CREATE returns queue

Preconditions - None

Postcondition - Queue is empty

EMPTY (queue) returns boolean

Preconditions - None

Postconditions - The result is true iff the

queue is empty.

ENQUEUE (item, queue) modifies the queue

   Preconditions - None (assuming an implementation with unlimited size) - else the queue is not full

   Postcondition - Item is added to the rear of the queue

DEQUEUE (queue) modifies the queue

   Precondition -   Queue is not empty

   Postcondition - Front item is removed from

                        the queue

FRONT (queue) returns item

Precondition -   Queue is not empty

Postconditions - The front item in the queue is

returned, but the queue is not altered.

SIZE (queue) returns int

Preconditions -   None

Postconditions -   The current number of items in the
                   queue is returned, but the queue is not
                   altered.

AXIOMS

Let Q be any queue and I be any item. Then:

EMPTY(CREATE) ::= true

EMPTY(ENQUEUE(I,Q)) ::= False

FRONT(CREATE) ::= Error

FRONT(ENQUEUE(I,Q)) ::= if EMPTY(Q) then I

else FRONT(Q)

DEQUEUE(CREATE) ::= error

DEQUEUE(ENQUEUE(I,Q)) ::= if EMPTY(Q) then Q

else ENQUEUE(I,DEQUEUE(Q))

SIZE(CREATE) ::= 0

SIZE(ENQUEUE(I,Q)) ::= SIZE(Q) + 1

SIZE(DEQUEUE(Q)) ::= SIZE(Q) - 1