

# Assignment 4 Report

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## 1. Ober Cab services

Following are the global variables declared :

Data type	Variable name	Purpose
Long long int	no_of_riders	No of riders who will come eventually.
Long long int	no_of_drivers	No of drivers in the system.
Long long int	no_of_payment_servers	No of payment servers available.
Long long int	wait_time_rider	Wait time gap between every rider.
d_info [array of 1000 elements]	cab	d_info (short for driver info) is a struct which stores the following information of the cab : <ul style="list-style-type: none"><li>state of the cab. [ wait_state, on_ride_pool_one, on_ride_pool_full, on_ride_premier]</li></ul>
p_slip [array of 10000 elements]	payment_servers	p_slip is a struct which stores the following information of the payment server : <ul style="list-style-type: none"><li>Whether the server is in use or not.</li><li>Rider no who has to complete the payment.</li><li>The cab no whose driver the rider has to pay,</li></ul>

### Rider Implementation :

- Every rider has its own thread. It invokes *bookcab* function which does the following :
  - Looks for a cab of the type that the rider has requested for.

- If the cab cannot be found for the rider in *maxWaitTime* seconds, then the rider times out, and the thread ends.
- If a cab is found, it rides in the cab for *rideTime* seconds.
- After that time has passed, it proceeds to empty the cab, while making space for new passengers to occupy the seat of the cab.
- The rider proceeds to the payment gateway.
- Here the rider waits until a payment server is active.
- Once an active payment server is found, the transaction takes two seconds to complete, and the payment server is made active for other users to complete their transactions.
- Then the rider exits.

### **Payment Server Implementation :**

- Every payment server has its own thread. It invokes *check\_payment* function which does the following :
  - Checks if the payment server of that thread has been activated or not.
  - If yes, it waits for 2 secs for the transaction to complete.
  - As soon as the transaction is done, the payment server goes back to being inactive until activated by a rider that needs to complete his/her payment.