

Staffing Analysis

Allocate Analytics

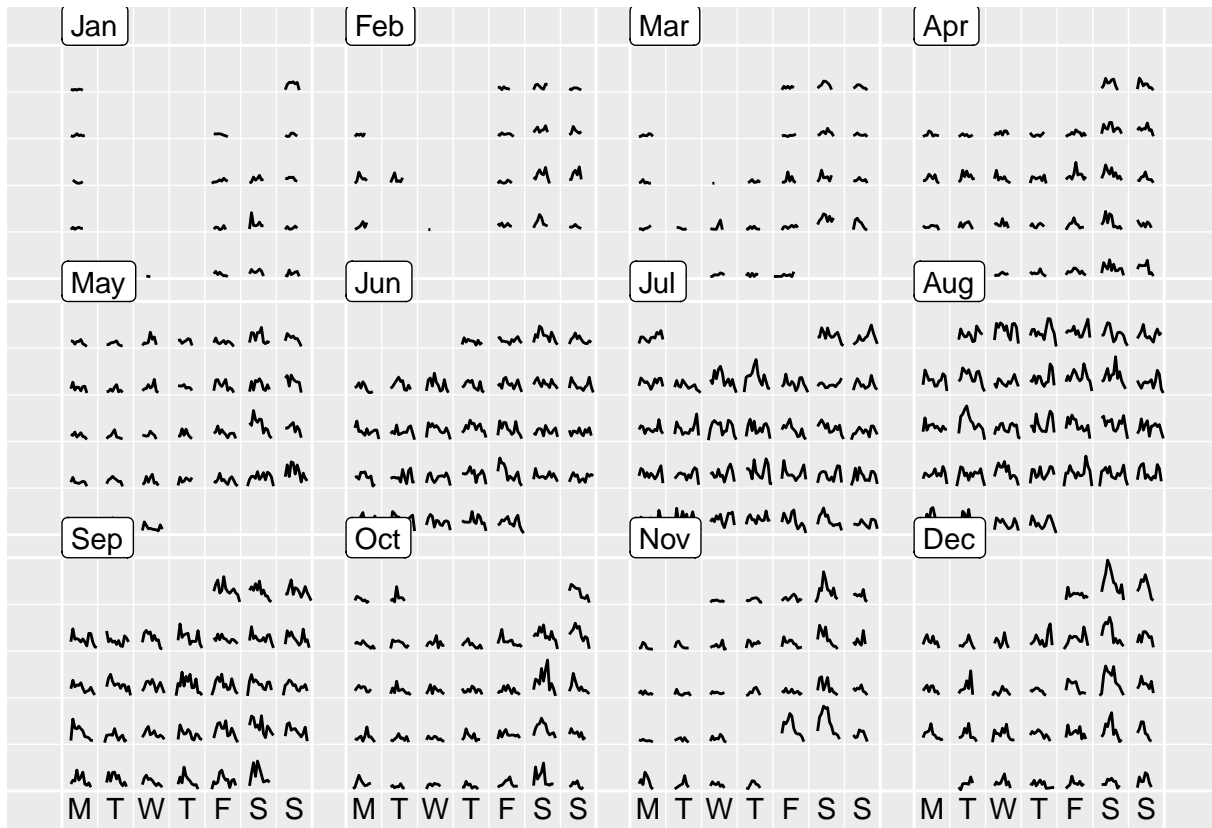
March 16, 2018

Question To Answer: How can sales data help inform staffing levels through the day through each month of the year?

Approach To Answer Question:

1. Visualize 2017 sales by hour for each day of the year in order to see trends (also visualize 2016 to confirm it's fairly similar to 2017)
2. Group together similar days into a number of “sales profiles” for consistency and simplicity.
3. Plot the range of sales that happen through the day for each of the 10 profiles.

Sales By Hour For Each Day of 2017

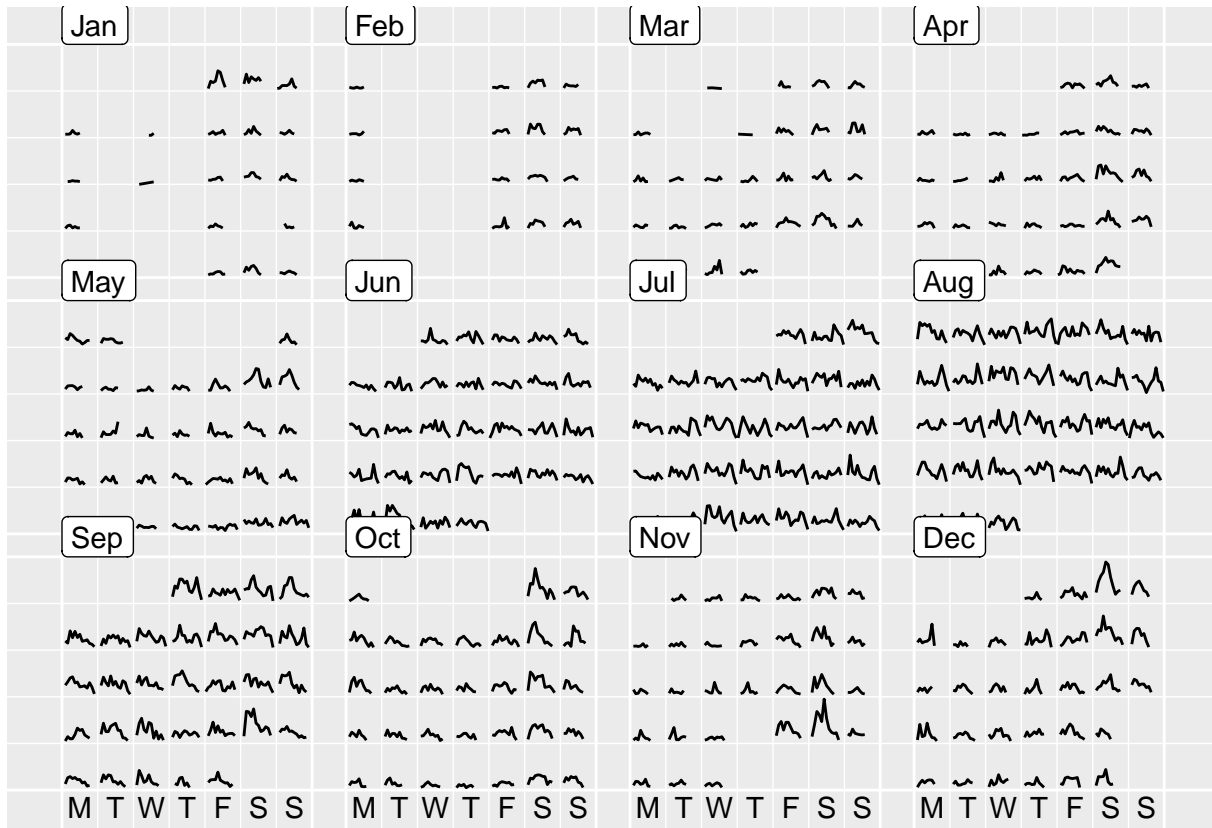


Comments and Trends

- 1 Almost no big days until 2nd weekend of April and then it's Fri, Sat, Sun

- 2 Weekdays start getting consistently big after Memorial Day
- 3 Weekdays slow down after Labor Day
- 4 October weekdays even slower than September
- 5 Beginning around Halloween Saturday is really the main big weekend day until the week before Xmas and except for Thanksgiving weekend

Sales By Hour For Each Day of 2016



Profiles of Sales For Staffing

Levels

1. Dark Grey – Off Season Minimum
2. Brown - Winter Saturdays
3. Tan – Spring Fri Sat
4. Pastel Green – Spring Sundays
5. Yellow – MOD weekday (May, Oct, Dec)
6. Bold Green – Jun Sep Weekdays
7. Pastel Blue – Peak 6 Days
8. Red – Peak Sundays
9. Purple – Fall Weekend
10. Bright blue – Xmas Peak

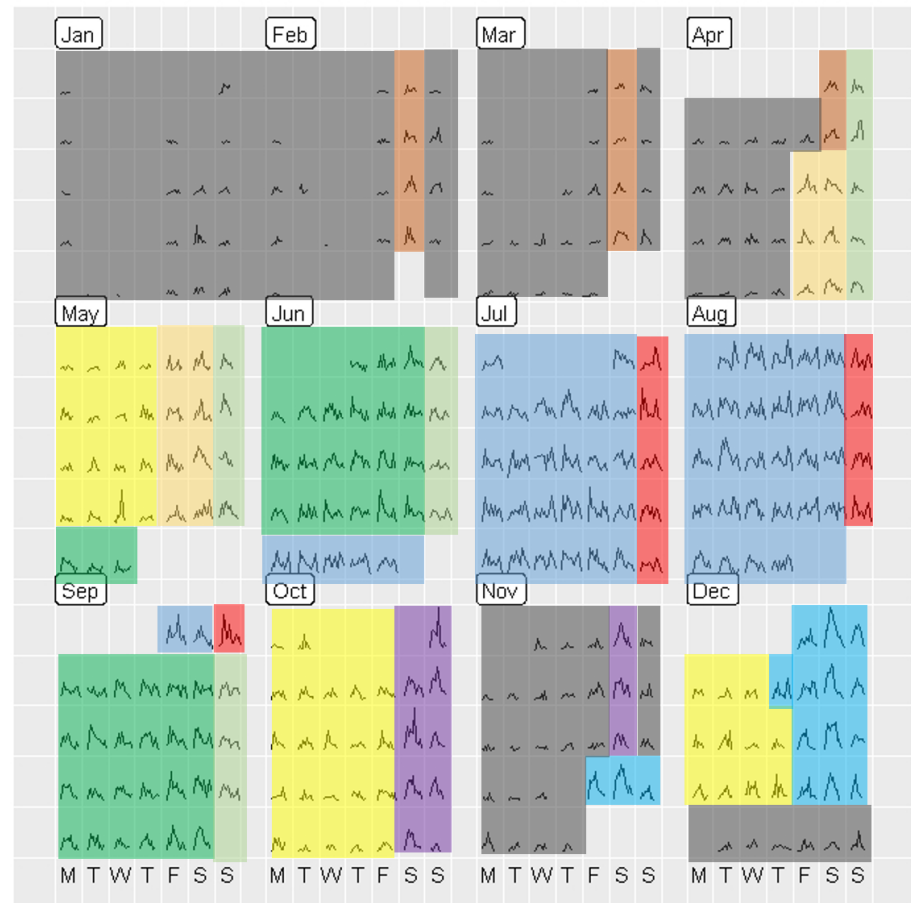


Figure 1: “Days of 2017 sorted into 10 profiles for staffing”

Sales Ranges of Profiles

The next 10 plots show the range of sales that have occurred for each hour of the day. The darkest, largest blue range represents where sales occur that hour 95% of the time. The next slightly lighter blue range represents where hourly sales will fall 75%. The smallest, lightest blue contains hourly sales 50% of the time. The red ribbon is the average sales level for that hour.

My initial recommendation is to aim for the top of the 50% range (the lightest blue range, corresponding to about \$400 for 12 noon for the first profile). Since the store being fully staffed as 6 people and the minimum is 2, that informs the staffing levels. The highest the 50% range gets in mid-July is about \$1200/hr and the lowest is roughly \$400/hr. This translates to the table below:

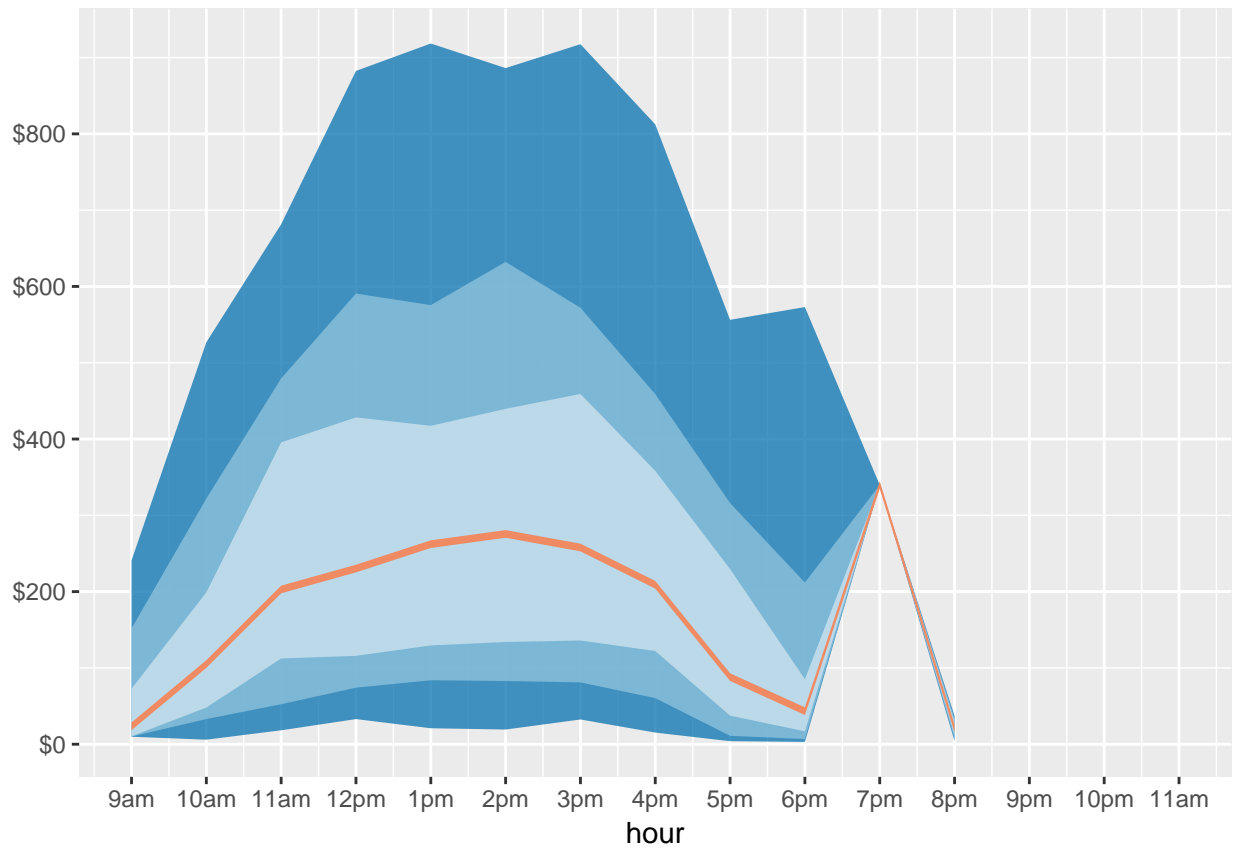
Approximate Staffing Needs At Hourly Sales Levels

Sales.Per.Hour	Staff.Needed
\$400	2
\$600	3
\$800	4
\$1000	5
\$1200	6

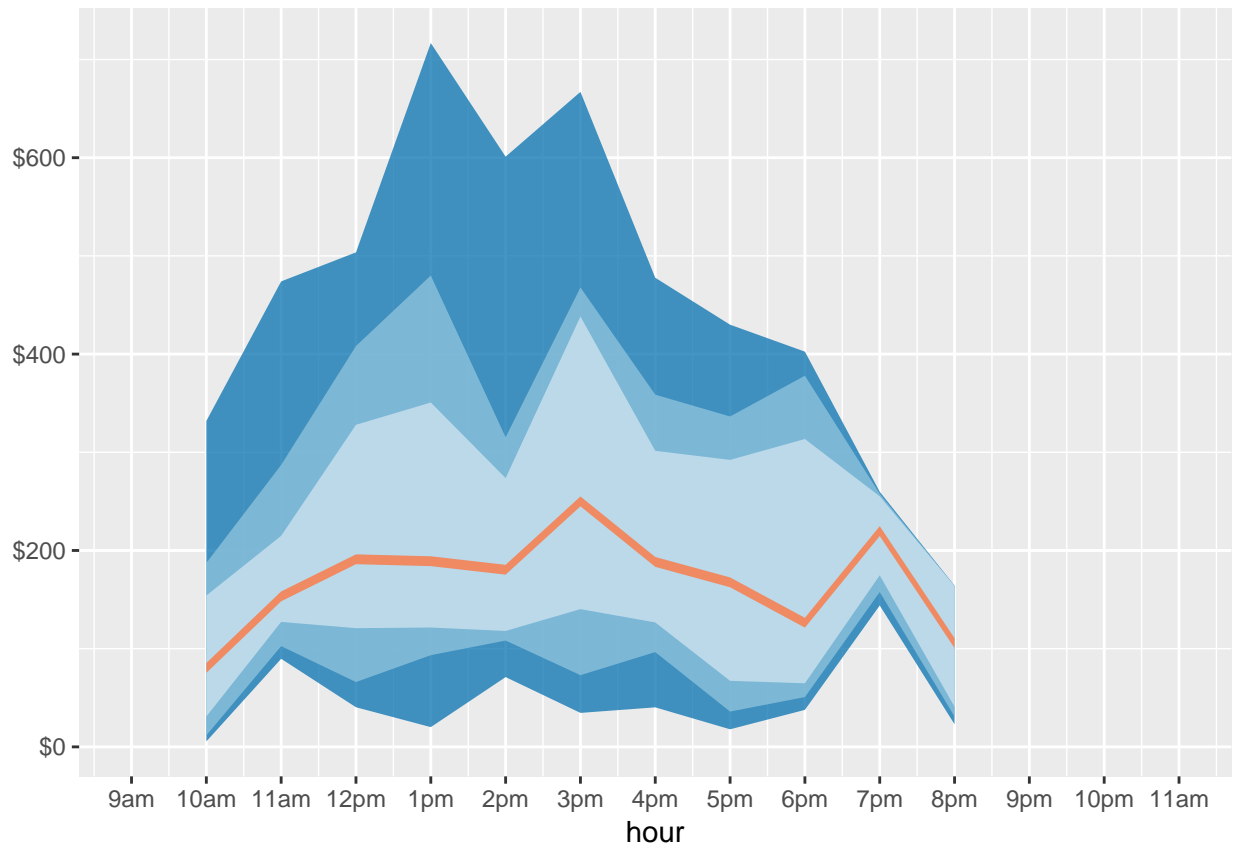
Below are the plots of each profile:

#1 Off Peak Minimum Staffing - Dark Grey

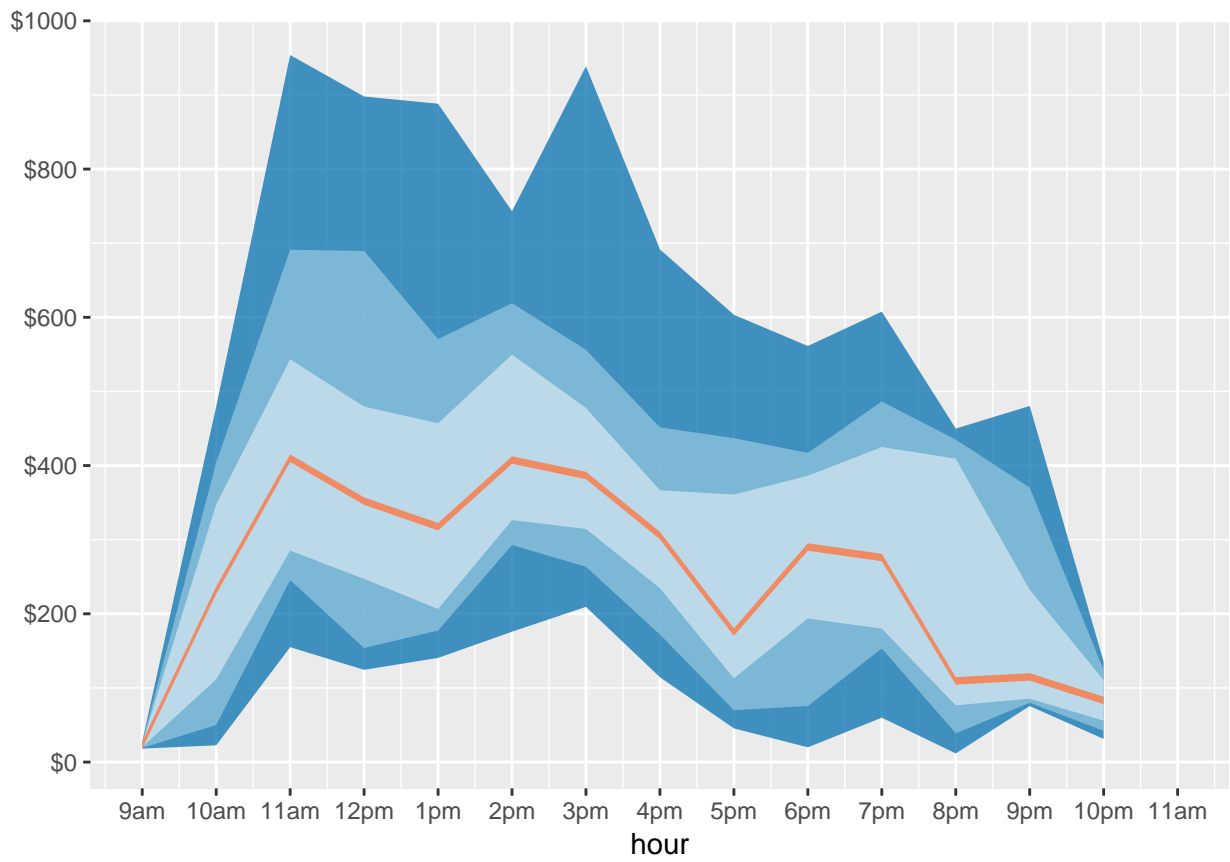
This first one represents all the very low sales days, and the demands of customers and sales are unlikely to require more than 2 staff at any one time.



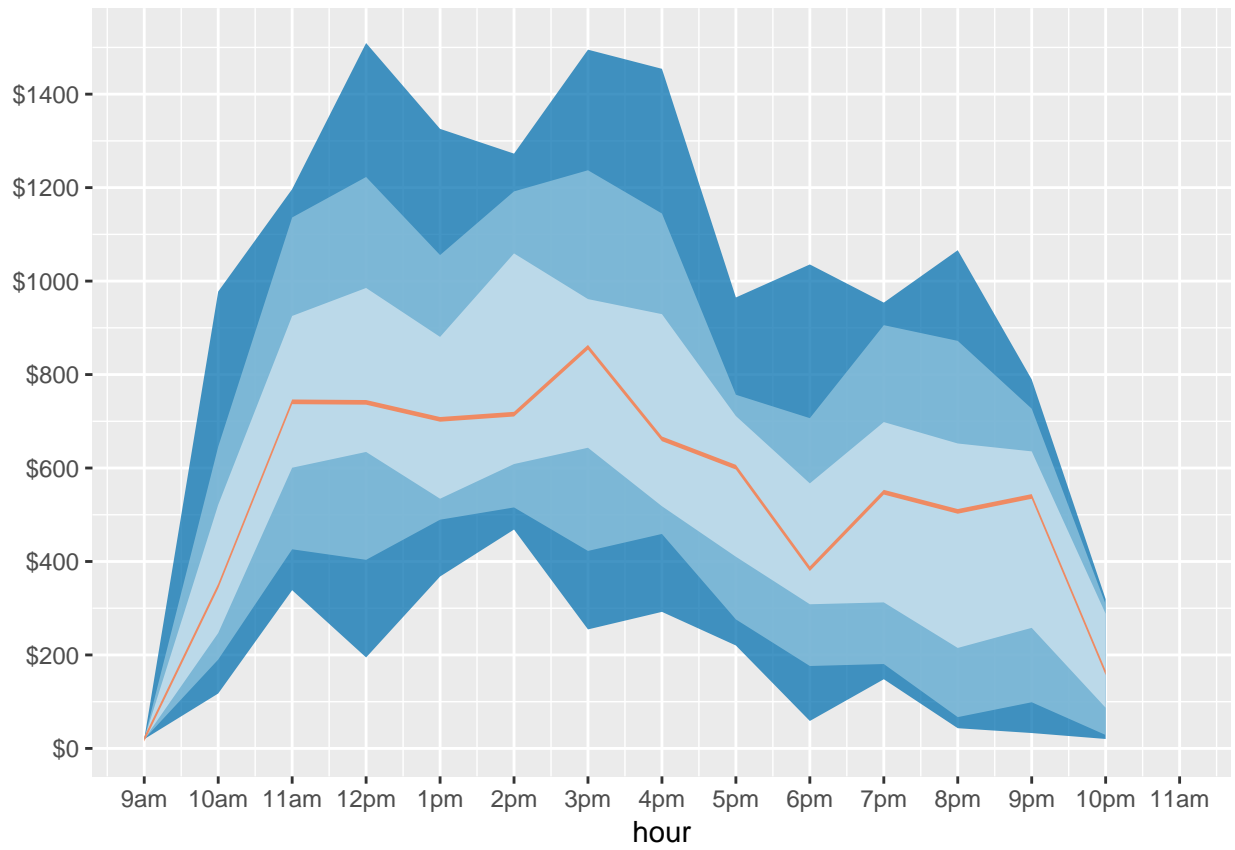
#2 Winter Saturdays - Brown - Feb, Mar, early April



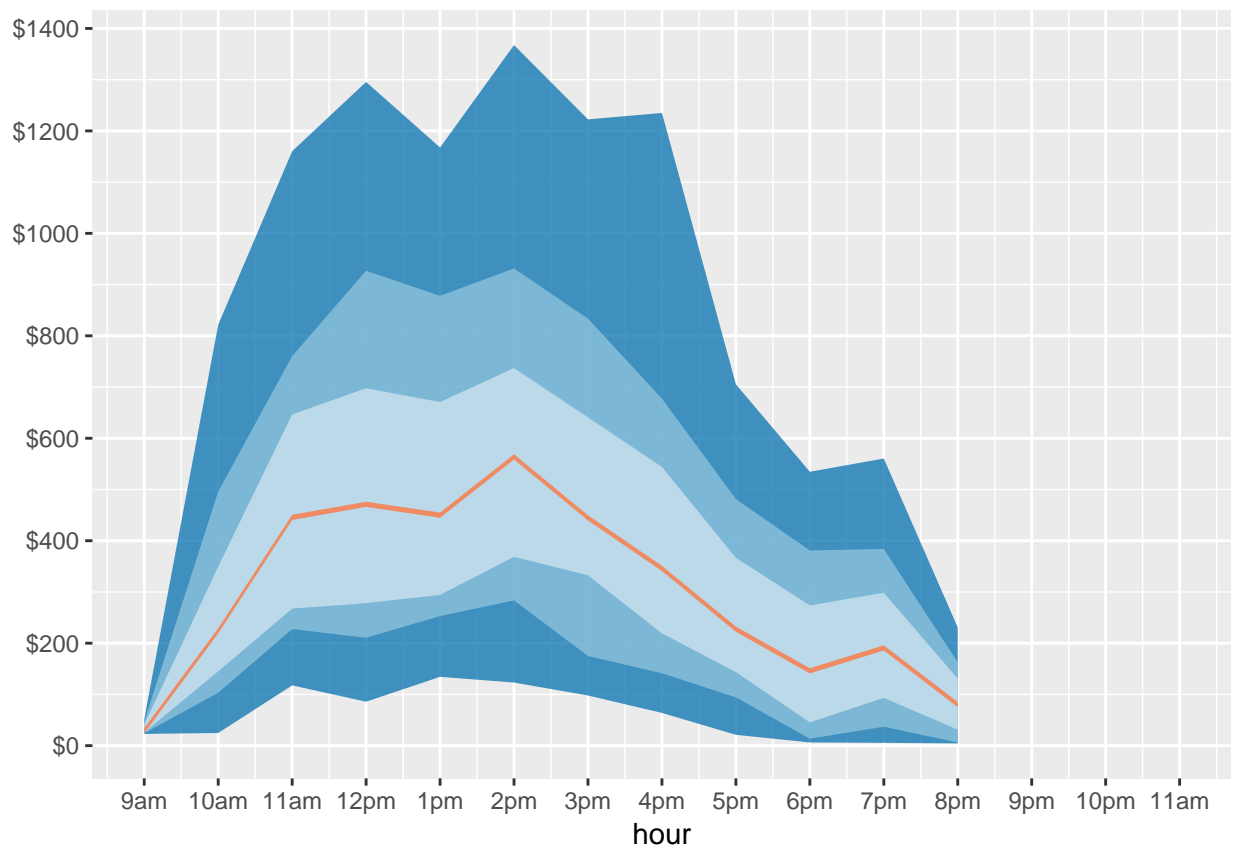
#3 Spring Fri-Sat - Tan - Mid-April to May



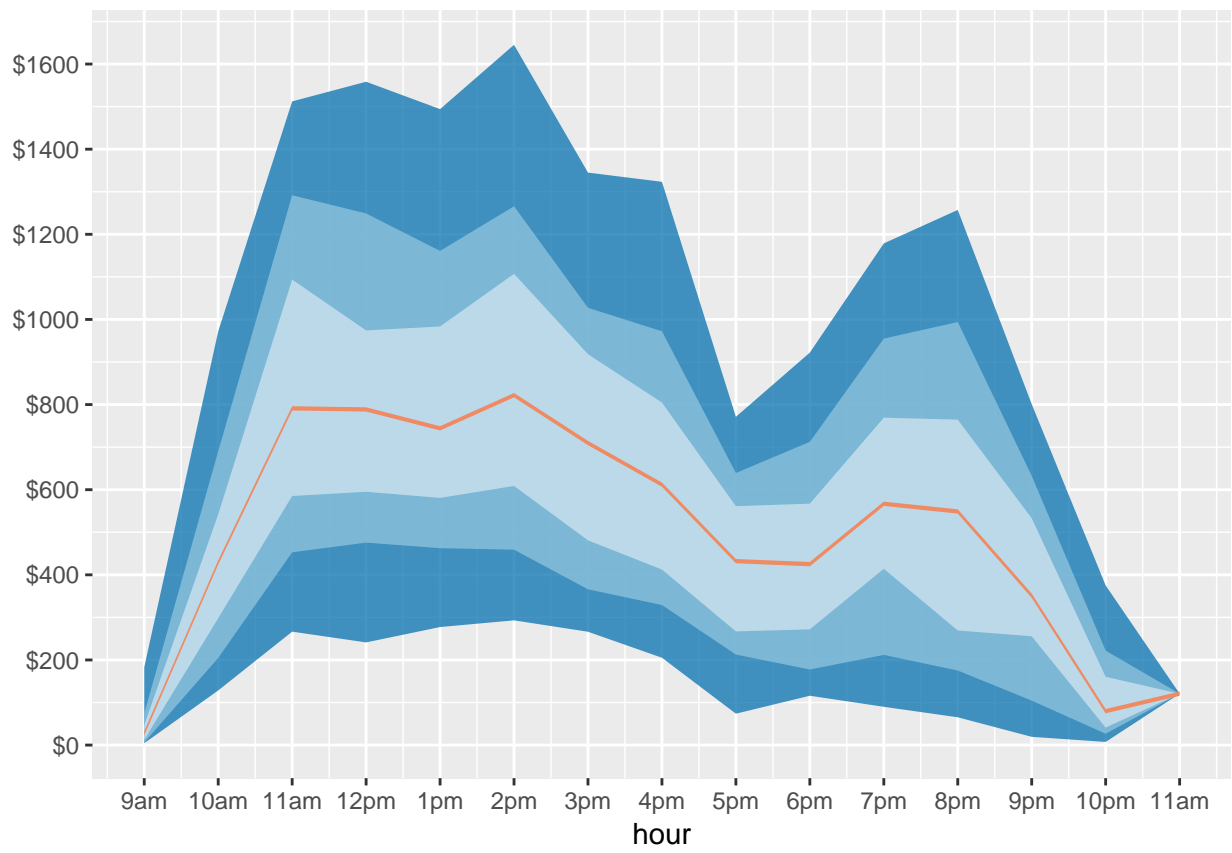
#4 Spring Sundays - Pastel Green - April-June Sundays



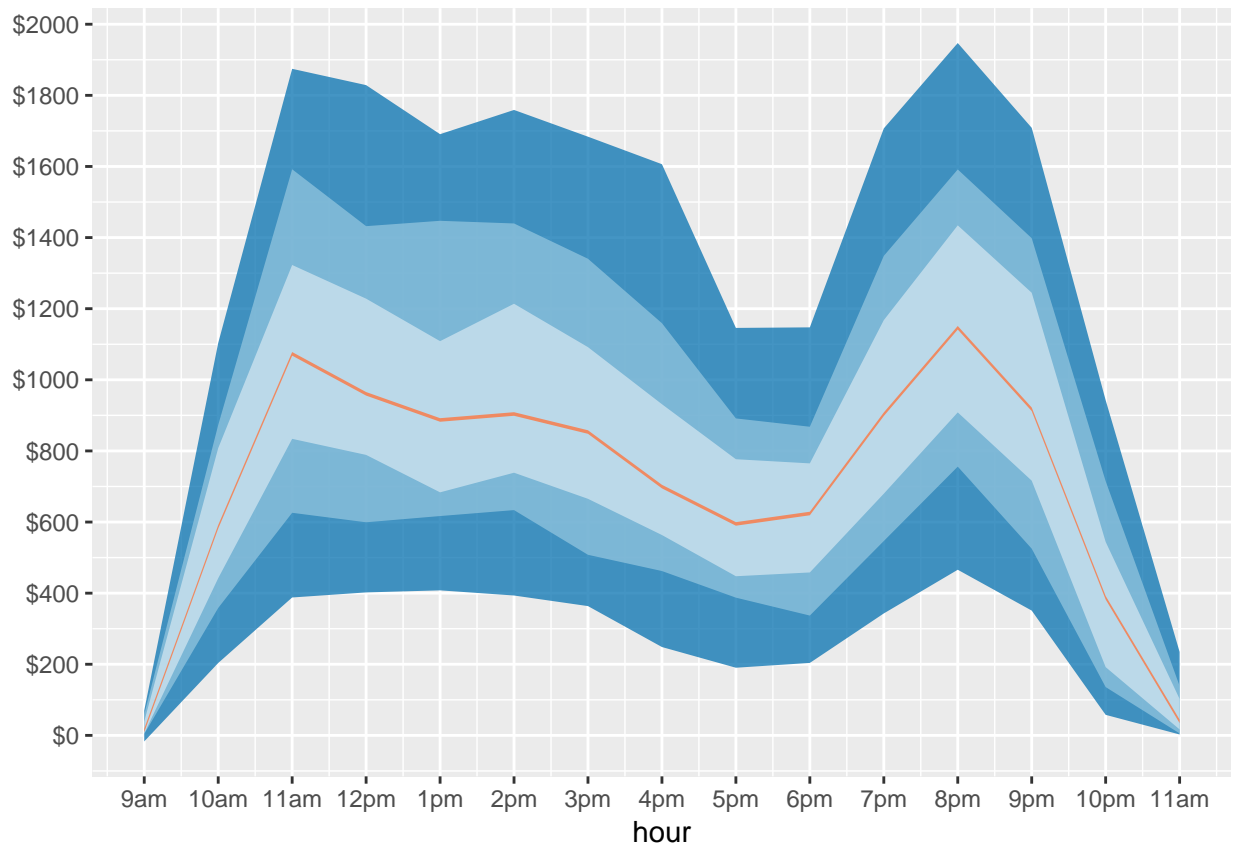
#5 May, Oct, Dec Weekdays - Yellow



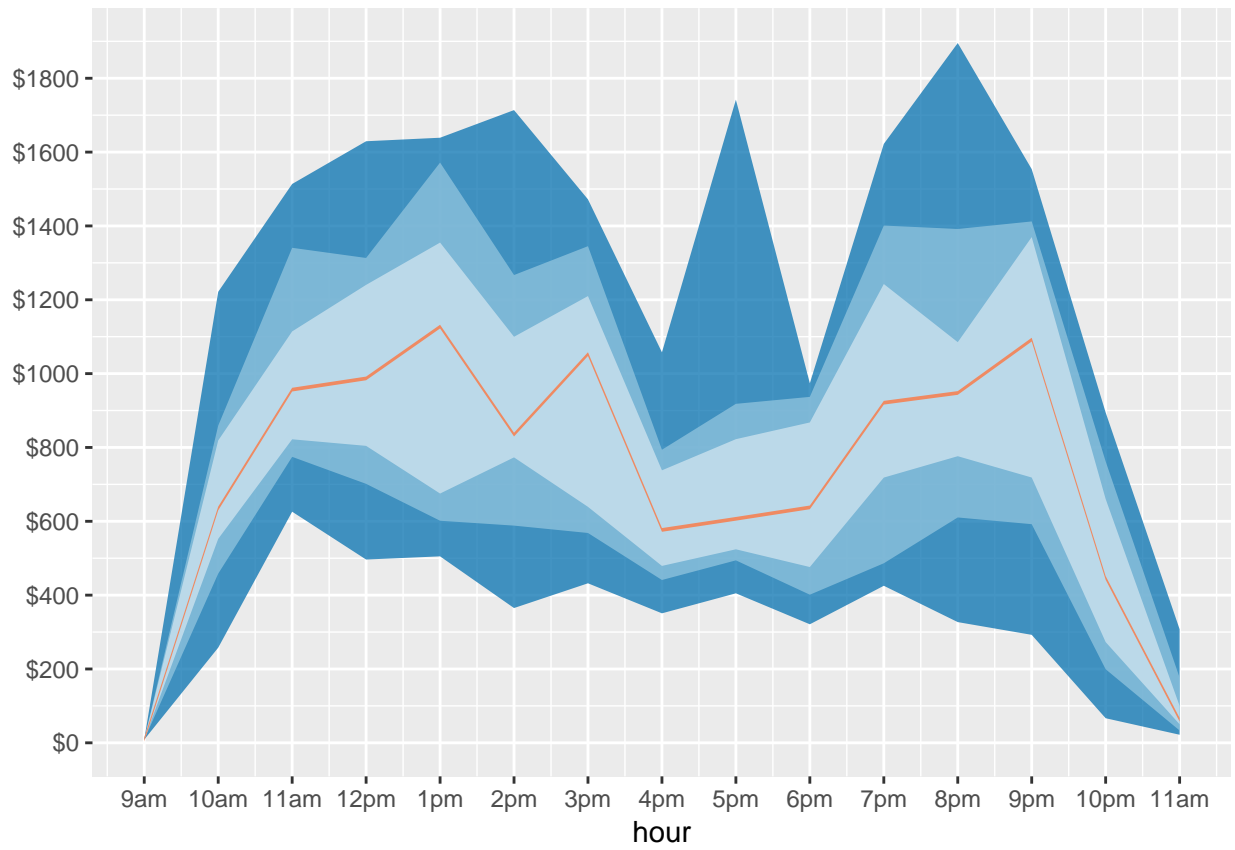
#6 Jun/Sep 6 Days - Bold Green



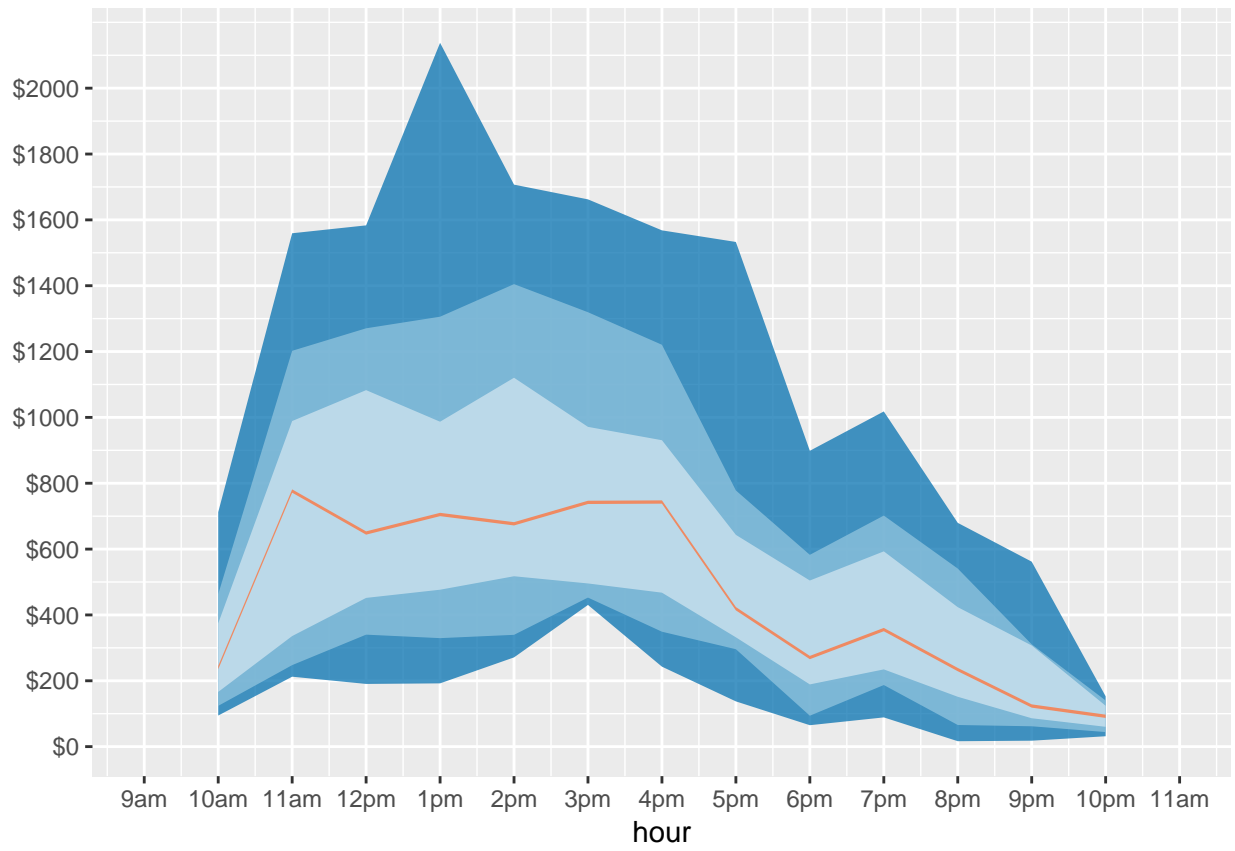
#7 Peak 6 Days - Pastel Blue - Mon-Sat Jul & Aug



#8 Peak Sundays - Red - July-Labor Day Sundays



#9 Fall Weekend - Purple - Oct Sat/Sun & Nov Sat



#10 Xmas Peak - Bright Blue - Fri, Sat, Sun Dec

