#include <iostream>

using namespace std;

class Deque {

int arr[5]; // Fixed size array for the deque

int front, rear;

public:

Deque() {

front = -1;

rear = -1;

}

// Insert at the front

void insertFront(int data) {

if (front == 0) {

cout << "Deque is full at front.\n";

return;

}

if (front == -1) { // First element to insert

front = rear = 0;

} else {

front--;

}

arr[front] = data;

}

// Insert at the rear

void insertRear(int data) {

if (rear == 4) {

cout << "Deque is full at rear.\n";

return;

}

if (rear == -1) { // First element to insert

front = rear = 0;

} else {

rear++;

}

arr[rear] = data;

}

// Remove from the front

void deleteFront() {

if (front == -1) {

cout << "Deque is empty.\n";

return;

}

if (front == rear) {

front = rear = -1;

} else {

front++;

}

}

// Remove from the rear

void deleteRear() {

if (rear == -1) {

cout << "Deque is empty.\n";

return;

}

if (front == rear) {

front = rear = -1;

} else {

rear--;

}

}

// Display the deque

void display() {

if (front == -1) {

cout << "Deque is empty.\n";

return;

}

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

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

}

cout << endl;

}

};

int main() {

Deque dq;

dq.insertRear(10);

dq.insertRear(20);

dq.insertFront(5);

dq.insertFront(2);

dq.display(); // Display elements

dq.deleteFront();

dq.display();

dq.deleteRear();

dq.display();

return 0;

}