**queue-using-two-stack.c**

//write a program to implement queue using two stack.

#include <stdio.h>

#include <stdlib.h>

typedef struct Stack{

int data;

struct Stack \*next;

}stack;

int len(stack \*st){

int count = 0;

while(st){

st = st->next;

count++;

}

return count;

}

int isEmpty(stack \*st){

return (st == NULL);

}

void push(stack \*\*st, int data){

stack \*new\_node = (stack\*)malloc(sizeof(stack));

new\_node->data = data;

new\_node->next = \*st;

\*st = new\_node;

}

void enqueue(stack \*\*st, int data){

push(st,data);

}

int pop(stack \*\*st){

stack \*temp = \*st;

\*st = (\*st)->next;

int data = temp->data;

free(temp);

return data;

}

int dequeue(stack \*\*st){

if(!\*st){

return -1;

}

stack \*st1 = NULL;

while(\*st != NULL){

push(&st1,pop(st));

}

int data = pop(&st1);

while(st1 != NULL){

push(st,pop(&st1));

}

return data;

}

void display(stack \*st){

while(st){

printf("%d ",st->data);

st = st->next;

}

printf("\n");

}

void main(){

stack \*q = NULL;

if(isEmpty(q)){

printf("The queue is empty.\n");

}else{

printf("The queue is not empty.\n");

}

printf("the length of the queue is %d\n",len(q));

enqueue(&q,10);

printf("the length of the queue is %d\n",len(q));

enqueue(&q,102);

enqueue(&q,15);

enqueue(&q,13);

enqueue(&q,12);

display(q);

printf("the length of the queue is %d\n",len(q));

dequeue(&q);

dequeue(&q);

dequeue(&q);

display(q);

}

**OUTPUT**

PS S:\WorkSpace\CollegeWork\DataStructure\Temp> gcc .\queue-using-two-stack.c

PS S:\WorkSpace\CollegeWork\DataStructure\Temp> ./a

The queue is empty.

the length of the queue is 0

the length of the queue is 1

12 13 15 102 10

the length of the queue is 5

12 13

PS S:\WorkSpace\CollegeWork\DataStructure\Temp>