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#include<stdio.h>
#include<stdlib.h>
int size;
struct queue{
    int rear;
    int front;
    int *queue;
}q;
void insertfront(int x)
{
    if((q.front==0 && q.rear==size-1)|| (q.rear+1)==q.front){
        printf("queue is full\n");
        return;
    }
    if(q.front==0)
        q.front=size-1;
    else if(q.front==-1)
        q.front=q.rear=0;
    else
        q.front--;
    q.queue[q.front]=x;
}
void insertrear(int x)
{
    if((q.front==0 && q.rear==size-1)|| (q.rear+1)==q.front){
        printf("queue is full\n");
        return;
    }
    if(q.rear==size-1)
        q.rear=0;
    else if(q.rear==-1)
        q.front=q.rear=0;
    else
        q.rear++;
    q.queue[q.rear]=x;
}
void deletefront()
{
    if(q.front==-1){
        printf("queue is empty");
        return;
    }
    printf("deleted element: %d\n",q.queue[q.front]);
    if(q.rear==q.front)
        q.rear=q.front=-1;
    else if(q.front==size-1)
        q.front=0;
    else
        q.front++;
}

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}
void deleterear()
{
    if(q.rear==-1){
        printf("queue is empty");
        return;
    }
    printf("deleted element: %d\n",q.queue[q.rear]);
    if(q.rear==q.front)
        q.rear=q.front=-1;
    else if(q.rear==0)
        q.rear=size-1;
    else
        q.rear--;
}
void display()
{
    int i=q.front;
    if(q.front==-1)
        return;
    while(i!=q.rear)
    {
        printf("%d ",q.queue[i]);
        i=(i+1)%size;
    }
    printf("%d",q.queue[q.rear]);

}
void main()
{
    q.rear=q.front=-1;
    int choice,val;
    printf("enter the array size: ");
    scanf("%d",&size);
    q.queue=(int*)malloc(size*sizeof(int));
    printf("main
menu\n1.insertfront\n2.insertrear\n3.deletefront\n4.deleterear\n5.exit\n"
);
    for(;;)
    {
        printf("\nenter choice: ");
        scanf("%d",&choice);
        switch(choice)
        {
            case 1:printf("enter the value: ");
                    scanf("%d",&val);
                    insertfront(val);
                    display();
                    break;

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case 2:printf("enter the value: ");
        scanf("%d",&val);
        insertrear(val);
        display();
        break;
case 3:deletefront();
        display();
        break;
case 4:deleterearear();
        display();
        break;
case 5:exit(0);
default:printf("invalid choice\n");
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}
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}
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}
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