LAB PROGRAM - 8

1BM19CS052

(a) Stack

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

struct node
{
      int data;
      struct node *next;
};

void push(struct node **headptr, int value)
{
     struct node *newnode, *temp;
      newnode = (struct node*) malloc (sizeof(struct
                         node));
    newnode->data = Value;
    newnode->next = NULL;
    temp = *headptr;
    if (temp == NULL)
   {
        *headptr = newnode;
   }
    else
   {
     while (temp->next != NULL)
            temp = temp->next;
     temp->next = newnode;
    }
}
```

```
void pop(struct node ** headptr)
{
    struct node *temp;
    temp = *headptr;
   if( temp == NULL)
   {
       printf("The list is Empty \n");
       return;
   }
   else if (temp->next == NULL)
   {
      *headptr = NULL;
      printf("Last Element has been deleted\n
      return;
   }
```

(b) Queue

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

struct node
{
    int data;
    struct node *next;
};

void end (struct node ** headptr, int value)
{
     struct node *newnode;
     newnode = (struct node*) malloc (sizeof (struct node));
newnode -> data = value;
newnode -> next = NULL;
 if (*headptr == NULL)
      * headptr = newnode;
else
  {
     newnode -> next = * headptr;
      * headptr = newnode;
   }
}

void del (struct node ** headptr)
 {
    struct node * temp;
    temp = * headptr;
    if ( temp == NULL)
  {
      printf ("The list is Empty \n");
      return;
  }
   else if ( temp -> next == NULL)
    {
        * head ptr = NULL;
        printf ("Last element has been deleted\n");
        return;
    }
    else
     {
       while ((temp -> next) -> next != NULL)
             temp = ~~to~~ temp -> next;
              temp -> next = NULL;
             printf ("Rear Element has been deleted\n");
     } }
```

```
void display( struct node * temp)
{
  if( temp == NULL)
  {
    printf ("The list is Empty \n");
    return;
  }
 else.
  {
    while ( temp != NULL)
    {
      printf ("%d\t", temp->data);
      temp = temp -> next;
    }
    printf ("\n");
  }
}.
int main( int argc, char** argv)
{
  struct node * head = NULL;
  int choice, ele;
  while( choice != 4)
  {
    printf ("Enter choice 1) Enqueue 2) DeQueue
                3) Display 4) Exit : ");
    ~~printf~~ i( scanf("%d", &choice);
          switch( choice)
          {
            case 1: printf ("Enter value : ");
                           scanf ("%d, &ele);
                           enQ (&head, ele); break;
```

```
Case 2: deQ (&head); break;
Case 3: display (head); break;
Case 4: exit(0);
default : exit(0);
}
}

return 0;
```