Experiment Name / No.: 7

Camlin Page No. 25
Date / /

IMPLEMENTATION OF DEQUEUE

AIM

Write a menu driven C program to implement DEQUEQUE using arrays and perform a) Insertion from front b) insertion from rear c) Delete from front d) Delete from rear e) Display

ALGORITHM

main() function

1 Start

2 Ask the user whether to insert from front, insert from rear, delete from front, delete from rear or display

3 If user chooses insert from front

3.1 call insert_front() function

4 If user chooses insert from rear.

4.1 call insert_rear() function

5 If user chooses ~~insert~~ Delete from front

5.1 call Delete_rear() function

6. If user chooses Delete from rear.

6.1 call delete_rear() function

7 If user chooses Display

7.1 call the display() function.

8 STOP

Teacher's Signature:

→ insert_front() function

1 start

2 if front = rear+1 or front = 0 and rear = max-1

2.1 print queue is full

3 else, get the element to be inserted from the user

3.1 if front = -1

3.1.1 front = rear = 0

3.1.2 dequeue(front) = n

3.2 else

3.2.1 if front = 0, front = MAX-1

3.2.2 else, front = front-1, dequeue(front) = n

4 stop

→ insert_rear() function

1 start

2 if (front = rear+1 or front = 0 and rear = max-1

2.1 print, Queue is full

3 else, get the element to be inserted from the user

3.1 if front = -1, front = 0

3.2 rear = (rear+1) % MAX

3.3 dequeue(rear) = n

4 stop

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Experiment Name / No.: _____ Camlin Page No. 27 Date / /

→ delete - front() function

1. Start
2. If front = -1, print queue is empty
3. print the deleted element as dequeue(front)
4. If front = rear
   4.1 front = rear = -1
5. else, front = (front+1) % MAX
6. stop

→ delete_rear() function

1. start
2. If front = -1, print queue is empty
3. print the deleted element as dequeue(rear)
4. If front = rear, front = rear = -1
5. else
   5.1 If rear = 0, rear = MAX - 1
   5.2 else rear = rear - 1

CONCLUSION

The program has been executed correctly and the output has been verified.

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