Assignment . 12

#include <iostream>

using namespace std;

#define MAX 10

class CircularQueue {

int front, rear;

int queue[MAX];

public:

CircularQueue() {

front = -1;

rear = -1;

}

bool isFull() {

return (front == (rear + 1) % MAX);

}

bool isEmpty() {

return (front == -1);

}

void placeOrder(int order) {

if (isFull()) {

cout << "Order queue is full. Cannot place more orders." << endl;

return;

}

if (isEmpty()) {

front = rear = 0;

} else {

rear = (rear + 1) % MAX;

}

queue[rear] = order;

cout << "Order " << order << " placed." << endl;

}

void serveOrder() {

if (isEmpty()) {

cout << "No orders to serve." << endl;

return;

}

cout << "Serving order " << queue[front] << "." << endl;

if (front == rear) {

front = rear = -1;

} else {

front = (front + 1) % MAX;

}

}

void displayOrders() {

if (isEmpty()) {

cout << "No orders in the queue." << endl;

return;

}

cout << "Orders in the queue: ";

int i = front;

while (true) {

cout << queue[i] << " ";

if (i == rear) break;

i = (i + 1) % MAX;

}

cout << endl;

}

};

int main() {

CircularQueue orderQueue;

int choice, order;

do {

cout << "1. Place Order\n2. Serve Order\n3. Display Orders\n4. Exit\n";

cin >> choice;

switch (choice) {

case 1:

cout << "Enter order number: ";

cin >> order;

orderQueue.placeOrder(order);

break;

case 2:

orderQueue.serveOrder();

break;

case 3:

orderQueue.displayOrders();

break;

}

} while (choice != 4);

return 0;

}

1. Place Order

2. Serve Order

3. Display Orders

4. Exit

Enter order number: 101

Order 101 placed.

Enter order number: 102

Order 102 placed.

Orders in the queue: 101 102

Serving order 101.

Orders in the queue: 102

1. Place Order

2. Serve Order

3. Display Orders

4. Exit

Enter order number: 103

Order 103 placed.

1. Place Order

2. Serve Order

3. Display Orders

4. Exit

Enter order number: 104

Order 104 placed.

1. Place Order

2. Serve Order

3. Display Orders

4. Exit

Enter order number: 110

Order queue is full. Cannot place more orders.

2

Serving order 102.

3

Orders in the queue: 103 104

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