**Data Structure project**

**Phase 2**

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Phase 2 updates:

1. Promotion :

promotion is done by cancelling the order and adding it again after adding the extra promotion money and changing the type of order to be VIP.

Done by using (get order to cancel) function that was used previously for cancelling orders that takes order id and returns a pointer to order to be promoted.

1. Auto Promotion:

The idea of auto promotion is that if the normal order’s waiting time exceeded a certain time (Say N) it should be promoted to be a VIP order.

This certain time is taken from input file.

Auto promotion function is used that takes the current time step and checks for every normal order if the current time step – arrival time of order exceeds N.

3)Motorcycle’s Assignment:

Assigning VIP motorcycles:

Function AssigningVIPOrders checks if there is an available vip motor in its priority queue, if not it checks the frozen motors queue, if not it checks the normal motors list and assign the upcoming vip order to it

Assigning Frozen motorcycles:

Function AssigningFrozenOrders checks if there is an available frozen motor in the frozen motors queue and assign the upcoming frozen order to it

Assigning Normal motorcycles:

Function AssigningNormalOrders checks the normal motors list, if not it checks if there is an available vip motor in its priority queue and assign the upcoming normal order to it

ServedOrders priority queue stores all the served orders, it has an overloaded enqueue function that takes two priorities because if there is two orders having same finish time it compares there serve time

4)Output file:

By getting a pointer from Order to point to the getters functions, And made a for loop for the count of regions, getting also the number of motors in every Type, also doing a while loop to dequeue all the orders from the priority queue made to store the orders according to their Finishing time.by using the pointer to call all the getters, we used it to outfile them on the saved folder and by getting the type according to what it is we use it to increment the num of orders of the type and repeating for the four regions the same process . And by summing all the int’s of all regions we get the details for the whole restaurant.

4)Bonus:

Used speeds given from input file and incremented it by 1 after adding every motorcycle with speed limit of ( given speed + 10 )