



Faculty of Engineering
CMPN102



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Report

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➤ Events:

All the events which were read from the input file enqueued inside the EventsQueue, and then the ExcuteEvents checks if there are any events to execute.

➤ Cooks:

All the cooks are read from the input file, and we used the LinkedList ADT to create three separate LinkedList for each type (pCook_VIP, pCook_Nrm, pCook_Veg),and then we printed each cook.

➤ Order:

We created two Queues and one Linked List for each order type which were Finished ,Waiting and InService:

We Created VIP Queue, Normal Linked List, Vegan Queue

➤ VIP Queue:

- 1) VIP_Waiting_Queue
- 2) VIP_InService_Queue
- 3) VIP_Finished_Queue

➤ Normal LinkedList:

- 1) Normal_LinkedList_Waiting
- 2) Normal_LinkedList_InService
- 3) Normal_LinkedList_Finished

➤ Vegan Queue:

- 1) Vegan_Waiting_Queue
- 2) Vegan_InService_Queue
- 3) Vegan_Finished_Queue

Why we chose Normal to be Linked List?

- 1) Easier to delete a Normal Order in case of cancellation event, without changing the sequence of the Normal orders

- 2) Easier to move an order from the Normal to the VIP in case of promotion, without changing the sequence of the Normal orders and easily enqueueing it in the VIP order.
- 3) It has a low complexity for deletion operation in case we needed to delete an element in the middle of the list.

Why we chose VIP and Vegan to be a Queue?

- 1) Because it has lower complexity.
- 2) In order to keep the orders sorted as they were enqueued from the input file.
- 3) We don't to cancel or promote a VIP order or a Vegan order that's why won't need to access any elements in the middle of the VIP and Vegan orders.

➤ Complexity of main functions:

enqueue $O(1)$
PrintOrders $O(n)$
PrintCooks $O(n)$
Insertend $O(n)$

Why did we choose an Array or Linked List Implementation?

We choose Linked List Implementation

- 1) Better complexity in most of the operations(ex. insert, remove,...).
- 2) Efficient memory utilization, no need to reallocate memory at compilation time.
- 3) I don't need to input the size of the list, so we don't waste any memory not as the array if not all slots are filled.