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#include <stdio.h>
#include <stdlib.h>
#define Max 3
int front = -1;
int rear = -1;
int queue[Max];
void Enqueue(int);
int Dequeue();
void Display();
int main(int argc, char ** argv)
{
    int option;
    int item;
    do {
        printf("Circular Queue\n");
        printf("1. Insert to Queue (Enqueue)");
        printf("2. Delete from the Queue (Dequeue)");
        printf("3. Display the content");
        printf("4. Exit\n");
        printf("Enter the option :");
        scanf("%d", &option);
        switch(option)
        {
            case 1: printf("Enter the element\n");
                    scanf("%d", &item);
                    Enqueue(item);
                    break;
            case 2: item = Dequeue();
                    if (item == -999)
                        printf("Queue is empty");
                    else
                        printf("Removed element from the queue\n", item);
                    break;
            case 3: display();
                    break;
        }
    } while (option != 4);
}

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case 4: init(0);
}
while (option != 4);
return 0;
}

void Enqueue (int ele)
{
    if ((front == 0 & rear == Max - 1) ||
        (front == rear + 1))
    {
        printf ("Queue is full\n");
        return;
    }
    else
    {
        rear = (rear + 1) % Max;
        queue [rear] = ele;
        if (front == -1)
            front = 0;
    }
}

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int Dequeue ()
{
    int item;
    if ((front == -1) && (rear == -1))
    {
        return (-999);
    }
    else
    {
        item = queue [front];
        if (front == rear)
        {
            front = -1;
            rear = -1;
        }
    }
}

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else
{
    front = (front + 1) % Max;
}
return item;
}

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void display()
{

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    int i;

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    if ((front == -1) && (rear == -1) ||
        (front == rear))
    {

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        printf("Queue is empty\n"); return;
    }

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    else
    {

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        printf("\n Queue Contents : \n");
        for (i = front; i <= rear; i++)
            printf("%d", queue[i]);
    }
}

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