LAB 4

28/10/2020.

① Double ended queue

```
# include <stdio.h>
# include <conio.h>
# include <process.h>
# define que_size 5

int f=0, r=-1, cln;
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 (is empty()) {
        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+(r)] = item;
            return;
           }
         else
           printf (" insertion is not possible");
        }
```

```
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("empty queue");
    return;}
for(i=f; i<=r; i++)
    printf("%d\n", q[i]);}

void main(){
    clrscr();
    for(;;)
    {
printf("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\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);
   }
  }
getch ();
}
```