



PROJECT MOTIVATION

We are improving an existing mapping system with the goal of selling more accurately priced tickets to Purdue Football and Basketball games. This will achieve several goals that the Purdue Athletics Ticketing organization has:

- Enhance data visualization
- Augment existing reports on sales
 - Utilize statistical analysis
- Provide a baseline for adaptive pricing

The current map is primitive with low user interactivity, and previous versions of this project had low continuity potential and computing constraints. This year, our team focused on expanding upon the Ross Ade ticketing app and creating a similar app to use for ticketing in Mackey Arena.

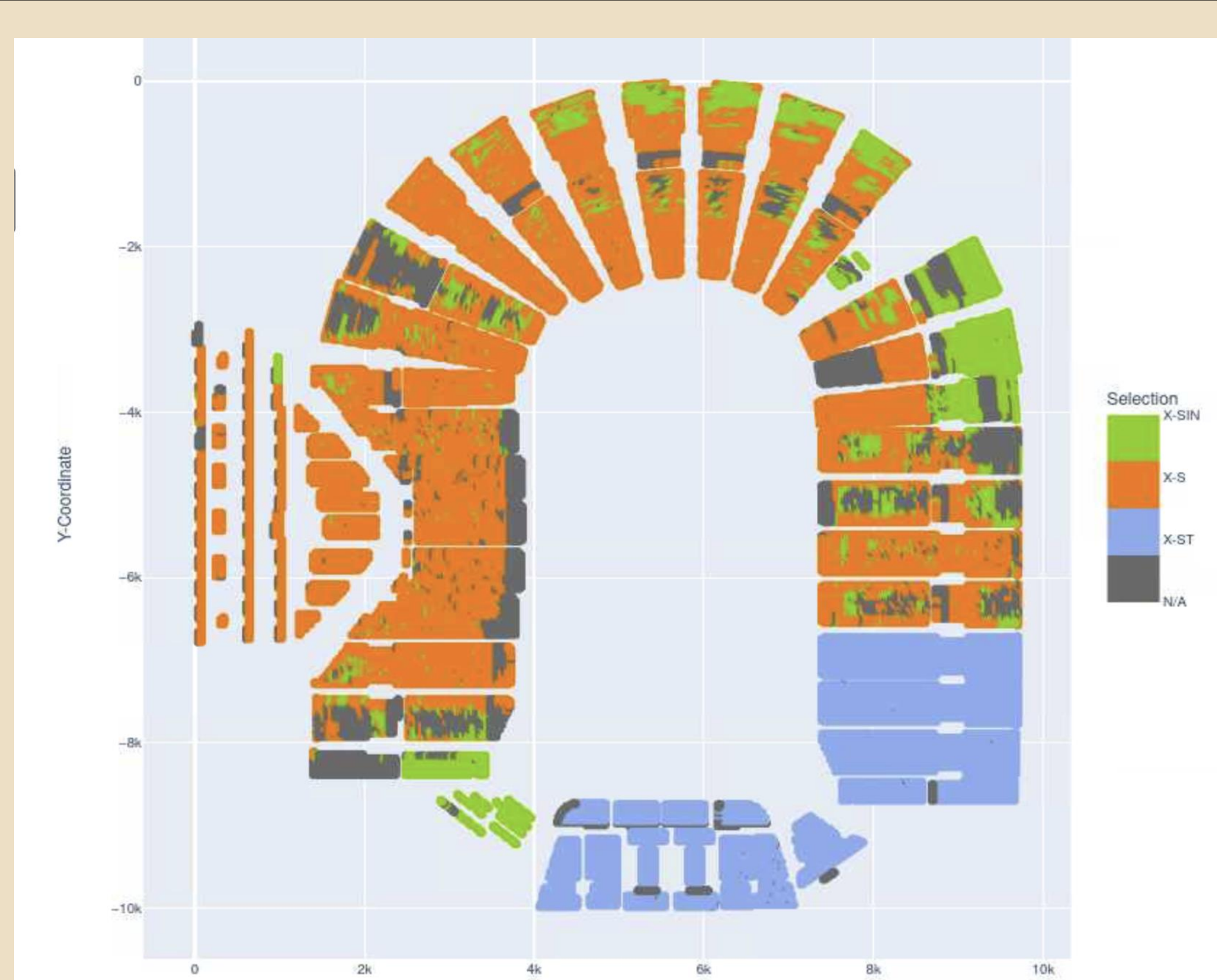
RESEARCH METHODOLOGY

Data Files:

- SVG File (x and y coordinates, seat, row, & section information)
- "Big File" (original sales information for all seats)
- Seat Geek File (ticket sales on Seat Geek secondary market)

Application Development Steps:

- Clean all data files (deal with missing data and mixed data types)
- Merge SVG file with Big File and merge SVG file with Seat Geek file
- Use these merged files to display visual of the map within the Dash app using Plotly
- Add dropdown and range filter functionality to select and color specific seats on the map
- Aggregate data from selected groups of tickets in statistics table
- Repeat this development process four times for the Ross Ade original ticketing app, Ross Ade Seat Geek ticketing app, Mackey original ticketing app, and Mackey Seat Geek ticketing app



This map of Ross-Ade Stadium updates by selecting and coloring seats that fit the filters selected using the dropdown menus below. With zoom in and hover data features, users have the ability to precisely analyze smaller groups of seats and individual seats.

Range for Event Price: Min: Max:

Seat Status Code:

Item Code:

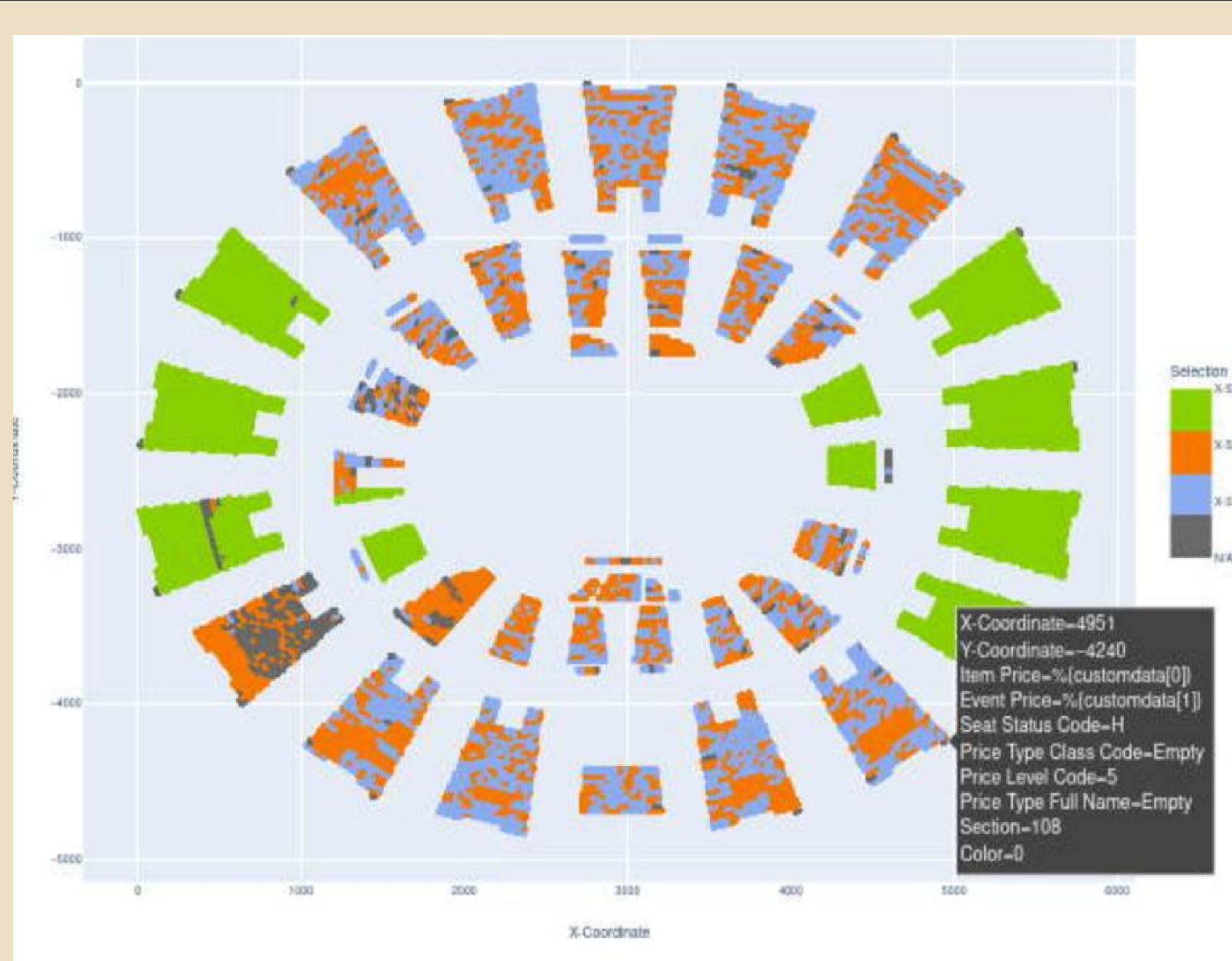
Price Type Class Code:

Price Level Code:

Price Type Full Name:

Section:

The multi-select dropdown menus and range filters shown above are where users can make selections to narrow the focus of the map. Users are also able to easily reset by clicking the reset selection button. For example, in the picture above, the user chooses tickets that have Seat Status Code 'X' and Price Type Class Codes 'SIN', 'S', or 'ST'. See how these filters are applied to the maps in the images above.



This map of Mackey Arena works similarly. Seats in the arena are colored based on user selections, allowing the user to look at specific groups of tickets that they are interested in. Hover data on each seat also gives the user the ability to look at ticket data for each seat in the arena.

Group	Count	Total_Value	Percentage
X-S	29,930		51.0%
X-ST	11,124		19.0%
X-SIN	8,442		14.0%
Total	49,496		84.0%
Total Seats	58,687		100.0%

Each map has a statistics table that provides a summary of the selections by the user. In this example, the number of seats, the total monetary value of those seats, and the percentage of this value compared to the whole stadium are all collected and displayed for the user. This is where much of the user's analysis and recognition of ticket sales trends will take place.

CONCLUSION

The four separate apps that we have created will allow the Purdue Athletics Ticketing team to efficiently gather all sales data in order to make better data-based decisions. The four apps will run the same and allow for easy analysis of ticket prices of any football or basketball game in a given season. The two SeatGeek apps allow for the sales team to see if they can increase their prices based on how much the tickets are being resold for, and the two original ticketing apps allow for the sales team to easily analyze current ticket sales during the season.

This project will help Purdue Athletics to be ahead of the curve when it comes to prices for their athletic events, as they will be able to easily analyze ticketing sales data (both original sales and secondary market sales on SeatGeek) and adjust ticket prices based on this analysis.

FUTURE PLANS

- Expand the app to other Purdue arenas and venues (Holloway Gymnasium, Alexander Field, etc).
- Adjust functionality to allow for comparison of ticket data between multiple football/basketball games at one time

ACKNOWLEDGEMENTS

We'd like to thank Brian Fordyce, our team mentor, for his continued guidance throughout the duration of the project! We're hoping that this project will increase the use of data in the athletics organization. We would also like to thank the Data Mine staff for their continued technical and logistical support.