4. C program to implement operations on multiple queue

#include<stdio.h>

#include<conio.h>

# define max 20

int insq (int queue[max], int qno, int rear[], int limit[], int \*data) {

if (rear[qno] == limit[qno])

return(-1);

else {

rear[qno]++;

queue[ rear[qno] ] = \*data;

return(1);

}

}

int delq (int queue[max], int qno, int front[], int rear[], int \*data) {

if( front[qno] == rear[qno] )

return(-1);

else {

front[qno]++; //... front[qno] = front[qno] + 1;

\*data = queue[ front[qno] ];

return(1);

}

}

int getQueueNumber(int n) {

int qNo=0;

Inva:

printf("\n Enter a Logical Queue Number (1 to %d) : ", n);

scanf("%d", &qNo);

if (qNo<1 || qNo >n) {

printf(" Invalid Queue Number. Please try again.\n");

goto Inva;

}

return qNo;

}

void main() {

int queue[max], data;

int bott[10], limit[10], f[10], r[10];

int i, n, qno, size, option, reply;

printf("\n C Language program to implement the Multiple Queues \n");

printf("\n How Many Queues ? : ");

scanf("%d", &n);

size = max / n;

bott[0] = -1;

for(i = 1; i < n; i++)

bott[i] = bott[i-1] + size;

for(i = 0; i < n; i++)

limit[i] = bott[i] + size;

for(i = 0; i < n; i++)

f[i] = r[i] = bott[i];

do {

printf("\n\n C Language program to implement the Multiple Queues \n");

printf("\n 1. Insert in a Queue");

printf("\n 2. Delete from a Queue");

printf("\n 3. Print from a Queue");

printf("\n 3. Exit \n");

printf("\n Select proper option ( 1 / 2 / 3 / 4) : ");

scanf("%d", &option);

switch(option) {

case 1 : //... Insert

qno = getQueueNumber(n);

printf("\n Enter Data : ");

scanf("%d", &data);

reply = insq(queue, qno-1, r, limit, &data);

if( reply == -1)

printf("\n Queue %d is Full \n", qno);

else

printf("\n %d is inserted in a Queue No. %d \n", data, qno);

break;

case 2 : //... Delete

qno = getQueueNumber(n);

reply = delq(queue, qno-1, f, r, &data);

if( reply == -1)

printf("\n Queue %d is Empty \n", qno);

else

printf("\n %d is deleted from Queue No. %d \n", data, qno);

break;

case 3:

qno = getQueueNumber(n);

printf("\n Elements of Queue %d are as : ", qno);

if (f[qno-1]==r[qno-1]) {

printf("\n Queue is empty");

break;

}

for (i=f[qno-1]+1; i<=r[qno-1]; i++)

printf("%d\t", queue[i]);

printf("\n");

break;

case 4 :

break;

default:

printf("\n Invalid input. Please try again.");

}

}while(option!=4);

}

