double ended queue.

```
# include <stdio.h>.
# include <stdlib.h>.
# include <conio.h>.
# define qsize 3.
 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");
        return;
     }
  r = r+1;
  q[r] = item;
 }
 void delete_front () {.
   if (isempty()) {
     Printf(" queue empty");
     return;
 }.
```

```
Print f (" item deleted is %d \n", q [(f)++]);
if (f > r) {.
    f = 0;
    r = -1;
}
3.
void insert_front () {.
      if (f != 0) {.
        f = f - 1;
      q [f] = item ;
        return;
}
else if ((f == 0) && (r == -1)) {.
      q [++(r)] = item ;
        return ;
}
else
      Print ("Insertion not possible\n");

}.
void delete_rear() {
    if (isempty()) {.
      Print ("queue is empty");
        return;
    }.
Print ("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++) {.
     Pf ("%d \n", q[i]);

}
void main() {.
 for(;;) {.
 Printf(p" 1. Insert-rear \n 2. insert_front \n 3. delete_
 rear \n 4. delete_front \n 5. display \n 6. exit \n");
 Printf("enter choice ");
 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);

}
}.
```