

# Analysis for the FoodTruckFinder Program

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## Summary:

This is a command line program built by Java. It prints out a list of opening food trucks' names at the given time.

## Thought:

There're two key points for this program:

1. Retrieve all the food trucks data especially their names and their open hours.
2. Convert the input UNIX timestamp into UTC time format.

To parse the online json data, I use `URLConnection` to make api calls and return the result as a `JSONArray` where each `JSONObject` represent the data for a single food truck. Then, I create a new object called `FoodTruck` where I store their names, start hour and end hour (in 24hr format) as well as the `DayOfWeek` as String.

Then to convert the timestamp, I applied the `SimpleDateFormat` to turn them into UTC time.

After these two steps, I start filtering the food truck given the input time. First is compare whether their `DayOfWeek` String are equal. If the answer is yes, I convert both the starttime and endtime for the truck as well as the current time into the "Date" object with format "HH:MM". The last step here is applied the "before" method for the "Date" object to compare.

To achieve no duplication in the output, I use the Set collection and then convert it into List collection to do alphabetical sorting.

## Time Complexity:

Looping through json file to get each truck's info takes  $O(n)$ , then is loop through each `FoodTruck` object again for filtering, which is also  $O(n)$ .

So, the total time complexity here is  $O(n)$ ;

## Improvement:

I think first I can apply the time filtering when I am retrieving each truck's information online.

If this is a full-scale web application, I think I will first create a database to store each truck's information and setup a job to call to api regularly to keep date updated. And also, we can add another input called "distance from me". So, when I use this application, not only can I know if it's opening now, but also I can know whether it will still open when I get there. (Now my ETA will be the UNIX time input)