Lab programs

week 3

1) Circular queue

#include<stdio.h>

#include<stdlib.h>

#define que\_size 3

int item,front=0,rear=-1,q[que\_size],count=0;

void insertrear()

{

if(count==que\_size)

{

printf("Queue overflow");

return;

}

rear=(rear+1)%que\_size;

q[rear]=item;

count++;

}

int deletefront()

{

if(count==0) return -1;

item = q[front];

front=(front+1)%que\_size;

count=count-1;

return item;

}

void displayq()

{

int i,f;

if(count==0)

{

printf("Queue is empty");

return;

}

f=front;

printf("Contents of queue - \n");

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

{

printf("%d\n",q[f]);

f=(f+1)%que\_size;

}

}

int main()

{

int choice;

for(;;)

{

printf("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

printf("\n1) Insert rear \n2) Delete front \n3)Display \n4) exit \n ");

printf("Enter the choice : ");

scanf("%d",&choice);

switch(choice)

{

case 1:printf("Enter the item to be inserted :");

scanf("%d",&item);

insertrear();

break;

case 2:item=deletefront();

if(item==-1)

printf("queue is empty\n");

else

printf("item deleted is %d \n",item);

break;

case 3:displayq();

break;

default:exit(0);

}

}

return 0;

}

OUTPUT -

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1.Insert rear

2.Delete front

3.Display

4.exit

Enter the choice : 1

Enter the item to be inserted :20

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1.Insert rear

2.Delete front

3.Display

4.exit

Enter the choice : 1

Enter the item to be inserted :30

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1.Insert rear

2.Delete front

3.Display

4.exit

Enter the choice : 1

Enter the item to be inserted :40

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1.Insert rear

2.Delete front

3.Display

4.exit

Enter the choice : 3

contents of queue

20

30

40

20

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1.Insert rear

2.Delete front

3.Display

4.exit

Enter the choice : 2

item deleted is 20

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1.Insert rear

2.Delete front

3.Display

4.exit

Enter the choice : 2

item deleted is 30

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1.Insert rear

2.Delete front

3.Display

4.exit

Enter the choice : 3

contents of queue

40

20

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1.Insert rear

2.Delete front

3.Display

4.exit

Enter the choice : 4

------------------

(program exited with code: 0)

Press return to continue

2) Double Queue

#include<stdio.h>

#define qsize 5

int f=0,r=-1,ch;

int item,q[10];

int isfull()

{

return(r==qsize-1)?1:0;

}

int isempty()

{

return(f>r)?1:0;

}

void insert\_rear()

{

if(isfull())

{

printf("queue overflow\n");

return;

}

r=r+1;

q[r]=item;

}

void delete\_front()

{

if(isempty())

{

printf("queue empty\n");

return;

}

printf("item deleted is %d\n",q[(f)++]);

if(f>r)

{

f=0;

r=-1;

}

}

void insert\_front()

{

if(f!=0)

{

f=f-1;

q[f]=item;

return;

}

else if((f==0)&&(r==-1))

{

q[++(r)]=item;

return;

}

else

printf("insertion not possible\n");

}

void delete\_rear()

{

if(isempty())

{

printf("queue is empty\n");

return;

}

printf("item deleted is %d\n",q[(r)--]);

if(f>r)

{

f=0;

r=-1;

}

}

void display()

{

int i;

if(isempty())

{

printf("queue empty\n");

return;

}

for(i=f;i<=r;i++)

printf("%d\n",q[i]);

}

int main()

{

for(;;)

{

printf("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");

printf("1) Insert rear \n2) insert front \n3) Delete rear \n4) Delete front \n5) Display \n6) Exit\n");

printf("enter choice\n");

scanf("%d",&ch);

switch(ch)

{

case 1:printf("enter the item\n");

scanf("%d",&item);

insert\_rear();

break;

case 2:printf("enter the item\n");

scanf("%d",&item);

insert\_front();

break;

case 3:delete\_rear();

break;

case 4:delete\_front();

break;

case 5:display();

break;

default:exit(0);

}

}

return 0;

}

OUTPUT -

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) Insert rear

2) insert front

3) Delete rear

4) Delete front

5) Display

6) Exit

enter choice

1

enter the item

40

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1) Insert rear

2) insert front

3) Delete rear

4) Delete front

5) Display

6) Exit

enter choice

1

enter the item

20

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1) Insert rear

2) insert front

3) Delete rear

4) Delete front

5) Display

6) Exit

enter choice

2

enter the item

50

insertion not possible

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) Insert rear

2) insert front

3) Delete rear

4) Delete front

5) Display

6) Exit

enter choice

5

40

20

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1) Insert rear

2) insert front

3) Delete rear

4) Delete front

5) Display

6) Exit

enter choice

3

item deleted is 20

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) Insert rear

2) insert front

3) Delete rear

4) Delete front

5) Display

6) Exit

enter choice

5

40

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) Insert rear

2) insert front

3) Delete rear

4) Delete front

5) Display

6) Exit

enter choice

4

item deleted is 40

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) Insert rear

2) insert front

3) Delete rear

4) Delete front

5) Display

6) Exit

enter choice

5

queue empty

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