4. Queues

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Agenda

- Instruction
- Queue ADT
- Queue simulation 1
- Queue simulation 2

Instruction

You have to use your queue ADT for your assignment.

You can modify your ADT for your problem solving.

Submit your codes and headers with zip file.

LAB 1 > 1_QueueADT

Queue

Use linked list as underlying container (do not use array).

Implement circular queue ADT

createQueue: create a circular queue.

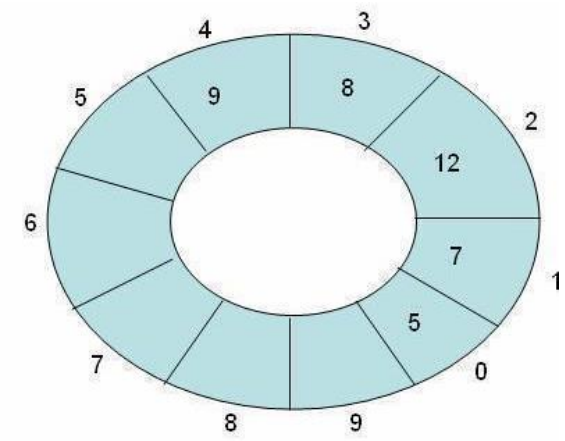
enqueue: queue insert.

dequeue: queue delete.

queueFront: retrieve the data at the front.

queueCount: return the number of elements in the queue.

destroyQueue



Examples:

```
Q1 = createQueue();
enqueue(Q1, 10);
enqueue(Q1, 20);
enqueue(Q1, 30);
c1 = queueCount(Q1);
dequeue(Q1);
queueFront(Q1);
c2 = queueCount(Q1);
destroyQueue(Q1);
```

LAB 2 > 2_Hotdog1

Queue simulation 1

There is a small hotdog stand.

Each customer has their own patience (1~9).

The hotdog stand makes one hotdog per time unit.

Each customer's patience is decreased by 1 per time unit.

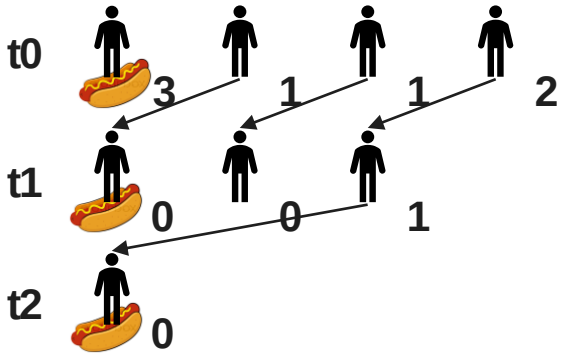
If a customer's patience is 0, he left the queue before next time unit **starts.**

Input : number of customers, series of customer's patience.

Output : the number of hotdogs sold.

Examples:

```
C:₩WINDOWS₩system32₩cmd.exe
number of customer : 4
Patience of customer : 3
Patience of customer : 1
Patience of customer : 1
Patience of customer : 2
I sell 3 hotdogs
계속하려면 아무 키나 누르십시오 . . .
```



LAB 3 > 3_Hotdog2

Queue simulation 2

The hotdog stand gets larger and it makes two hotdogs per time unit.

Input : number of customers, series of customer's patience.

Output : maximum number of hotdogs sold.

Examples: