Optimizing the Magic: A Data-Driven Approach for Enhancing Ride Experiences at Disney World

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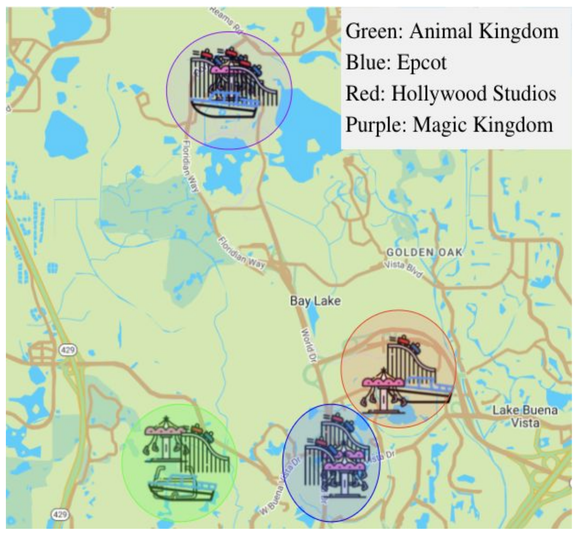
FURMAN COMPUTER SCIENCE

INTRODUCTION

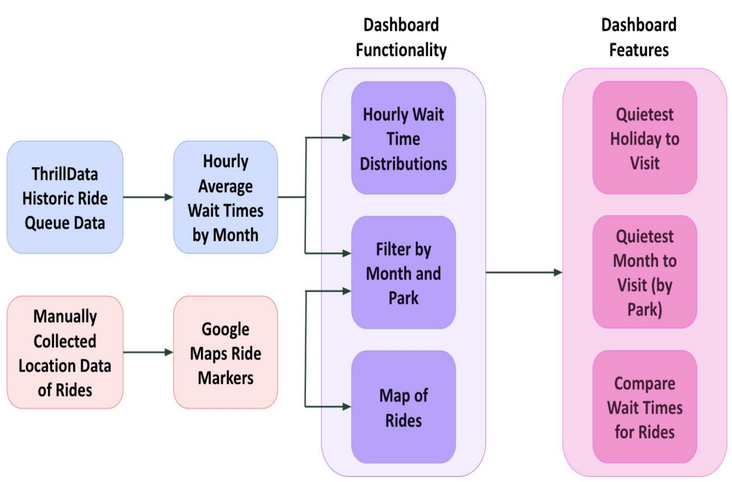
With average monthly wait times ranging from 30 to over 45 minutes and individual ride wait times varying from 5 to over 100 minutes, selecting not only the right time to visit, but also the time of day for specific rides is key to enhancing your overall experience at Walt Disney World.[1] The My Disney Experience app[2] displays real-time wait times for rides at all theme parks, but lacks data on average wait times per ride and wait trends. Given factors that influence vacation planning, such as wait times and reservations, the creation of a data visualization tool that allows users to compare monthly hourly average wait times for individual rides, would be great for planning purposes.

DATA



Ride data from 16 rides at Walt Disney World's four theme parks from February 2023-January 2024 were collected on the website ThrillData.[3] The rides chosen were the top five busiest rides at the park, have traditional queues, and have average wait times longer than the overall average wait time in Walt Disney World (45 minutes). Ride data was divided into months and hourly averages were computed for each ride.

PIPELINE



Historic data for each ride was pulled from ThrillData.[3] Historic data recorded wait times updated every minute. Location data for each ride was done by locating the ride on Google Maps and recording the longitude and latitude.

COMPARING WAIT TIMES

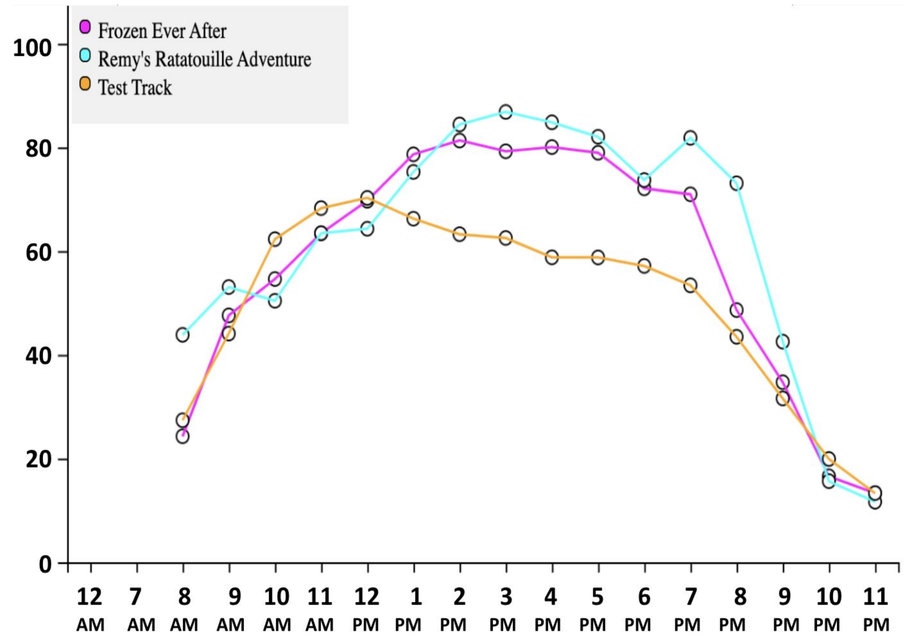


Figure 1. Comparing waits for Frozen Ever After, Remy's Ratatouille Adventure, and Test Track in October to find best time to go on each ride. This plot suggests to plan on going on Frozen Ever After either around 8am or after 8pm, Remy's Ratatouille Adventure around 10am or after 8pm, and Test Track from 12PM to 8PM.

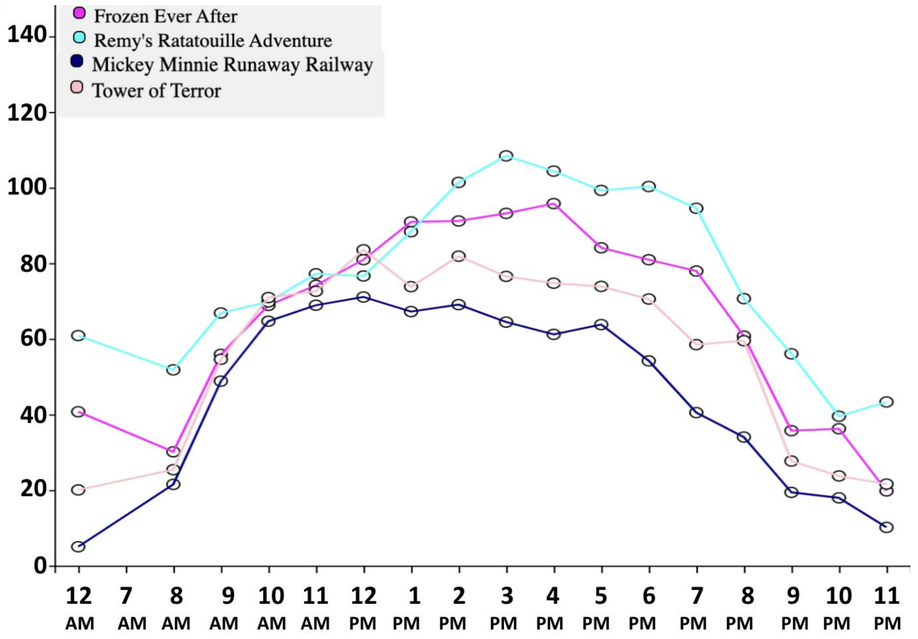


Figure 2. Comparing waits for Frozen Ever After (Epcot), Remy's Ratatouille Adventure (Epcot), Mickey and Minnie Runaway Railway (Hollywood Studios), and Tower of Terror (Hollywood Studios) in December to find best time to go on each ride. The ability to switch parks is at 2PM, so this plot suggests to going to Epcot in the morning and Hollywood Studios in the afternoon.

CITATIONS AND LINKS

1. https://www.thrill-data.com/waits/chain/wdw/
2. https://disneyworld.disney.go.com/guest-services/my-disney-experience/mobile-apps/
3.. https://www.thrill-data.com/

https://abbydumke.github.io/CS475Project/

https://github.com/abbydumke/CS475Project

WAIT TIME VISUALIZATIONS

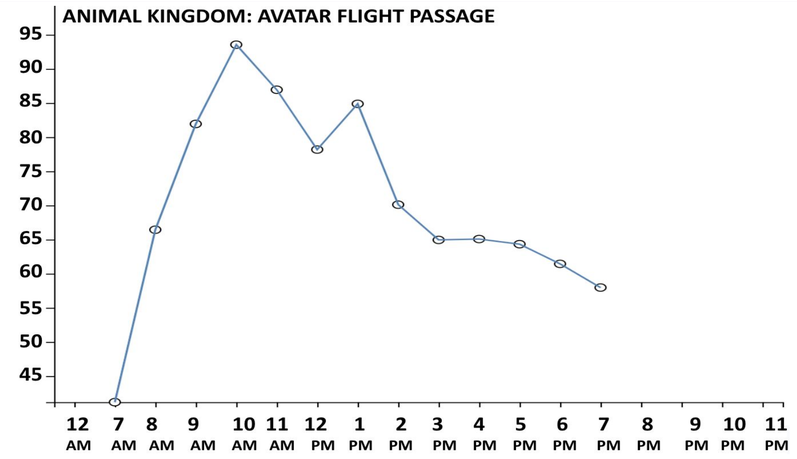


Figure 3. AVG wait times per hour for Avatar Flight of Passage in September. Peak times is in early morning.

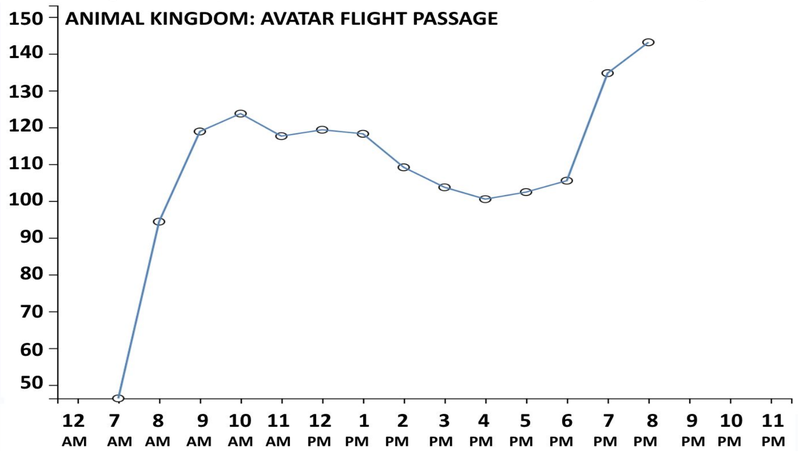


Figure 4. AVG wait times per hour for Avatar Flight of Passage in January. Peak time is in evening, differing from Figure 3.

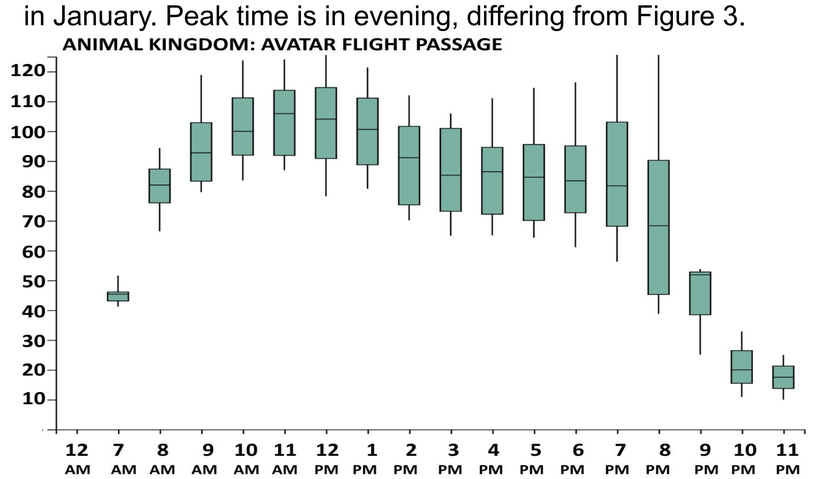


Figure 5. Overall AVG wait time per hour distribution for Avatar Flight of Passage. Peak times is in late morning.

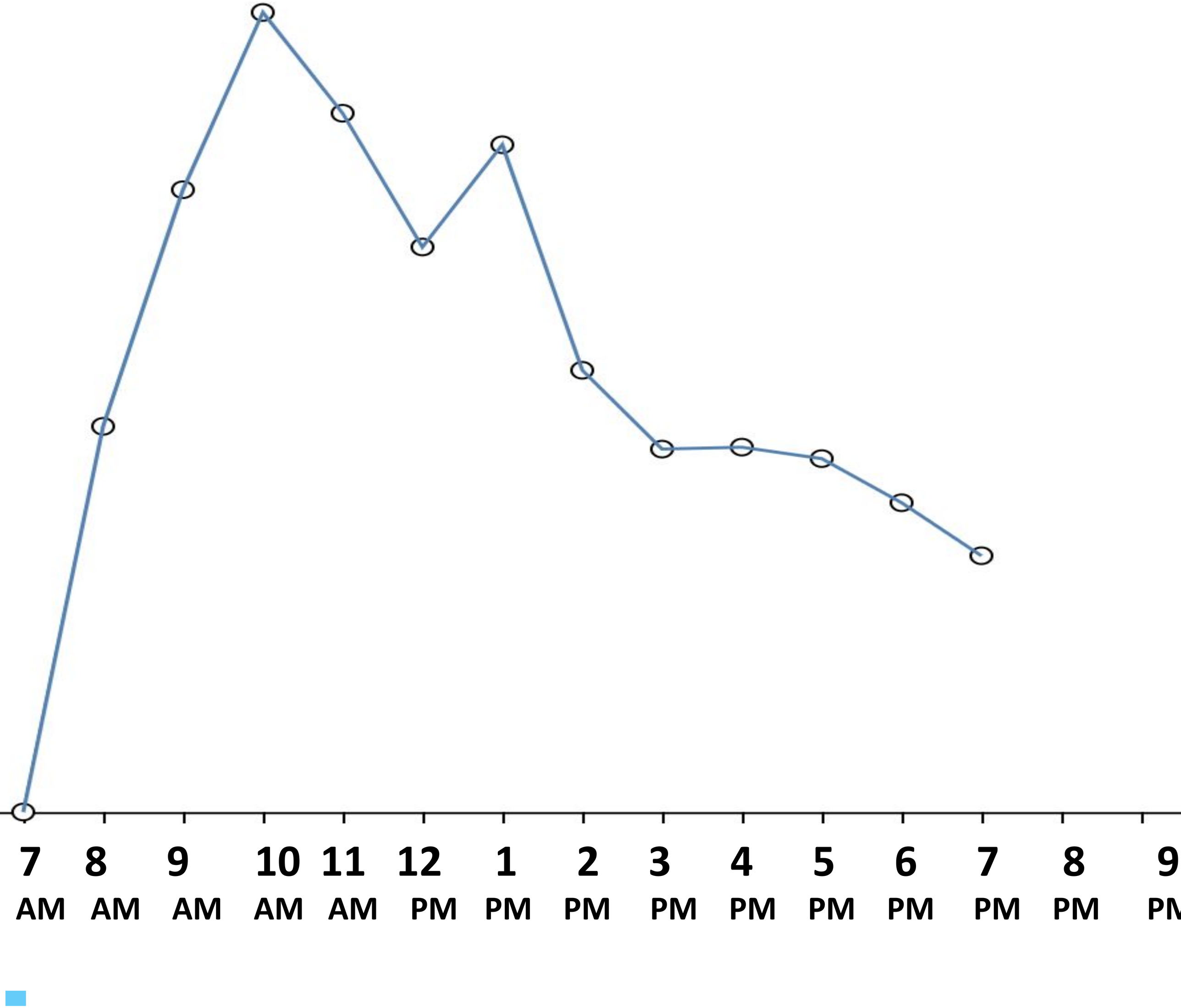
CONCLUSION

The dashboard provides a way to see locations of rides, view wait time distributions and hourly averages by month, compare wait times of different rides, identifies the busiest/quietest months (overall and by park) and holidays at Walt Disney World.

The dashboard shows that there are major differences in monthly trends based on wait times (see Figure 3 and 4). This tool can help identify times to go on a specific ride, but can be unhelpful if rides have similar queuing behavior.

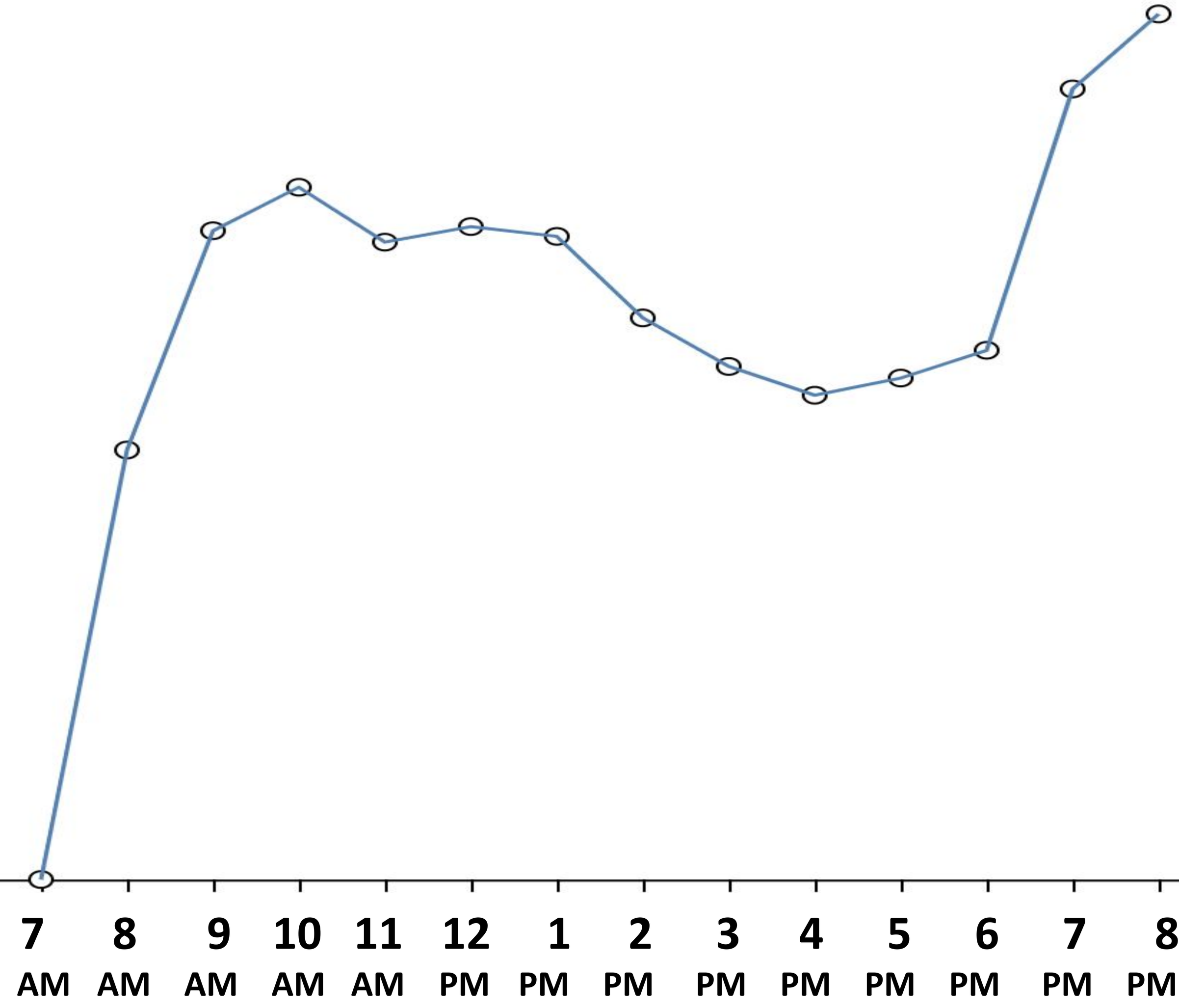
The dashboard can be a useful tool with planning trips to Walt Disney World by identifying a month to go, when to make meal reservations, and if visiting multiple parks in one day, when to go to which park.

MAL KINGDOM: AVATAR FLIGHT PASSAGE



KINGDOM: AVATAR FLIGHT PASSAGE

MAL KINGDOM: AVATAR FLIGHT PASSAGE



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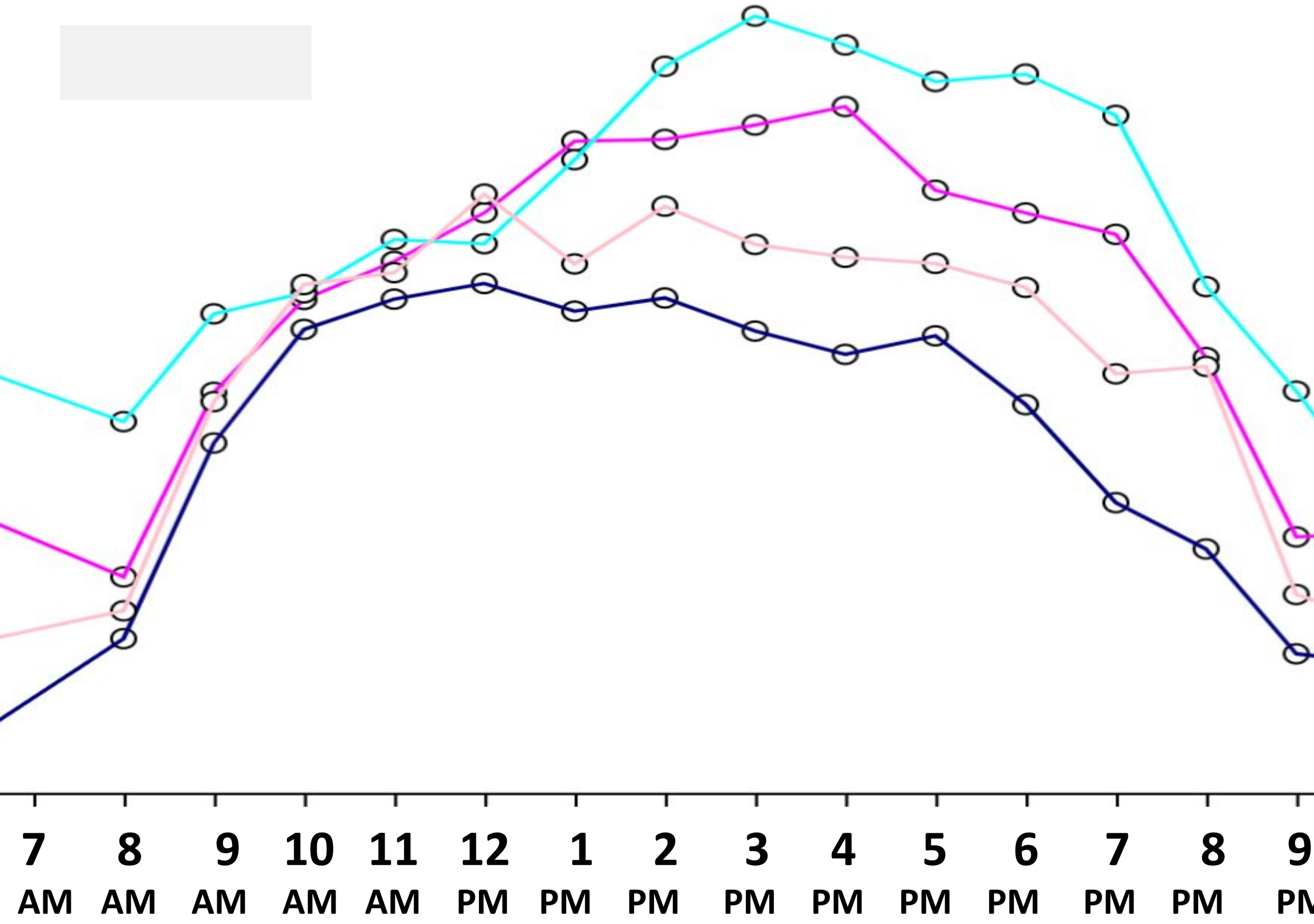

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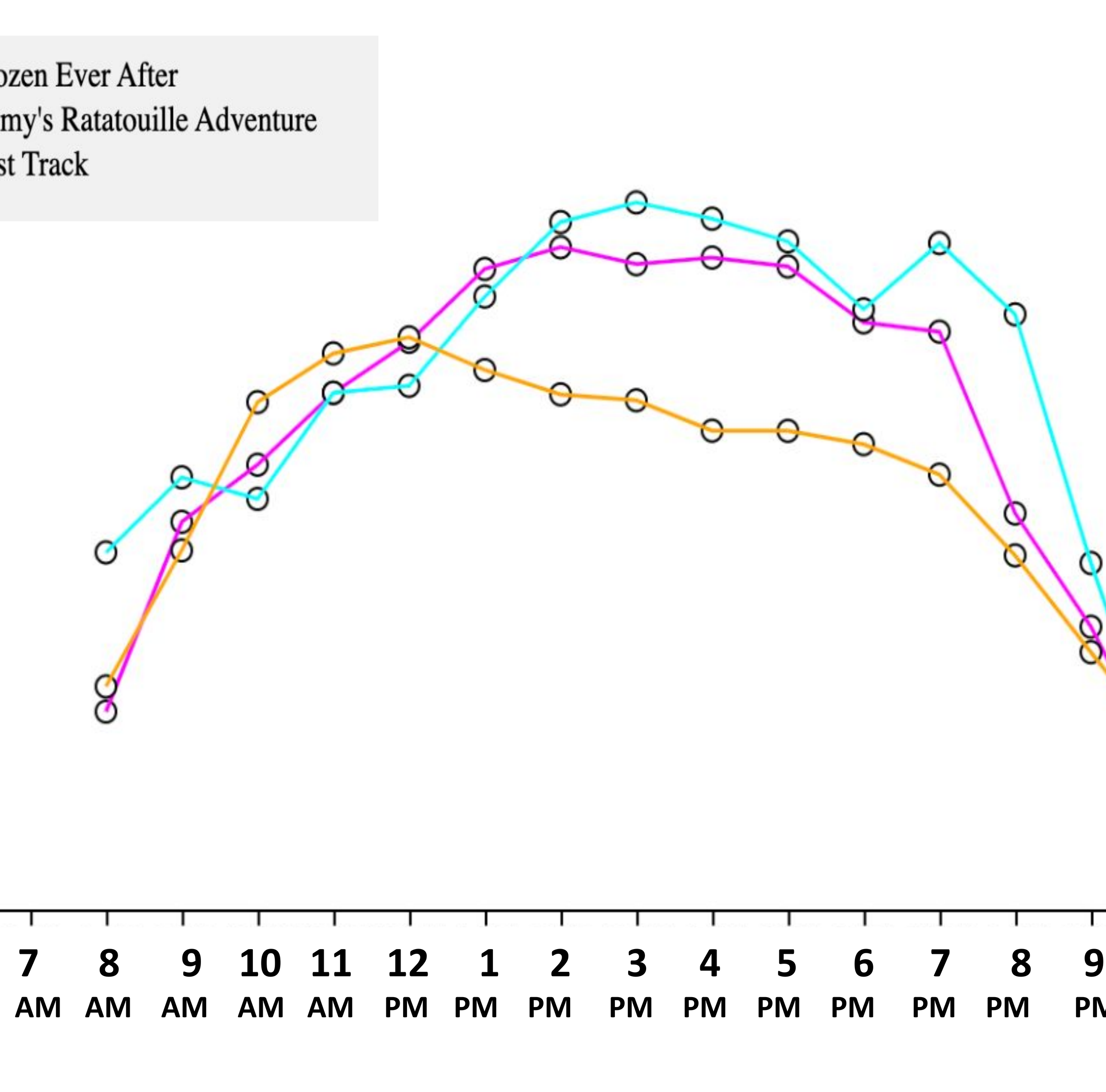
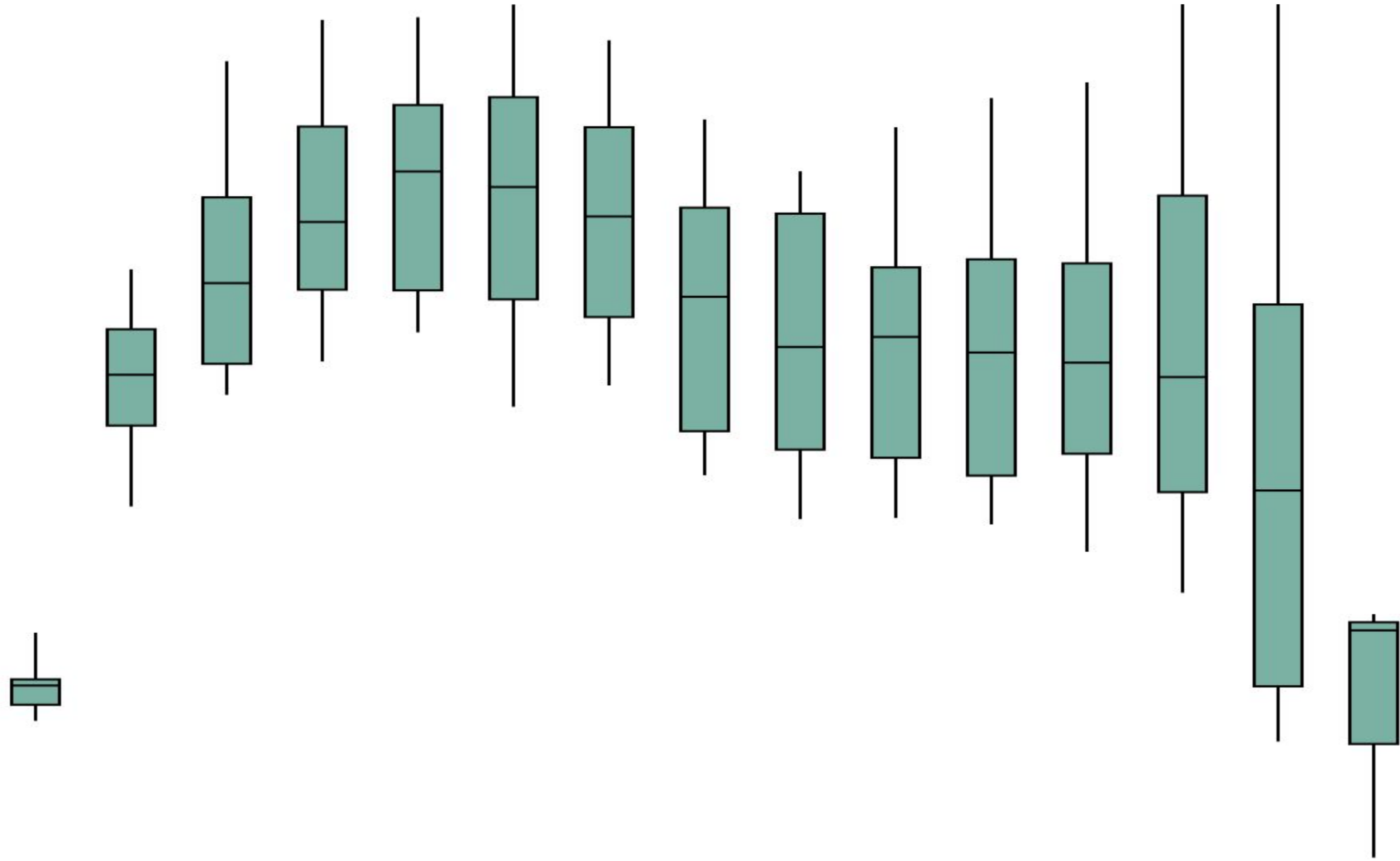


MAL KINGDOM: AVATAR FLIGHT PASSAGE



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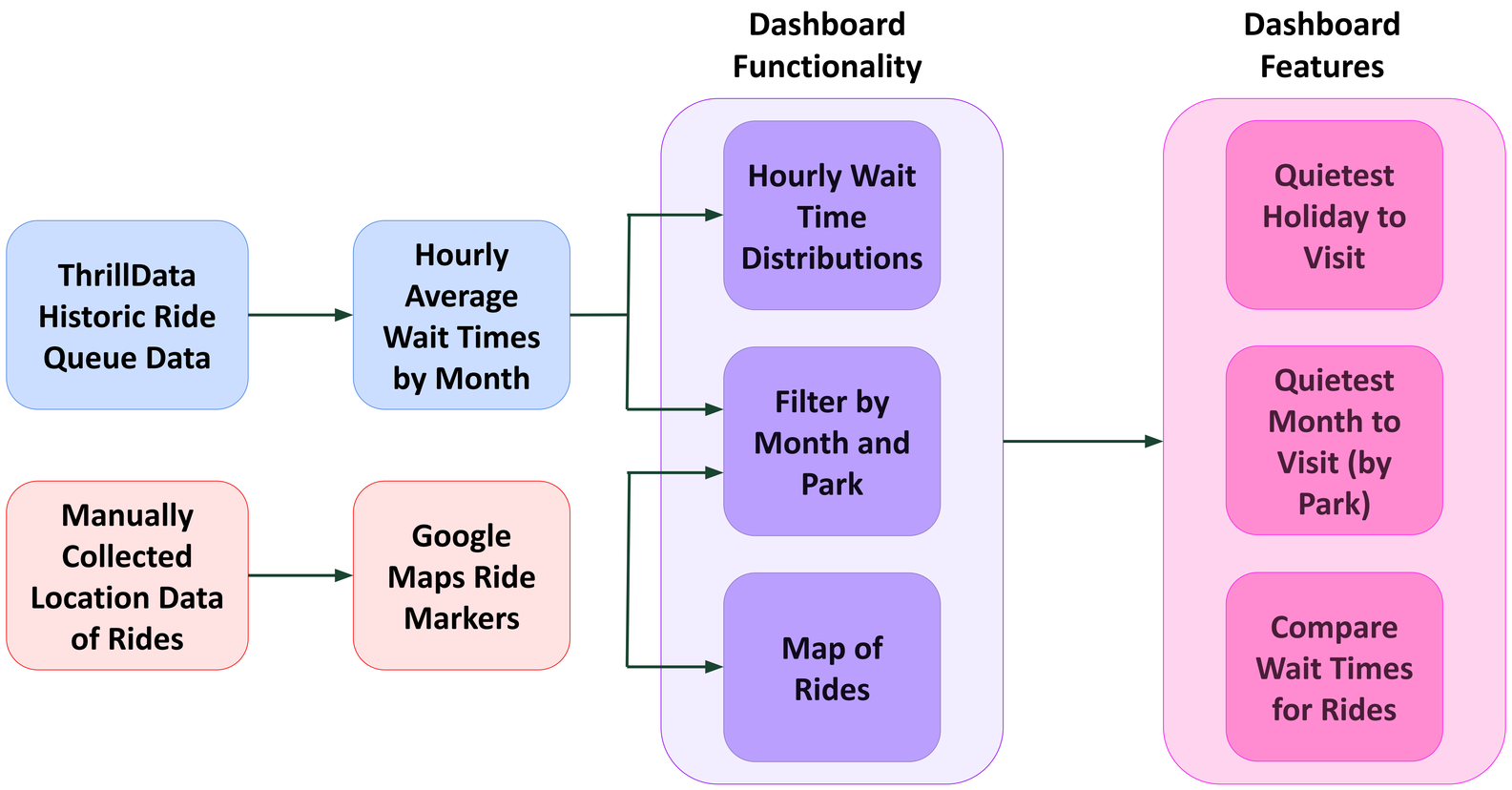
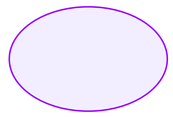
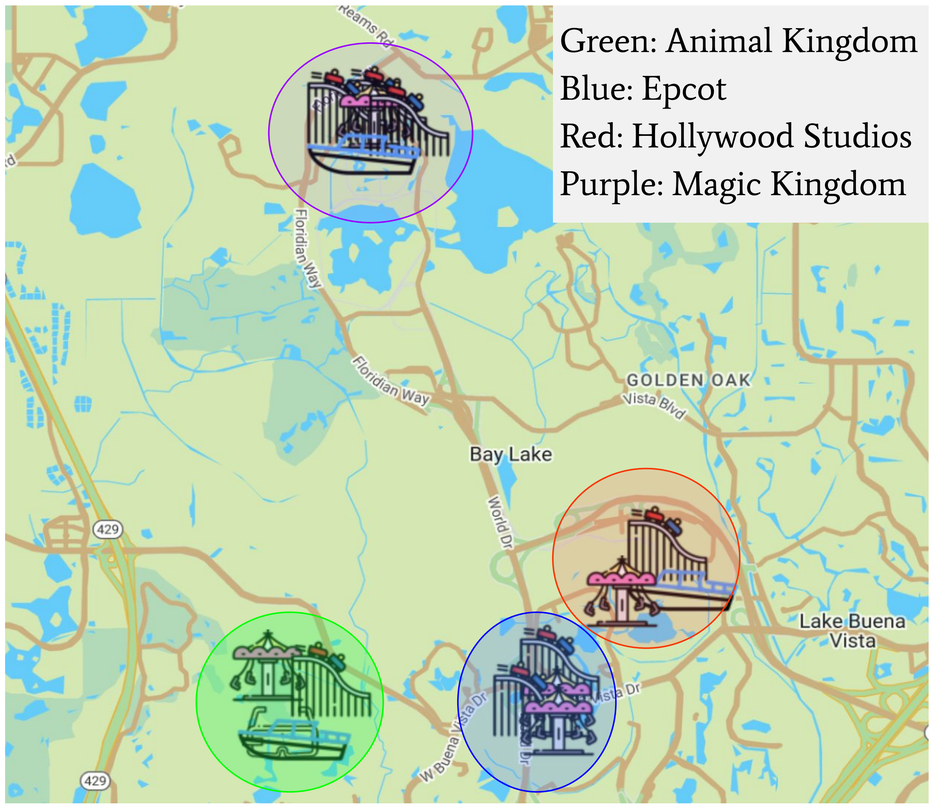
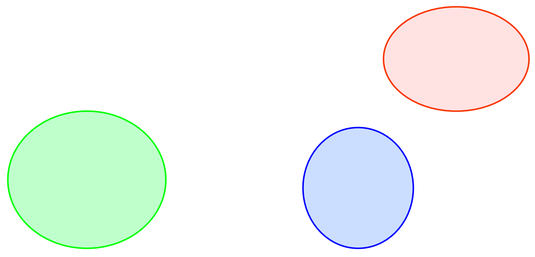
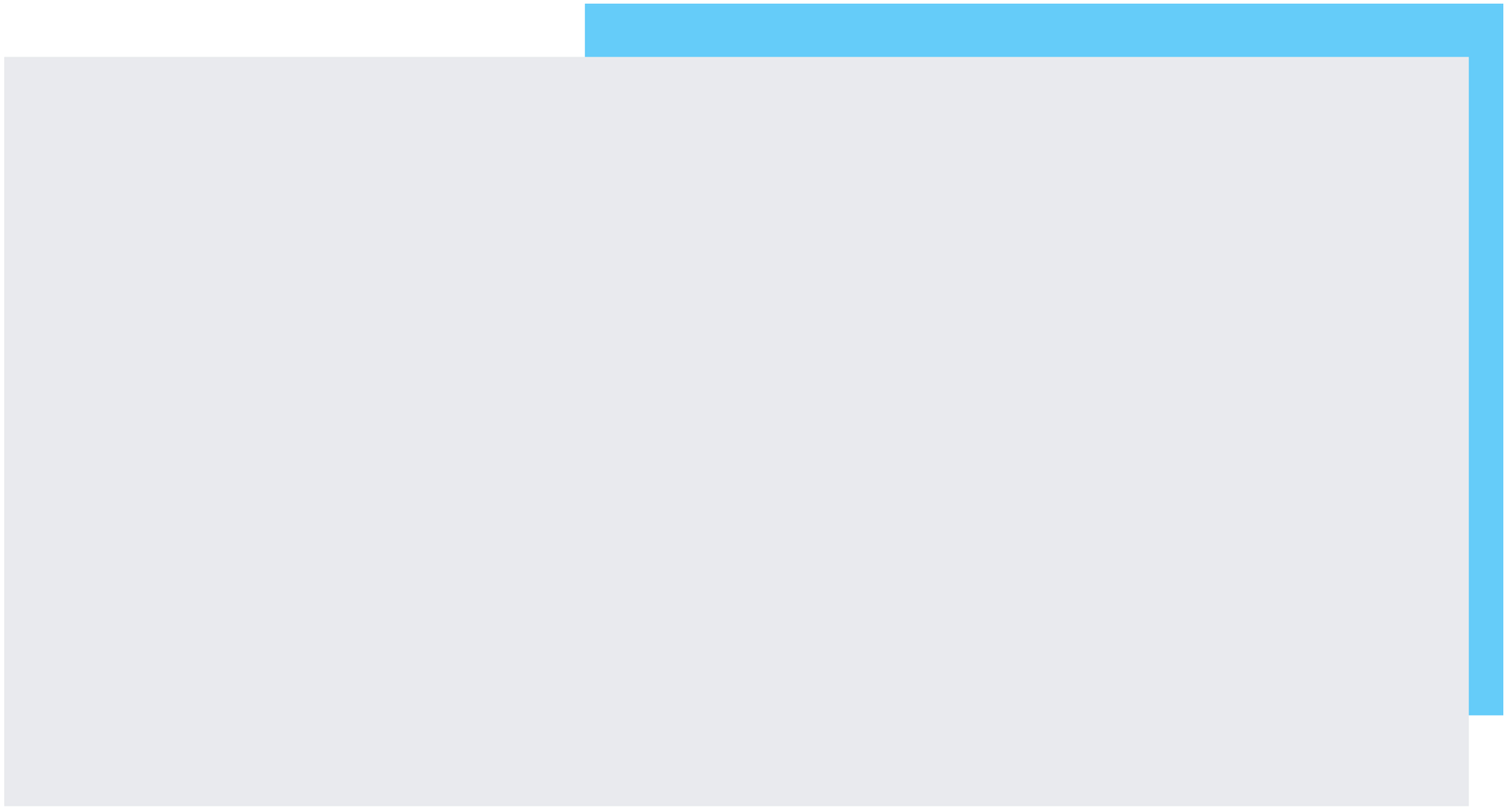

Dashboard Functionality
Dashboard Features
ThrillData Historic Ride Queue Data
Hourly Average Wait Times by Month
Manually Collected Location Data of Rides
Google Maps Ride Markers
Hourly Wait Time Distributions
Filter by Month and Park
Map of Rides
Quietest Holiday to Visit
Quietest Month to Visit (by Park)
Compare Wait Times for Rides




Green: Animal Kingdom
Blue: Epcot
Red: Hollywood Studios
Purple: Magic Kingdom
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