**Discussions**

The selected features for predicting food delivery time each have unique impacts on delivery efficiency and timing.

***Here's a brief explanation for each:***

1. **Delivery\_person\_Age**

Older delivery personnel might have more experience navigating through the city, potentially affecting delivery times positively or negatively depending on various factors including physical fitness and familiarity with technology.

Age has to be in the buckets (grouped) (example: 15-25, 25 -35 and so on) instead of specifically feeding the exact age of the person to the model. Often at times, it is impossible to get the accurate age due to lack of data. So, we can feed age-range as label to model.

Age bracket Label

15-25 0

25-35 1 and so on.

***This is left for the student to explore as an exercise.***

2. **Delivery\_person\_Ratings**

Higher ratings could indicate more efficient and timely deliveries, as these ratings often reflect customer satisfaction with the delivery speed and service quality.

This is a vice-versa scenario. If the delivery person delivers on time, he gets a good rating, which shows his timely deliveries “skill”, which is fed to the model.

Good ratings are only achieved after on-time deliveries, so delivery\_person\_ratings is a factor dependent on Time\_taken(min), the target variable of our model. Also, previously achieved good ratings of a delivery person indicates that he is less likely to take extra time, helping to reduce Time\_taken(min).

***It is open to discussions.***

3. **Weather\_conditions**

Adverse weather conditions, such as rain or snow, can slow down delivery times due to safety concerns and reduced visibility or mobility.

4. **Road\_traffic\_density**

High traffic density can lead to delays in delivery times due to congestion and slower movement through the city.

5. **Vehicle\_condition**

A well-maintained vehicle is less likely to encounter mechanical issues, ensuring smoother and potentially faster deliveries.

6. **Multiple\_deliveries**

Delivering multiple orders in one trip can affect delivery times due to the additional stops required, which can either optimize the route efficiency or cause delays depending on the planning.

7. **Festival**

Festivals and public holidays can lead to increased traffic and order volume, potentially slowing down deliveries due to higher demand and road closures or restrictions.

8. **City\_type**

It is to represent the population density type of the region, classified as metropolitan, urban and rural etc. Varying infrastructure, traffic patterns, and distances between restaurants and delivery locations, all of which can significantly impact delivery times.

9. **City\_code**

City codes to represent various cities of India.

10. **Order\_prepare\_time**

The time taken to prepare an order before it's ready for delivery directly affects the total delivery time, with longer preparation times leading to later deliveries.

11. **Distance**

The distance between the restaurant and the delivery location is a direct factor affecting delivery time, with longer distances generally leading to longer delivery times.

Understanding these factors can help in optimizing delivery processes and improving customer satisfaction by potentially reducing delivery times and enhancing the overall efficiency of the service.