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| --- |
| /\*Description: Array implementation of Queue |
|  | \* Learner: ARSHEE QURESHI |
|  | \* created on: 10th AUGUST 2017 |
|  | \*/ |
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|  |  |
|  |  |
|  | #include<stdio.h> |
|  | #include<stdlib.h> |
|  | #define MAXSIZE 10 |
|  |  |
|  |  |
|  |  |
|  | int queue[MAXSIZE], front=-1, rear=-1; |
|  | int isFull(){ |
|  | //return 1 if stack is full else returns -1 |
|  | if(rear==MAXSIZE-1) |
|  | return 1; |
|  | else |
|  | return 0; |
|  |  |
|  | } |
|  |  |
|  | int isEmpty(){ |
|  | //return 1 if stack is empty else returns-1 |
|  | if(rear==-1&&rear==-1) |
|  | return 1; |
|  | else |
|  | return 0; |
|  |  |
|  | } |
|  |  |
|  | int peek(){ |
|  | //return elements at the top of stack |
|  | return queue[front]; |
|  | } |
|  |  |
|  | void insertQueue(int e) |
|  | { //to insert an element in a Queue |
|  | if(!isFull()) |
|  | { |
|  | if(isEmpty()) |
|  | { |
|  | front++; |
|  | } |
|  | queue[++rear]=e; |
|  | printf("Your element is successfully inserted\n"); |
|  | } |
|  | else |
|  | { |
|  | printf("Queue is full \n Element cannot be inserted\n"); |
|  | } |
|  |  |
|  |  |
|  | } |
|  | void deleteQueue() |
|  | { //to delete an element from a Queue |
|  | if(!isEmpty()) |
|  | { |
|  | int d=queue[front]; |
|  | if(front==rear) |
|  | { |
|  | front=rear=-1; |
|  | } |
|  | else |
|  | { |
|  | front++; |
|  | } |
|  | printf("Element deleted is %d\n",d); |
|  | } |
|  | } |
|  |  |
|  |  |
|  |  |
|  | int main(){ |
|  | int choice,e; |
|  | do |
|  | { |
|  | printf("\nDisplay Menu\n1.Peek\n2.Insert\n3.Delete\n4.Exit\n"); |
|  | printf("Enter choice\n"); |
|  | scanf("%d",&choice); |
|  | switch(choice){ |
|  | case 1: |
|  |  |
|  | printf("Element at frontof queue : %d",peek()); |
|  |  |
|  | break; |
|  | case 2: |
|  | printf("Enter element to be inserted "); |
|  | scanf("%d",&e); |
|  | insertQueue(e); |
|  | break; |
|  | case 3:deleteQueue(); |
|  | break; |
|  | case 4: |
|  | exit(0); |
|  | break; |
|  | default : |
|  | printf("Invalid choice\n"); |
|  | } |
|  |  |
|  | } while(1); |
|  | return 0; |
|  | } |
|  |  |
|  |  |
|  |  |
|  | /\* |
|  | Display Menu |
|  | 1.Peek |
|  | 2.Insert |
|  | 3.Delete |
|  | 4.Exit |
|  | Enter choice |
|  | 2 |
|  | Enter element to be inserted 10 |
|  | Your element is successfully inserted |
|  |  |
|  | Display Menu |
|  | 1.Peek |
|  | 2.Insert |
|  | 3.Delete |
|  | 4.Exit |
|  | Enter choice |
|  | 2 |
|  | Enter element to be inserted 20 |
|  | Your element is successfully inserted |
|  |  |
|  | Display Menu |
|  | 1.Peek |
|  | 2.Insert |
|  | 3.Delete |
|  | 4.Exit |
|  | Enter choice |
|  | 2 |
|  | Enter element to be inserted 30 |
|  | Your element is successfully inserted |
|  |  |
|  | Display Menu |
|  | 1.Peek |
|  | 2.Insert |
|  | 3.Delete |
|  | 4.Exit |
|  | Enter choice |
|  | 2 |
|  | Enter element to be inserted 40 |
|  | Your element is successfully inserted |
|  |  |
|  | Display Menu |
|  | 1.Peek |
|  | 2.Insert |
|  | 3.Delete |
|  | 4.Exit |
|  | Enter choice |
|  | 1 |
|  | Element at frontof queue : 10 |
|  | Display Menu |
|  | 1.Peek |
|  | 2.Insert |
|  | 3.Delete |
|  | 4.Exit |
|  | Enter choice |
|  | 3 |
|  | Element deleted is 10 |
|  |  |
|  | Display Menu |
|  | 1.Peek |
|  | 2.Insert |
|  | 3.Delete |
|  | 4.Exit |
|  | Enter choice |
|  | 1 |
|  | Element at frontof queue : 20 |
|  | Display Menu |
|  | 1.Peek |
|  | 2.Insert |
|  | 3.Delete |
|  | 4.Exit |
|  | Enter choice |
|  | 5 |
|  | Invalid choice |
|  |  |
|  | Display Menu |
|  | 1.Peek |
|  | 2.Insert |
|  | 3.Delete |
|  | 4.Exit |
|  | Enter choice |
|  | 4 |
|  |  |
|  |  |
|  | ------------------ |
|  | (program exited with code: 0) |
|  | Press return to continue |
|  |  |
|  | \*/ |