//Circular Queue ADT

#include <iostream>

using namespace std;

class Queue{

private:

int front,rear;

int arr[10];

public:

Queue(){

front=0;

rear=0;

}

bool isEmpty(){

if(rear==front){

return true;

}

else{

return false;

}

}

bool isFull(){

if((rear+1)%10==front){

return true;

}

else{

return false;

}

}

void enqueue(int element){

if(isFull()){

cout<<"Queue is full."<<endl;

}

else{

arr[rear]=element;

rear=((rear+1)%10);

}

}

int dequeue(){

int x;

if(isEmpty()){

cout<<"Queue is empty."<<endl;

return 0;

}

else{

x=arr[front];

front=((front+1)%10);

return x;

}

}

void display(){

if(front<rear){

for(int i=front;i<rear;i++){

cout<<arr[i]<<" ";

}

}

else{

for(int i=front;i<10;i++){

cout<<arr[i]<<" ";

}

for(int i=0;i<rear;i++){

cout<<arr[i]<<" ";

}

}

cout<<endl;

cout<<"Front: "<<front<<endl;

cout<<"Rear: "<<rear<<endl;

cout<<endl;

}

int menu(){

int ch;

cout<<endl;

cout<<"1. Enqueue"<<endl;

cout<<"2. Dequeue"<<endl;

cout<<"3. Display all elements"<<endl;

cout<<"4. Exit"<<endl;

cout<<"Enter the operation to be performed"<<endl;

cin>>ch;

return ch;

}

};