DATA STRUCTURE PRACTICAL NO. :-05

Aim :- implement a double linked list and perform the operation like insertion, deletion and traversal.

PROGARM :-

```
#include <stdio.h>

#include <stdlib.h>

#include <stdbool.h>


struct node

{


   int data;

   struct node *next;

   struct node *priv;

};


int main()

{

   struct node *a, *b, *c, *d, *e, *f, *g;

   int search;



   a = (struct node *)malloc(sizeof(struct node));

   b = (struct node *)malloc(sizeof(struct node));
```

```
c = (struct node *)malloc(sizeof(struct node));
d = (struct node *)malloc(sizeof(struct node));
e = (struct node *)malloc(sizeof(struct node));
f = (struct node *)malloc(sizeof(struct node));



a->data = 12;
b->data = 22;
c->data = 32;
d->data = 80;
e->data = 200;



a->next = b;



b->next = c;


c->next = d;



d->next = e;
```

```
e->next = NULL;



struct node *p = a;
printf("Traversal of the linked list in forward direction: \n");
while (p != NULL)
{
   printf("%d\t", p->data);
   p = p->next;
}


struct node *m = e;



printf("\n");


m = a;


printf("Enter the node after which you have to insert the data:\n");
scanf("%d", &search);
```

```
while (m != NULL && m->data != search)
{
   m = m->next;
};

if (m->data == search)
{
   printf("Enter the data of the new node:\n");
   scanf("%d", &f->data);
   f->next = m->next;
   f -> priv = m;
   m->next = f;
}else
{
   printf("The searching data not found\n");
}




m = a;
while (m != NULL)
{
   printf("%d\t", m->data);
   m = m->next;
```

```
}

printf("\n");

m = a;

printf("Enter the node  which you have to DELETE:\n");
scanf("%d", &search);
while (m != NULL && m->data != search)
{
   g = m;
   m = m->next;
}

if (m->data == search)
{
   g->next = m->next;
   free(m);
}
else
{
   printf("The data not found.\n");
}
```

```
    m = a;
    while (m != NULL)
    {
        printf("%d\t", m->data);
        m = m->next;
    }

    return 0;
}
```

```
PS C:\Users\mthaw\OneDrive\Desktop\c program> gcc linklist1.c
PS C:\Users\mthaw\OneDrive\Desktop\c program> .\a.exe
Traversal of the linked list in forward direction:
12      22      32      80      200
Enter the node after which you have to insert the data:
32
Enter the data of the new node:
42
12      22      32      42      80      200
Enter the node  which you have to DELETE:
80
12      22      32      42      200
PS C:\Users\mthaw\OneDrive\Desktop\c program>
```

GITHUB LINK OF PRACTICAL No. 04 :-
https://github.com/sidheshwar2005/Data_strucutre_practical.git