EXPERIMENT 4

Code:

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
struct node
{
    int data;
    struct node *next;
}*start;
void create()
{
    int n;
    struct node *newnode,*temp;
    printf("Enter number of nodes\n");
    scanf("%d",&n);
    for(int i=0;i<n;i++)
    {
        if(start==NULL)
        {
            newnode=(struct node*)malloc(sizeof(struct node));
            printf("Enter Data:\n");
            scanf("%d",&newnode->data);
            start=newnode;
        }
        else
        {
            newnode=(struct node*)malloc(sizeof(struct node));
            printf("Enter data\n");
            scanf("%d",&newnode->data);
            temp=start;
            while(temp->next!=NULL)
            {
                temp=temp->next;
            }
            temp->next=newnode;

        }
    }
}
void insert_before()
{
    struct node *temp,*p,*newnode;
    int val,data;
    printf("Enter data to insert\n");
    scanf("%d",&data);
    printf("Enter value before which you want to insert\n");
    scanf("%d",&val);
    newnode=(struct node*)malloc(sizeof(struct node));
    newnode->data=data;
    temp=start;
    p=start;
    while(temp->data!=val)
    {
```

```
        p=temp;
        temp=temp->next;
    }
    if(temp==start)
    {
        newnode->next=start;
        start=newnode;
    }
    else
    {
        p->next=newnode;
        newnode->next=temp;
    }
}
void insert_after()
{
    struct node *temp,*post,*newnode;
    int val,data;
    printf("Enter data to insert\n");
    scanf("%d",&data);
    printf("Enter value after which you want to insert\n");
    scanf("%d",&val);
    newnode=(struct node*)malloc(sizeof(struct node));
    newnode->data=data;
    temp=start;
    while(temp->data!=val)
    {
        temp=temp->next;
    }
    post=temp->next;
    temp->next=newnode;
    newnode->next=post;
}
void delete1()
{
    struct node *p,*temp,*post;
    int x;
    printf("Enter a value\n");
    scanf("%d",&x);
    temp=start;
    while(temp!=NULL && temp->data!=x)
    {
        p=temp;
        temp=temp->next;
    }
    if(temp==NULL)
    {
        printf("Value not found\n");
    }
    else if(temp==start)
    {
        start=temp->next;
        free(temp);
    }
```

```
    else
    {
        post=temp->next;
        p->next=post;
        free(temp);
    }
}
void display()
{
    int data;
    struct node *temp,*next;
    temp=start;
    while(temp!=NULL)
    {
        printf("%d\n",temp->data);
        temp=temp->next;
    }
}
void main()
{
    clrscr();
    int choice;
    int exit;
    int j;
    while(exit!=-1)
    {
        printf("Enter your choice\n");
        printf("1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display
6.Exit\n");
        scanf("%d",&choice);
        switch(choice)
        {
            case 1: create();
            break;
            case 2: insert_before();
            break;
            case 3: insert_after();
            break;
            case 4: delete1();
            break;
            case 5: display();
            break;
            case 6: exit=-1;
            break;
            default:
            printf("Enter a valid input\n");
            break;
        }
    }
}
```

Output:

```
Enter your choice
1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display 6.Exit
1
Enter number of nodes
5
Enter Data:
10
Enter data
20
Enter data
30
Enter data
40
Enter data
50
Enter your choice
1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display 6.Exit
5
10
20
30
40
50
```

```
Enter your choice
1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display 6.Exit
2
Enter data to insert
25
Enter value before which you want to insert
30
Enter your choice
1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display 6.Exit
3
Enter data to insert
35
Enter value after which you want to insert
30
Enter your choice
1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display 6.Exit
5
10
20
25
30
35
40
50
```

```
Enter your choice
1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display 6.Exit
4
Enter a value
25
Enter your choice
1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display 6.Exit
4
Enter a value
35
Enter your choice
1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display 6.Exit
5
10
20
30
40
50
Enter your choice
1.Create 2.Insert Before 3.Insert After 4.Delete 5.Display 6.Exit
6
```