. <https://www.courtwatchnola.org/wp-content/uploads/2021/06/CWN-2020-Annual-Report.pdf>
3. Court Watch NOLA. (2021, June 11). *Court Watch NOLA 2020 Courts in Review Annual Report*. Court Watch NOLA. <https://www.courtwatchnola.org/wp-content/uploads/2021/06/CWN-2020-Annual-Report.pdf>

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