Queue

Time span: 1.5 lab days(3 hrs)

Problem: Development of ticket booking module for a day of typical Cinema hall.

Description: A typical Nepali cinema has single hall and has two types of reservation for a particular show.

a. Family Seat Reservations of size n_1.
b. Single Seat Reservations of size n_2.

So, the Total seats available = $n_1 + n_2$.

The policy for ticket booking follows first come first served basis. i.e. first single person gets ticket no. 1 of single type, second gets ticket no. 2 of single type and so on. This process can go up-to n_1 persons.

Similarly, first family gets ticket no. 1 of family type, second gets ticket no. 2 of family type and so on. This process can go up-to n_2 families.

A person with a phone number can make the ticket reservation. The ticket booking system resets the ticket counter to begin from 1 in every show.

Sample data input:

Phone Number	Ticket Type	Arrival Time
+977-9849023236	Individual	10 Unit
+977-9849023260	Family	21 Unit
+977-9849023299	Family	22 Unit
+977-9849023220	Individual	24 Unit
+977-9849023243	Family	27 Unit

Solution:

1. Design and implement two Queues that can handle handle enqueue, dequeue operations for single and family types of ticket reservations. You need to check a pre-condition if the given phone number has already booked a ticket or not.

2. Write a function that returns the aggregated number of available seats of individual and family types reservation.

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Input:
Output:   totalAvailableSeats
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3. Write a function that takes ‘name’ as input and returns the ticket number.

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Input:    phoneNumber
Output:   ticketNumber
```

4. Write a function that takes ‘name’ as input and returns the ticket type.

```
Input:    phoneNumber
Output:   ticketType
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5. Write a function that calculates the maximum time difference between consecutive ticket allocations.

Assumptions:

Make your necessary assumptions for n_1 and n_2 with relevant data data types to represent phone number (char* or your choice), ticket(int) and arrival time(long). A person with a single phone number can make a booking of a single ticket only for a show.

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