

Design Task #2

Stat 282A - Data Visualization

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Due by 11:59 PM on Wednesday October 6

Visualizing Fast Food Nutrition

We will once again use the fast food dataset. Just like our sketches in class, we will consider multiple ways to visualize the same data. You will identify a question to explore, create three visualizations, and discuss specific aspects of the visualizations in terms of grammar and perception.

1. Clearly state the question you would like to explore with your visualization. What message are you trying to communicate?
2. Create three different visualizations using `ggplot` in R. In this case “different” means more than different colors, play around with geometries, aesthetics, scales, and modifiers.
 - Note: Your R visualizations do not need to be the same as the sketches you made in class.
 - Note: You may play around with wrangling the data, using subsets in your viz, creating new variables, etc. but it is not required.
3. Define the following for each of your three visualizations:
 - Geometries
 - Aesthetics
 - Scales
 - Modifiers (if any)
4. Critique your own visualizations.
 - Which one do you prefer and why?
 - Do you think your message comes across clearly?
 - What works really well about your favorite visualization?
 - What doesn't work well in your least favorite?
 - What were you not able to do or include that might improve your visualizations?

You can write your code and responses directly in this .Rmd document. Remember to save the file in your submit folder and write your name at the top. You should knit your document into a pdf, with code and visuals shown.

This assignment is worth **30 points** of your Design Task grade. Submit your knitted pdf file on Moodle by 11.59 PM Wednesday, October 6.

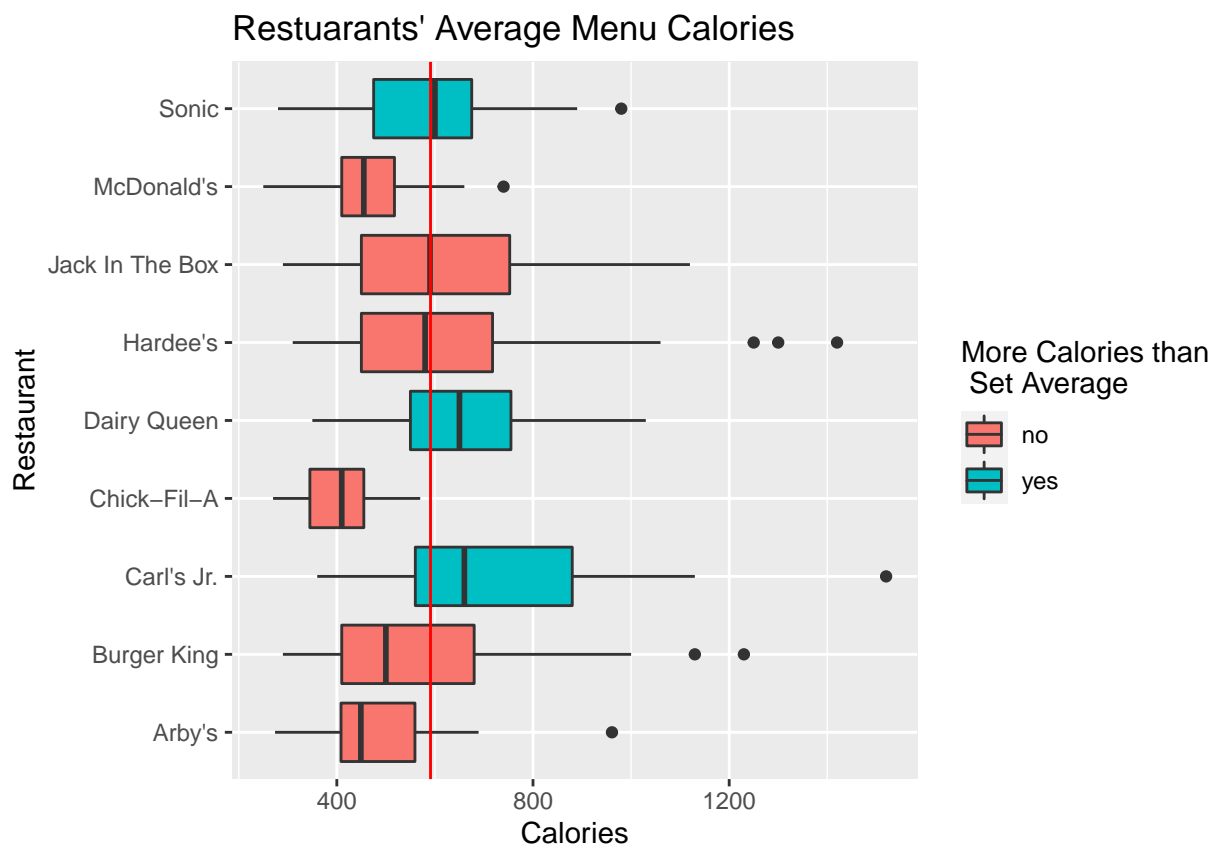
Code

I've included the libraries and data import in the .Rmd file. Tip: Use separate code chunks for each visualization.

guiding question: What restaurants have the food with the most calories, and what food has the most calories?

```
fastfood2 <- fastfood %>%
  mutate(highcal = ifelse(Restaurant == "Sonic" | Restaurant == "Dairy Queen" | Restaurant == "Carl's Jr.", "yes", "no"))

ggplot(data = fastfood2, aes(y = Restaurant, x = Calories, fill = highcal)) +
  geom_boxplot() +
  ggtitle("Restuarants' Average Menu Calories") +
  labs(fill = "More Calories than \n Set Average") +
  geom_vline(xintercept = 591, color = "red")
```

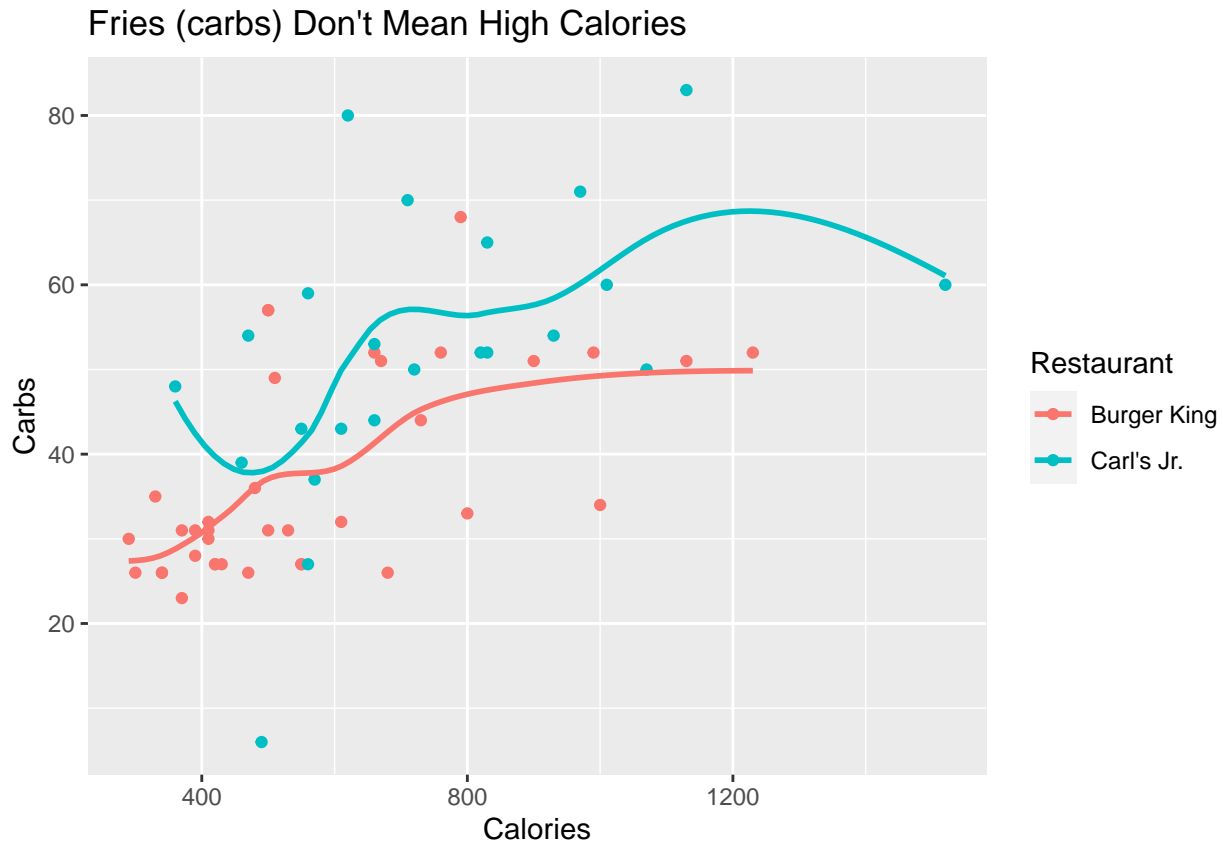


I used a boxplot here, with the geometry being a boxplot and the scales being calories and restaurant, although the restaurant is nominal and the order isn't important. I used a modifier to show which restaurants had above average calories in each of their items, where red represents having less than average and blue having more than average. There's also a vertical line at the set average to show how close the restaurants are, which is a geometry.

```
fastfood3 <- fastfood %>%
  filter(Restaurant == "Burger King" | Restaurant == "Carl's Jr.") %>%
  group_by(Restaurant)

ggplot(data = fastfood3, aes(x = Calories, y = Carbs, color = Restaurant)) +
  geom_point() +
  geom_smooth(se = F) +
  ggtitle("Fries (carbs) Don't Mean High Calories")
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



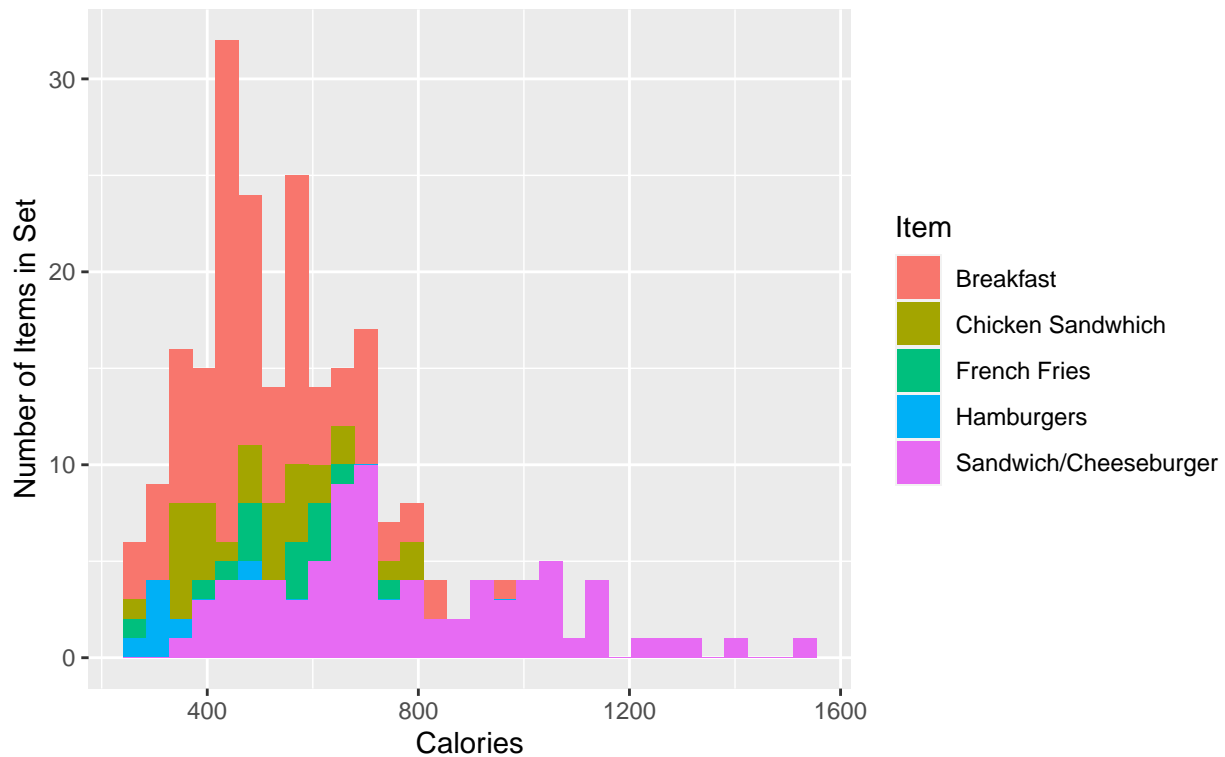
I used a scatter plot here, with geometries being points and lines. The scales are carbs and calories. The color aesthetic is linked to the modifier, where I only took the restaurants with the highest avg calories in the previous plot.

```
fastfood4 <- fastfood %>%
  group_by(Item)

ggplot(data = fastfood, aes( x = Calories, fill = Item)) +
  geom_histogram() +
  ggtitle("Sandwiches and Cheeseburgers (fat) \n Are Bad for You") +
  ylab("Number of Items in Set")

## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

Sandwiches and Cheeseburgers (fat) Are Bad for You



This plot is a histogram, with scales being count and calories. The geometry is a bar, although maybe you could argue that each individual colored box is a geometry/data point. I don't really know what a histograms geometry is. Anyway, There is a modifier that changes the colors based on what type of item a certain point is.

- 4) I think the first one is my favorite, since I was able to make it look (almost) exactly how I wanted to. I think the legend is kinda funky, but otherwise I like it. I think the message is clear - some restaurants sell extra caloric food. I think the best part about my first plot is that it's painfully obvious what's going on. I think you'd have to work hard to not see the point of it. On the other side of that, I think my second plot is bad, mostly because it isn't accessible to people who don't stare at plots all day. What exactly does a line that becomes mostly flat mean? I think an abstract under that plot would be extremely helpful. If I could add something to all of these plots, it would be context. I think that calories often mean unhealthy food, but 200 calories of chicken is a lot healthier than 200 calories of grease. I think something that would be interesting is the weight of the food per calorie, so that I could make a plot showing that 200 calories of chicken is different from the same calorie count of grease, and then a plot of what that food will do to you. But that requires a lot of data.