

LAB-5 : CIRCULAR QUEUE :

```
#include <stdlib.h>
```

```
#include <stdio.h>
```

```
#define SIZE 5
```

```
int item, front=0, rear=-1, q[SIZE],  
count=0;
```

```
void insertrear()
```

```
{  
    if (count == SIZE) {
```

```
        printf("queue overflow");
```

```
    }  
    printf("Enter the element");
```

```
    scanf("%d", &item);
```

```
    rear = (rear+1) % SIZE;
```

```
    q[rear] = item;
```

```
    count++;
```

```
void deletefront()
```

```
{  
    if (count == 0) {
```

```
        printf("queue is Empty");
```

```
    }  
    else {
```

```
        item = q[front];
```

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

front = (front + 1) % SIZE;
count--;

}

}

```
void display () {  
    int i, j;  
    if (count == 0) {  
        printf("Queue is Empty");  
    }
```

```
    j = front;  
    printf("Items of Queue\n");
```

```
    for (i = 0; i < count; i++) {  
        printf("%d\t", q[j]);
```

```
        j = (j + 1) % SIZE;
```

```
    }
```

```
}
```

```
int main () {
```

```
    int choice;
```

```
    for (;;) {
```

```
        printf("\nEnter operations\n
```

```
        1. Front 2. Rear
```

```
        3. display 4. Exit");
```

```
        scanf("%d", &choice);
```


switch (choice) {

case 1: insertrear();

break;

case 2: deletefront();

break;

case 3: display();

break;

~~case~~

default: exit(0);

}

}

Output:

① Enter operations

• 1. insert

• 2. Delete

• 3. Display

→ 1

→ Enter item to be inserted

→ 45

② Enter operations

1. insert

2. Delete

3. Display

→ 1

→ Enter item

→ 20

③ Enter operations

1. insert

→ 3.

2. Delete

→ Elements are:

3. Display

45

20

6, 7, 2

① $g=0, q=1$ ①

$\boxed{5} \boxed{4} \boxed{5} \boxed{3} \boxed{}$

$\nwarrow g=0$

$q=1$

$2^0 = 1$
 $2^1 = 2$
 $2^2 = 4$
 $2^3 = 8$
 $2^4 = 16$
 $2^5 = 32$
 $2^6 = 64$
 $2^7 = 128$
 $2^8 = 256$
 $2^9 = 512$
 $2^{10} = 1024$
 $2^{11} = 2048$
 $2^{12} = 4096$
 $2^{13} = 8192$
 $2^{14} = 16384$
 $2^{15} = 32768$
 $2^{16} = 65536$
 $2^{17} = 131072$
 $2^{18} = 262144$
 $2^{19} = 524288$
 $2^{20} = 1048576$
 $2^{21} = 2097152$
 $2^{22} = 4194304$
 $2^{23} = 8388608$
 $2^{24} = 16777216$
 $2^{25} = 33554432$
 $2^{26} = 67108864$
 $2^{27} = 134217728$
 $2^{28} = 268435456$
 $2^{29} = 536870912$
 $2^{30} = 1073741824$
 $2^{31} = 2147483648$
 $2^{32} = 4294967296$
 $2^{33} = 8589934592$
 $2^{34} = 17179869184$
 $2^{35} = 34359738368$
 $2^{36} = 68719476736$
 $2^{37} = 137438953472$
 $2^{38} = 274877906944$
 $2^{39} = 549755813888$
 $2^{40} = 1099511627776$
 $2^{41} = 2199023255552$
 $2^{42} = 4398046511104$
 $2^{43} = 8796093022208$
 $2^{44} = 17592186044416$
 $2^{45} = 35184372088832$
 $2^{46} = 70368744177664$
 $2^{47} = 140737488355328$
 $2^{48} = 281474976710656$
 $2^{49} = 562949953421312$
 $2^{50} = 1125899906842624$
 $2^{51} = 2251799813685248$
 $2^{52} = 4503599627370496$
 $2^{53} = 9007199254740992$
 $2^{54} = 18014398509481984$
 $2^{55} = 36028797018963968$
 $2^{56} = 72057594037927936$
 $2^{57} = 144115188075855872$
 $2^{58} = 288230376151711744$
 $2^{59} = 576460752303423488$
 $2^{60} = 1152921504606846976$
 $2^{61} = 2305843009213693952$
 $2^{62} = 4611686018427387904$
 $2^{63} = 9223372036854775808$
 $2^{64} = 18446744073709551616$
 $2^{65} = 36893488147419103232$
 $2^{66} = 73786976294838206464$
 $2^{67} = 147573952589676412928$
 $2^{68} = 295147905179352825856$
 $2^{69} = 590295810358705651712$
 $2^{70} = 1180591620717411303424$
 $2^{71} = 2361183241434822606848$
 $2^{72} = 4722366482869645213696$
 $2^{73} = 9444732965739290427392$
 $2^{74} = 18889465931478580854784$
 $2^{75} = 37778931862957161709568$
 $2^{76} = 75557863725914323419136$
 $2^{77} = 151115727451828646838272$
 $2^{78} = 302231454903657293676544$
 $2^{79} = 604462909807314587353088$
 $2^{80} = 1208925819614629174706176$
 $2^{81} = 2417851639229258349412352$
 $2^{82} = 4835703278458516698824704$
 $2^{83} = 9671406556917033397649408$
 $2^{84} = 19342813113834066795298816$
 $2^{85} = 38685626227668133590597632$
 $2^{86} = 77371252455336267181195264$
 $2^{87} = 154742504910672534362390528$
 $2^{88} = 309485009821345068724781056$
 $2^{89} = 618970019642690137449562112$
 $2^{90} = 1237940039285380274899124224$
 $2^{91} = 2475880078570760549798248448$
 $2^{92} = 4951760157141521099596496896$
 $2^{93} = 9903520314283042199192993792$
 $2^{94} = 19807040628566084398385987584$
 $2^{95} = 39614081257132168796771975168$
 $2^{96} = 79228162514264337593543950336$
 $2^{97} = 158456325028528675187087900672$
 $2^{98} = 316912650057057350374175801344$
 $2^{99} = 633825300114114700748351602688$
 $2^{100} = 1267650600228229401496703205376$

row");

... ..

insulated J,

1. The first part of the text is a list of names and dates.

highest priority.

dukd is p.d,
 $q(17)$;

1

$$-f : j+1)$$

7]

if (c == x) { } } → first loop out

pf (element deleted is %d, q[i]);

if (c == x) { }

t = q[x-j-c];
q[x-j-c] = q[i];
q[i] = t;

int t;

t = a[i];

a[i] = a[j];

a[j] = t;

} → end loop

}

[1][4][5]

j = x = 2

0, 1, 2
x = 5

pf ("element deleted is %d, q[j]);

j++;

}

void display()

if (j > x)

pf ("QUEUE empty");

return;

pf ("elements are");

for (int i = 0; i < x - j; i++)

pf ("%d", q[i]);

}