ADITHI GIRIMAJI
1BM19CS005

Date
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Lab - 8.

```
#include<stdio.h>
#include<stdlib.h>
void push();
void pop();
void display_s();
void insert();
void delete();
void display_q();
struct node
{   int data;
    struct node *next;
};
struct node *head=NULL;
int main()
{ int choice, ch;
  printf("--- STACK ---\n");
  do{
printf("1. Push\n 2. Pop\n 3. Display\n");
printf("\n Enter your choice :");
 scanf("%d", &choice);
 switch(choice)
 { case 1: push(); break;
    case 2: pop(); break;
    case 3: display_s(); break;
    default: printf("Wrong choice");
 } printf("\n Press 1 if you want to continue else any other number\n");
 scanf("%d", &ch);
} while(ch==1);
printf("--- QUEUE ---\n");
head=NULL;
do {
```

```
printf("1.Insert\n2.Delete\n3.Display\n");
printf("Enter your choice: ");
scanf("%d", &choice);
switch(choice)
{ case 1: insert(); break;
  case 2: delete(); break;
  case 3: display(); break;
  default: printf("Wrong choice");
}
printf("\n Press 1 to continue, else any other number\n");
scanf("%d", &ch);
} while(ch==1);
return 0;
}
void push()
{ int item;
  struct node *newnode, *temp;
  newnode = (struct node *) malloc(sizeof(struct node));
  printf("Enter the item to be pushed\n");
  scanf("%d", &item);
  newnode->data = item;
  if(head==NULL)
  { newnode->next = NULL;
    head = newnode;
    return;
  } temp = head;
  while(temp->next != NULL)
  { temp = temp->next; }
  temp->next = newnode;
  newnode->next = NULL;
}
```

```
void pop()
{ if (head == NULL)
  { printf("Empty Stack \n"); return;
  } if (head->next == NULL)
  { printf("Poped element is %d \n", head->data);
    head = NULL; return;
  } struct node *temp;
    temp = head;
  while (temp->next->next != NULL)
  { temp = temp->next; }
printf("Poped element is %d ", temp->next->data);
 temp->next = NULL;
} void displays()
{ struct node *ptr = NULL;
    ptr = head;
    if(ptr == NULL)
    printf("Nothing to print \n");
    else
    { while(ptr != NULL)
      { printf("%d", ptr->data);
        ptr = ptr->next;
  } } }
void insert()
{ int item;
    struct node *newnode, *temp;
    newnode = (struct node *) malloc(sizeof(struct node));
    printf("Enter the item to be inserted \n");
    scanf("%d", &item);
  newnode->data = item;
  if(head == NULL)
  { newnode->next = NULL;
      head = newnode; return; }
```

```
temp=head;
while(temp->next!=NULL)
{   temp=temp->next;
}
 temp->next=newnode;
 newnode->next=NULL;
} void delete()
{ if(head==NULL)
  { printf("Queue is empty\n"); return; }
  printf("Deleted element is %d\n", head->data);
   head=head->next;
} void display_q()
{ struct node *ptr=NULL;
   ptr=head;
   if(ptr==NULL)
  { printf("Nothing to print\n");
  } else
  {  while(ptr!=NULL)
     { printf("%d", ptr->data);
        ptr=ptr->next;
     }}
```