#include<stdio.h>

#include<stdlib.h>

struct node

{

int data;

struct node \*next;

};

struct node \*start;

void beginsert ();

void lastinsert ();

void begin\_delete();

void last\_delete();

void display();

void main ()

{

int choice =0;

do

{

printf("\n1.Insert in begining\n2.Insert at last\n3.Delete from Beginning\n4.Delete from last\n5.Show\n0.Exit\n");

printf("\nEnter your choice?\n");

scanf("\n%d",&choice);

switch(choice)

{

case 1:

beginsert();

break;

case 2:

lastinsert();

break;

case 3:

begin\_delete();

break;

case 4:

last\_delete();

break;

case 5:

display();

break;

case 0:

exit(0);

break;

default:

printf("Please enter valid choice..");

}

}while(1);

}

void beginsert()

{

struct node \*ptr,\*temp;

int item;

ptr = (struct node \*)malloc(sizeof(struct node));

if(ptr == NULL)

{

printf("\nOVERFLOW");

}

else

{

printf("\nEnter the node data?");

scanf("%d",&item);

ptr -> data = item;

if(start == NULL)

{

start = ptr;

ptr -> next = start;

}

else

{

temp = start;

while(temp->next != start)

temp = temp->next;

ptr->next = start;

temp -> next = ptr;

start = ptr;

}

printf("\nnode inserted\n");

}}

void lastinsert(){

struct node \*ptr,\*temp;

int item;

ptr = (struct node \*)malloc(sizeof(struct node));

if(ptr == NULL)

{

printf("\nOVERFLOW\n");

}

else

{

printf("\nEnter Data?");

scanf("%d",&item);

ptr->data = item;

if(start == NULL)

{

start = ptr;

ptr -> next = start;

}

else

{

temp = start;

while(temp -> next != start)

{

temp = temp -> next;

}

temp -> next = ptr;

ptr -> next = start;

}

printf("\nnode inserted\n");

} }

void begin\_delete()

{

struct node \*ptr;

if(start == NULL)

{

printf("\nUNDERFLOW");

}

else if(start->next == start)

{

start = NULL;

free(start);

printf("\nnode deleted\n");

}

else

{ ptr = start;

while(ptr -> next != start)

ptr = ptr -> next;

ptr->next = start->next;

free(start);

start = ptr->next;

printf("\nnode deleted\n");

} }

void last\_delete()

{

struct node \*ptr, \*preptr;

if(start==NULL)

printf("\nUNDERFLOW");

else if (start ->next == start){

start = NULL;

free(start);

printf("\nnode deleted\n"); }

else{

ptr = start;

while(ptr ->next != start){

preptr=ptr;

ptr = ptr->next; }

preptr->next = ptr -> next;

free(ptr);

printf("\nnode deleted\n");

} }

void display(){

struct node \*ptr;

ptr=start;

if(start == NULL){

printf("\nnothing to print");}

else

{

printf("\n printing values ... \n");

while(ptr -> next != start)

{

printf("%d\n", ptr -> data);

ptr = ptr -> next;

}

printf("%d\n", ptr -> data);

} }

OUTPUT:

1.Insert in begining

2.Insert at last

3.Delete from Beginning

4.Delete from last

5.Show

0.Exit

Enter your choice?

1

Enter the node data?1

node inserted

1.Insert in begining

2.Insert at last

3.Delete from Beginning

4.Delete from last

5.Show

0.Exit

Enter your choice?

2

Enter Data?2

node inserted

1.Insert in begining

2.Insert at last

3.Delete from Beginning

4.Delete from last

5.Show

0.Exit

Enter your choice?

1

Enter the node data?0

node inserted

1.Insert in begining

2.Insert at last

3.Delete from Beginning

4.Delete from last

5.Show

0.Exit

Enter your choice?

5

printing values ...

0

1

2

1.Insert in begining

2.Insert at last

3.Delete from Beginning

4.Delete from last

5.Show

0.Exit

Enter your choice?

3

node deleted

1.Insert in begining

2.Insert at last

3.Delete from Beginning

4.Delete from last

5.Show

0.Exit

Enter your choice?

4

node deleted

1.Insert in begining

2.Insert at last

3.Delete from Beginning

4.Delete from last

5.Show

0.Exit

Enter your choice?

5

printing values ...

1