RajvaibhavRahane
17u283 223045
SE-C Comp,Viit,Pune

CODE:

```
/*
*
*@RajvaibhavRahane
*/
#include<iostream>
#include<exception>
using namespace std;
class FullQueueException:public exception{
	public:
		const char* what()const throw(){
			return "FullQueueException";
		}
};
class EmptyQueueException:public exception{
	public:
		const char*what()const throw(){
			return "EmptyQueueException";
		}
};
#define SIZE 5
class Queue{
	private:
		int *arr;
		int elements;
		inthead,tail;
	public:
		Queue(){
			arr=new int[SIZE];
			elements=0;
			head=tail=0;
		}~Queue(){
			delete []arr;arr=NULL;
			cout<<"Queue Destructed\n";
		}
		bool isEmpty(){
			return elements==0;
		}
		bool isFull(){
			return elements==SIZE;
		}
		intdeQueue();
		void enQueue(int element);
		void printQueue();
};
void Queue::enQueue(int element){
	if(!isFull()){
		arr[tail]=element;
		tail=(tail+1)%SIZE;
		elements++;
	}else throw FullQueueException();
}
```

```
intQueue::deQueue(){
	if(!isEmpty()){
		int element=arr[head];
		head=(head+1)%SIZE;
		elements--;
		return element;
	}else throw EmptyQueueException();
}
void Queue::printQueue(){
	int printer=head,iterations=elements;
	if(iterations!=0)
		while(iterations--){
			cout<<arr[printer]<<" ";
			printer=(printer+1)%SIZE;
		}
	else cout<<"Empty Queue";
	cout<<endl;
}
void printMenu(){
	cout<<"1)EnQueue element\t";
	cout<<"2)DeQueue element\t";
	cout<<"3)Print Queue\t";
	cout<<"4)Exit\nChoice : ";
}
intmain(){
	{
		Queue q;
		intchoice,element;
		printMenu();
		do{
			cout<<endl;cin>>choice;
			switch(choice){
				case 1:{
					cout<<"Enter Task No ";cin>>element;
					try{
						q.enQueue(element);
					}catch(FullQueueException& e){
						cout<<e.what()<<" was thrown\n";
					}break;
				}
				case 2:{
					try{
						element = q.deQueue();
						cout<<"Task "<<element<<" was deQueued\n";
					}catch(EmptyQueueException& e){
						cout<<e.what()<<" was thrown\n";
					}
					break;
				}
				case 3:{
					q.printQueue();break;
				}
				case 4:{break;}
			}
		}while(choice!=4);
	}
```

```
    return 0;
}
```

Output: