

2018 NYC Yellow Taxi Trip Analysis Instruction

1. Intro

This Shiny app is especially designed for taxi drivers. We analyzed 63.4 million NYC yellow taxi trip records in 2018, complied data and created an interactive map using JavaScript library Leaflet and Shiny. This data visualization project can help answer questions such as: What are the busiest hours in a certain taxi zone? Where do passengers usually go when they are picked up in a certain taxi zone and what tip percentage do they give? The color-coded interactive map with multiple layers gives users a direct peak into the massive amount of data that we have.

2. Statistical Map

2.1 Pick-up numbers

The first layer of the Statistical Map is drawn with the numbers of pick-ups in each TLC taxi zones. The color depth represents the numbers of pick-ups. A darker color indicates a large value of tip percentage. The darkest zones in the map are the midtown and downtown of Manhattan, LaGuardia Airport and JFK Airport.

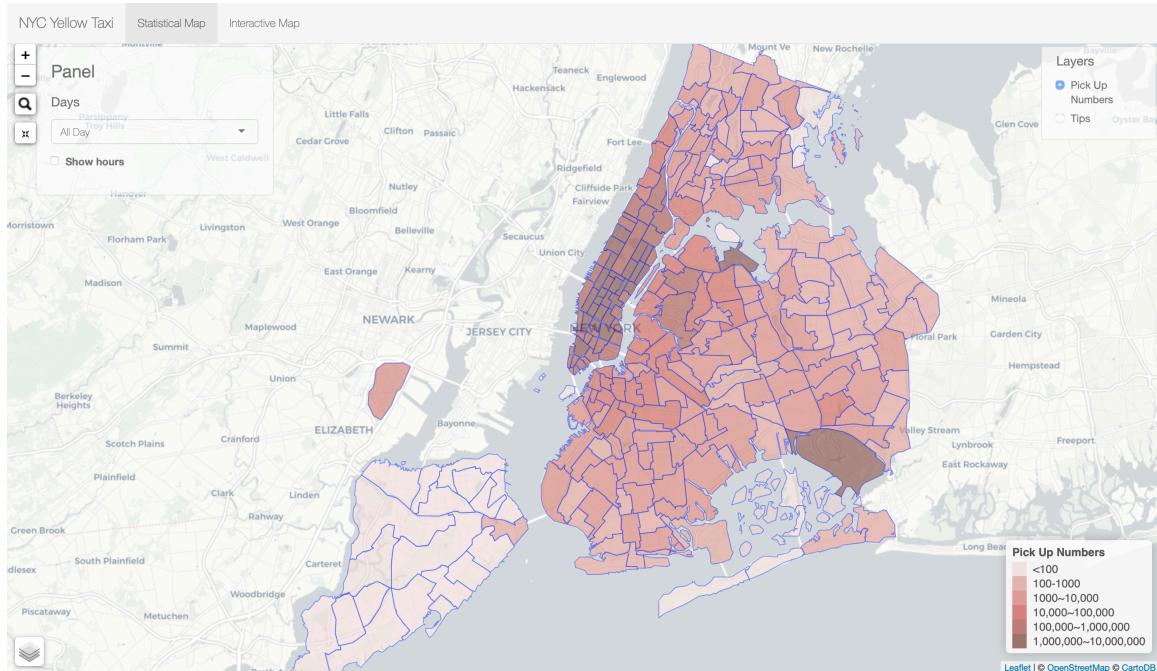


Fig.1 All Day Pick-Up Numbers

Drivers can also change the style of base-map according to their preferences. We will observe the following picture when we choose the OSM base-map.

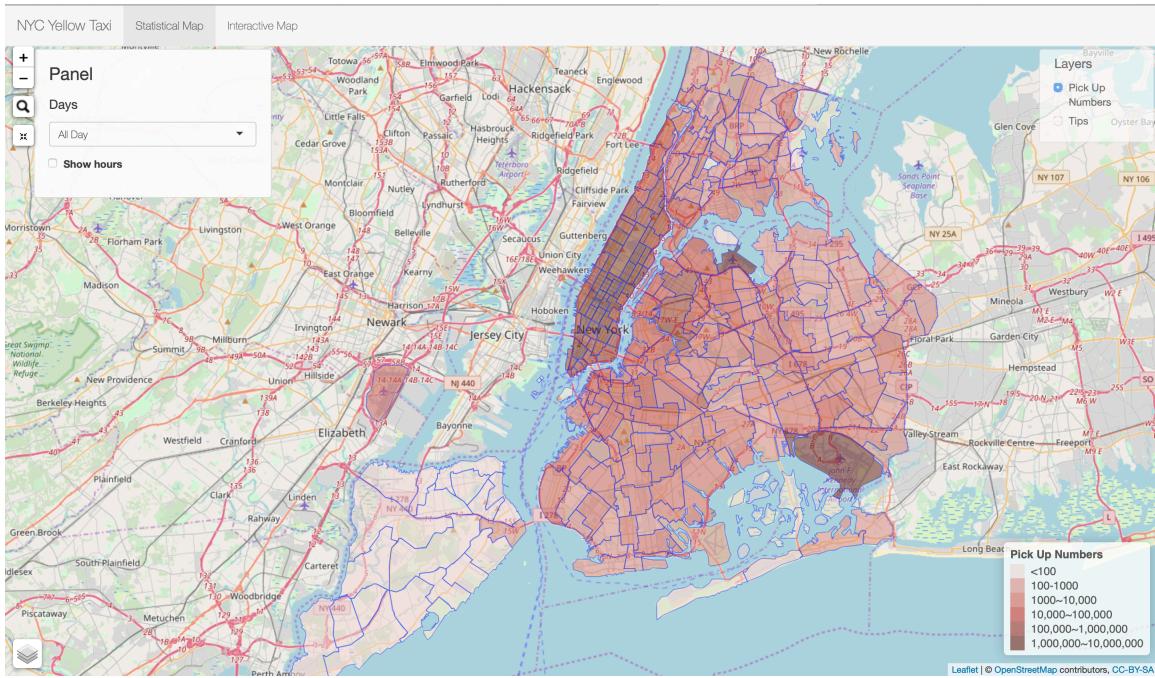


Fig2. All Day Pick-Up Numbers -OSM

2.1.1 Select Days

We also give drivers the freedom to choose whether they want to see information on business days, non-business days or all days.

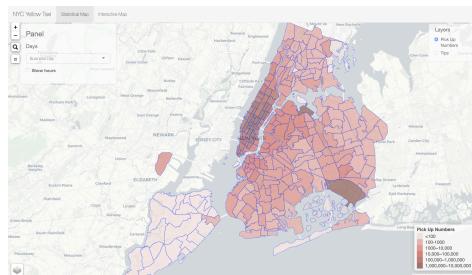


Fig.2 Business Day Pick Up Numbers

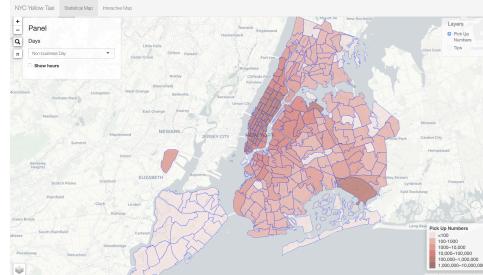


Fig.3 Non-business Day Pick Up Numbers

2.1.2 Select Hours

For business day, drivers can choose a specific hour viewing the pick-up numbers at that moment. Moreover, they can make decisions by comparing the difference among different hours.

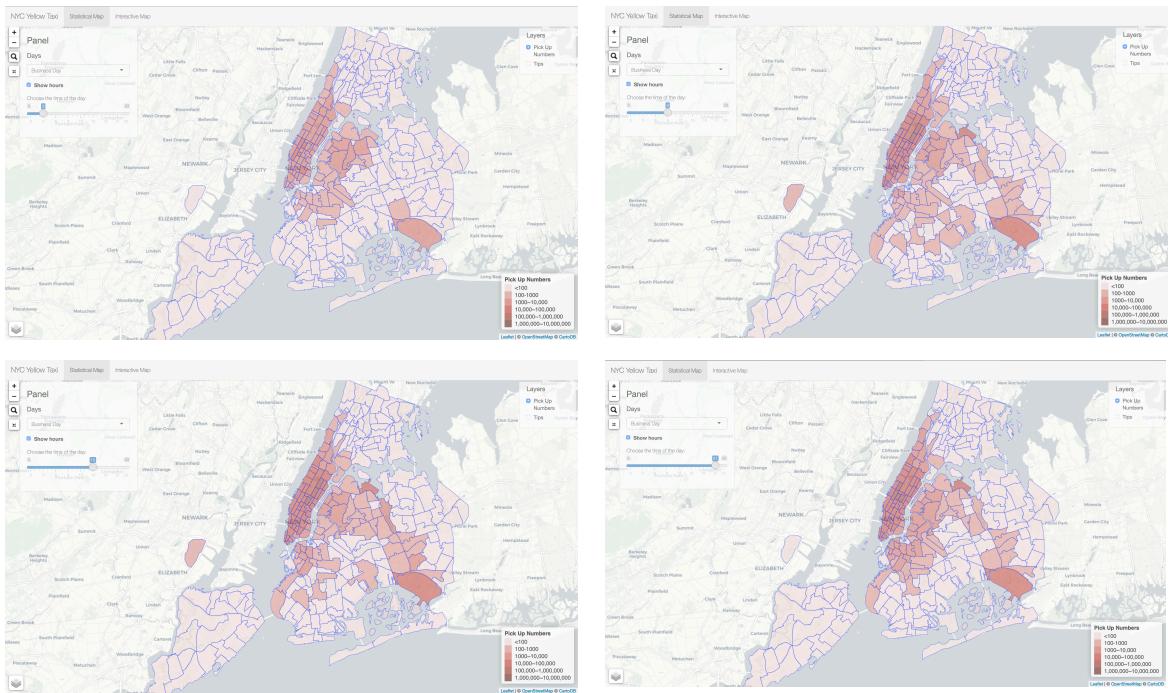


Fig.4 Heat Map under Different Hour on Business Day

2.2 Tips

Besides pick-up numbers, our app provides information about the tip percentage (calculated as tip amount divided by fare amount). Selecting the Tips layer, it shows a heat map based on the value of tip percentage. Again, a darker color indicates a large value of tip percentage.

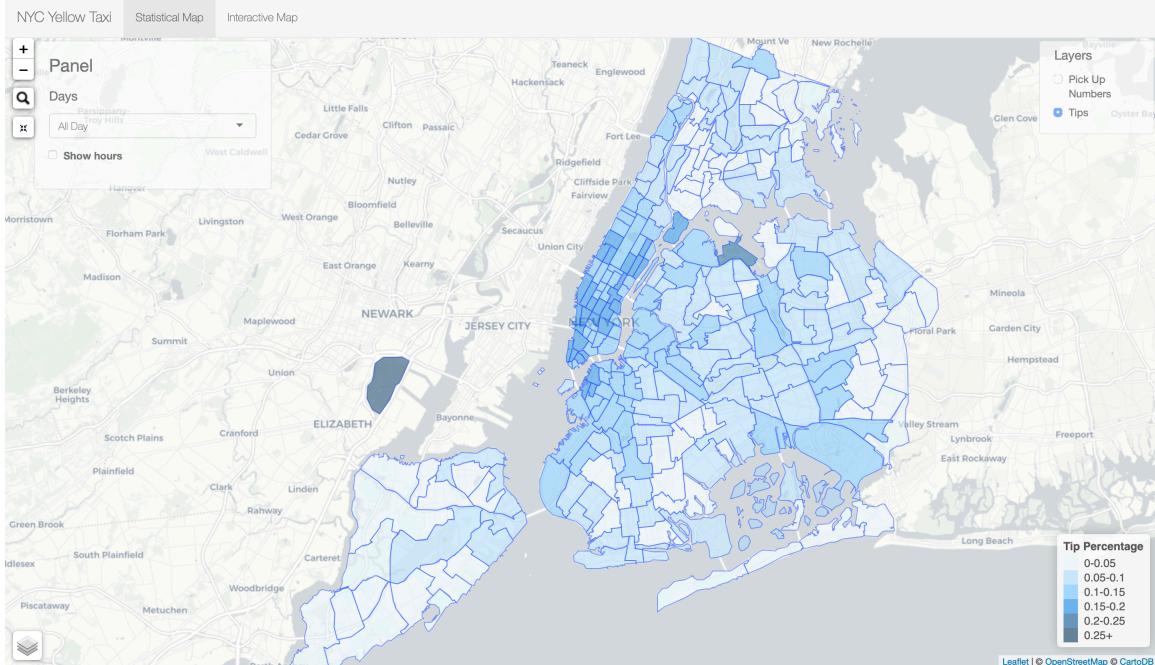


Fig.5 All Day Heat Map for Tips

Similar to the ‘Pick Up Numbers’ layer, drivers can choose the business day/non-business day and specific hours get more detailed information.

3. Interactive Map

The Interactive Map shows the drivers, starting from a specific taxi zone, what the top 3 destinations are. For each taxi zone, we choose the top 3 destinations based on the number of drop-offs with that taxi zone in the pick-up location. That is to say, we hope to tell drivers if you pick up a passenger in a specific taxi zone, where are they likely to go? Every time the user clicks the map, a marker will show up marking that zone and the top 3 destinations will be highlighted in red.

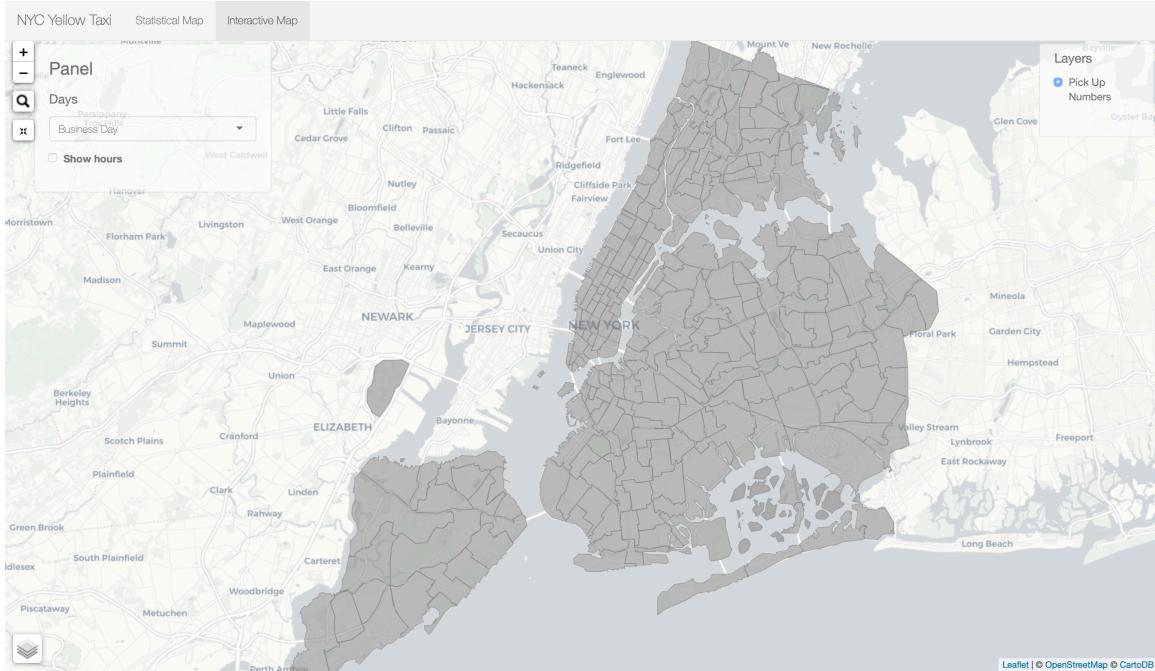


Fig.6 Interactive Map

3.1 Select Days

Also, there is a panel that drivers can change the days into business day or non-business to view the data respectively.

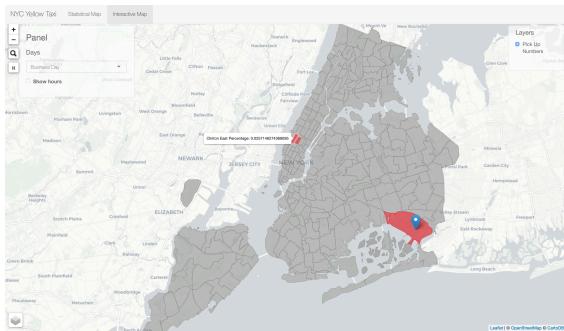


Fig.7 Interactive Map in Business Day

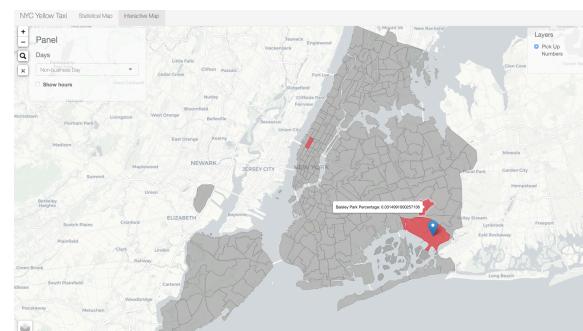


Fig.8 Interactive Map in Non-business Day

3.2 Select Hours

Just like what we have in the Statistical Map, drivers can observe hourly data.

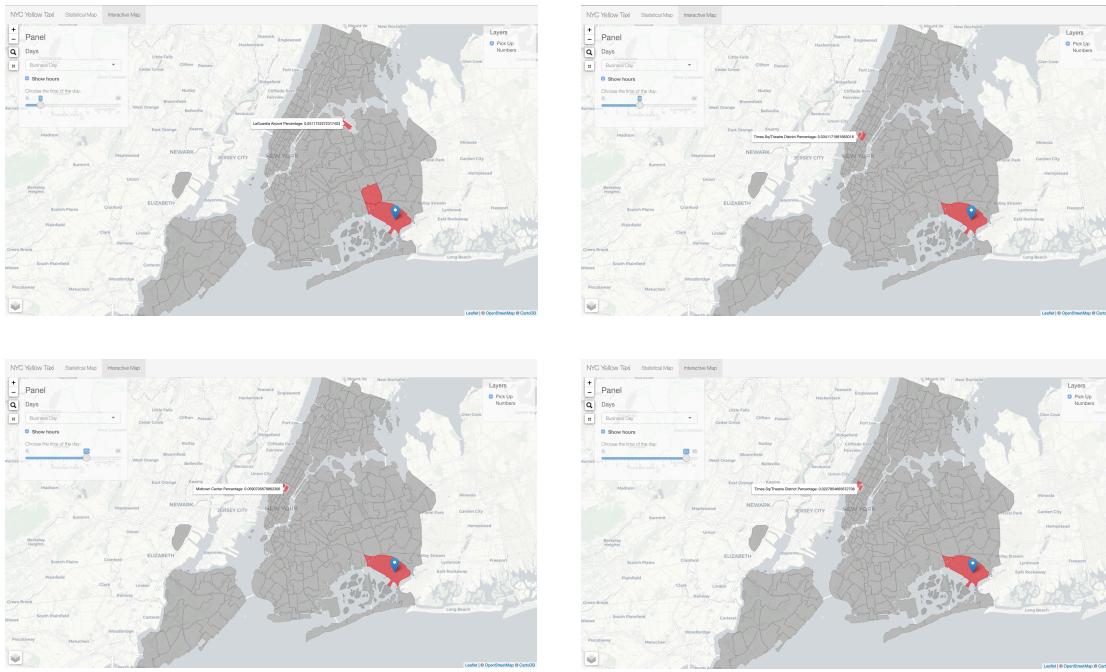


Fig.9 Top 3 Zones under Different Hour on Business Day