Dequue:

```
#include<stdio.h>
#include<stdlib.h>
#define qsize 3.
int f=0, r=-1;
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 is 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("\nInsertion at front end is not possible\n");
}
void delete_rear()
{  if(isempty())
   {  printf("\nItem Queue is empty\n");
      return;
   }
   printf("\nItem deleted is %d\n",q[r--]);
if(f>r) {  f=0;
           r=-1;
        }
}
```

```
void display()
{ int i;
  if(isempty())
  { printf("Queue is empty \n");
    return;
  }
  printf("Contents of the queue: ");
  for(i=f;i<=r;i++)
    printf("%d", q[i]);
  printf("\n");
}
void main()
{   int choice;
  for(;;)
  {
  printf("\n1. insert_rear 2. insert_front
3. delete_rear. 4. delete_front 5. display
6. exit \n");
printf("Enter choice: ");
scanf("%d", &choice);
switch(choice)
{
  case 1: printf("Enter the item: ");
          scanf("%d", &item);
          insert_rear();
          break;
```

```
case 2: printf("Enter the item : ");
        scanf("%d", &item);
        insert_front();
        break;
case 3: delete_rear();
        break;
case 5: display();
        break;
default : exit(0);
}
}
}
```