|  |
| --- |
| //Progrom to illustrate double ended queue using array. |
|  |

|  |
| --- |
| #include<iostream> |
|  |

|  |
| --- |
| //#include |
|  |

|  |
| --- |
| //#include |
|  |

|  |
| --- |
| using namespace std; |
|  |

|  |
| --- |
| #define SIZE 5 |
|  |

|  |
| --- |
| // ERROR HANDLINH NOT DOne |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| // program is not working correct. |
|  |

|  |
| --- |
| // |
|  |

|  |
| --- |
| class dequeue |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| int a[10],front,rear,count; |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| public: |
|  |

|  |
| --- |
| dequeue(); |
|  |

|  |
| --- |
| void add\_at\_beg(int); |
|  |

|  |
| --- |
| void add\_at\_end(int); |
|  |

|  |
| --- |
| void delete\_fr\_front(); |
|  |

|  |
| --- |
| void delete\_fr\_rear(); |
|  |

|  |
| --- |
| void display(); |
|  |

|  |
| --- |
| }; |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| dequeue::dequeue() |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| front=-1; |
|  |

|  |
| --- |
| rear=-1; |
|  |

|  |
| --- |
| count=0; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| void dequeue::add\_at\_beg(int item) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| int i; |
|  |

|  |
| --- |
| if(front==-1) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| front++; |
|  |

|  |
| --- |
| rear++; |
|  |

|  |
| --- |
| a[rear]=item; |
|  |

|  |
| --- |
| count++; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| else if(rear>=SIZE-1) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| cout<<"\nInsertion is not possible,overflow!!!!"; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| else |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| for(i=count;i>=0;i--) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| a[i]=a[i-1]; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| a[i]=item; |
|  |

|  |
| --- |
| count++; |
|  |

|  |
| --- |
| rear++; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| void dequeue::add\_at\_end(int item) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| if(front==-1) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| front++; |
|  |

|  |
| --- |
| rear++; |
|  |

|  |
| --- |
| a[rear]=item; |
|  |

|  |
| --- |
| count++; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| else if(rear>=SIZE-1) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| cout<<"\nInsertion is not possible,overflow!!!"; |
|  |

|  |
| --- |
| return; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| else |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| a[++rear]=item; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| void dequeue::display() |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| for(int i=front;i<=rear;i++) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| cout<<a[i]<<" "; } |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| void dequeue::delete\_fr\_front() |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| if(front==-1) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| cout<<"Deletion is not possible:: Dequeue is empty"; |
|  |

|  |
| --- |
| return; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| else |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| if(front==rear) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| front=rear=-1; |
|  |

|  |
| --- |
| return; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| cout<<"The deleted element is "<<a[front]; |
|  |

|  |
| --- |
| front=front+1; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| void dequeue::delete\_fr\_rear() |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| if(front==-1) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| cout<<"Deletion is not possible:Dequeue is empty"; |
|  |

|  |
| --- |
| return; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| else |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| if(front==rear) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| front=rear=-1; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
| cout<<"The deleted element is "<< a[rear]; |
|  |

|  |
| --- |
| rear=rear-1; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| int main() |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| int c,item; |
|  |

|  |
| --- |
| dequeue d1; |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| do |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| cout<<"\n\n\*\*\*\*DEQUEUE OPERATION\*\*\*\*\n"; |
|  |

|  |
| --- |
| cout<<"\n1-Insert at beginning"; |
|  |

|  |
| --- |
| cout<<"\n2-Insert at end"; |
|  |

|  |
| --- |
| cout<<"\n3\_Display"; |
|  |

|  |
| --- |
| cout<<"\n4\_Deletion from front"; |
|  |

|  |
| --- |
| cout<<"\n5-Deletion from rear"; |
|  |

|  |
| --- |
| cout<<"\n6\_Exit"; |
|  |

|  |
| --- |
| cout<<"\nEnter your choice<1-4>:"; |
|  |

|  |
| --- |
| cin>>c; |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| switch(c) |
|  |

|  |
| --- |
| { |
|  |

|  |
| --- |
| case 1: |
|  |

|  |
| --- |
| cout<<"Enter the element to be inserted:"; |
|  |

|  |
| --- |
| cin>>item; |
|  |

|  |
| --- |
| d1.add\_at\_beg(item); |
|  |

|  |
| --- |
| break; |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| case 2: |
|  |

|  |
| --- |
| cout<<"Enter the element to be inserted:"; |
|  |

|  |
| --- |
| cin>>item; |
|  |

|  |
| --- |
| d1.add\_at\_end(item); |
|  |

|  |
| --- |
| break; |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| case 3: |
|  |

|  |
| --- |
| d1.display(); |
|  |

|  |
| --- |
| break; |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| case 4: |
|  |

|  |
| --- |
| d1.delete\_fr\_front(); |
|  |

|  |
| --- |
| break; |
|  |

|  |
| --- |
| case 5: |
|  |

|  |
| --- |
| d1.delete\_fr\_rear(); |
|  |

|  |
| --- |
| break; |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| case 6: |
|  |

|  |
| --- |
| exit(1); |
|  |

|  |
| --- |
| break; |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| default: |
|  |

|  |
| --- |
| cout<<"Invalid choice"; |
|  |

|  |
| --- |
| break; |
|  |

|  |
| --- |
| } |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| }while(c!=7); |
|  |

|  |
| --- |
| return 0; |
|  |

|  |
| --- |
|  |
|  |

}