**Analysis for the FoodTruckFinder Program**

Hongyu Chen

# **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 HttpURLConnection 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)