6. Write a program to Implement Singly Linked List with following operations a) a) Create a linked list. b) Deletion of first element, specified element and last element in the list. c) Display the contents of the linked list.

```
#include <stdlib.h>
#include <stdio.h>
void create();
void display();
void delete_begin();
void delete_end();
void delete_pos();
struct node
{
   int info;
   struct node *next;
};
struct node *start = NULL;
int main()
{
   int choice;
   while (1)
   {

      printf("\n             MENU                    \n");
      printf("\n 1.Create     \n");
```

```
printf("\n 2.Display    \n");
printf("\n 3.Delete from beginning      \n");
printf("\n 4.Delete from the end       \n");
printf("\n 5.Delete from specified position     \n");
printf("\n 6.Exit       \n");
printf("\n-----------------------------------\n");
printf("Enter your choice:");
scanf("%d", &choice);
switch (choice)
{
case 1:
   create();
   break;
case 2:
   display();
   break;
case 3:
   delete_begin();
   break;
case 4:
   delete_end();
   break;
case 5:
   delete_pos();
```

```
            break;
        case 6:
            exit(0);
            break;
        default:
            printf("\n Wrong Choice:\n");
            break;
        }
    }
    return 0;
}
void create()
{
    struct node *temp, *ptr;
    temp = (struct node *)malloc(sizeof(struct node));
    if (temp == NULL)
    {
        printf("\nOut of Memory Space:\n");
        exit(0);
    }
    printf("\nEnter the data value for the node:");
    scanf("%d", &temp->info);
    temp->next = NULL;
    if (start == NULL)
```

```
    {
        start = temp;
    }
    else
    {
        ptr = start;
        while (ptr->next != NULL)
        {
            ptr = ptr->next;
        }
        ptr->next = temp;
    }
}
void display()
{
    struct node *ptr;
    if (start == NULL)
    {
        printf("\nList is empty:\n");
        return;
    }
    else
    {
        ptr = start;
```

```
        printf("\nThe List elements are:\n");
        while (ptr != NULL)
        {
            printf("%d", ptr->info);
            ptr = ptr->next;
        }
    }
}
void delete_begin()
{
    struct node *ptr;
    if (ptr == NULL)
    {
        printf("\nList is Empty:\n");
        return;
    }
    else
    {
        ptr = start;
        start = start->next;
        printf("\nThe deleted element is :%d", ptr->info);
        free(ptr);
    }
}
```

```
void delete_end()
{
   struct node *temp, *ptr;
   if (start == NULL)
   {
      printf("\nList is Empty:");
      exit(0);
   }
   else if (start->next == NULL)
   {
      ptr = start;
      start = NULL;
      printf("\nThe deleted element is:%d", ptr->info);
      free(ptr);
   }
   else
   {
      ptr = start;
      while (ptr->next != NULL)
      {
         temp = ptr;
         ptr = ptr->next;
      }
      temp->next = NULL;
```

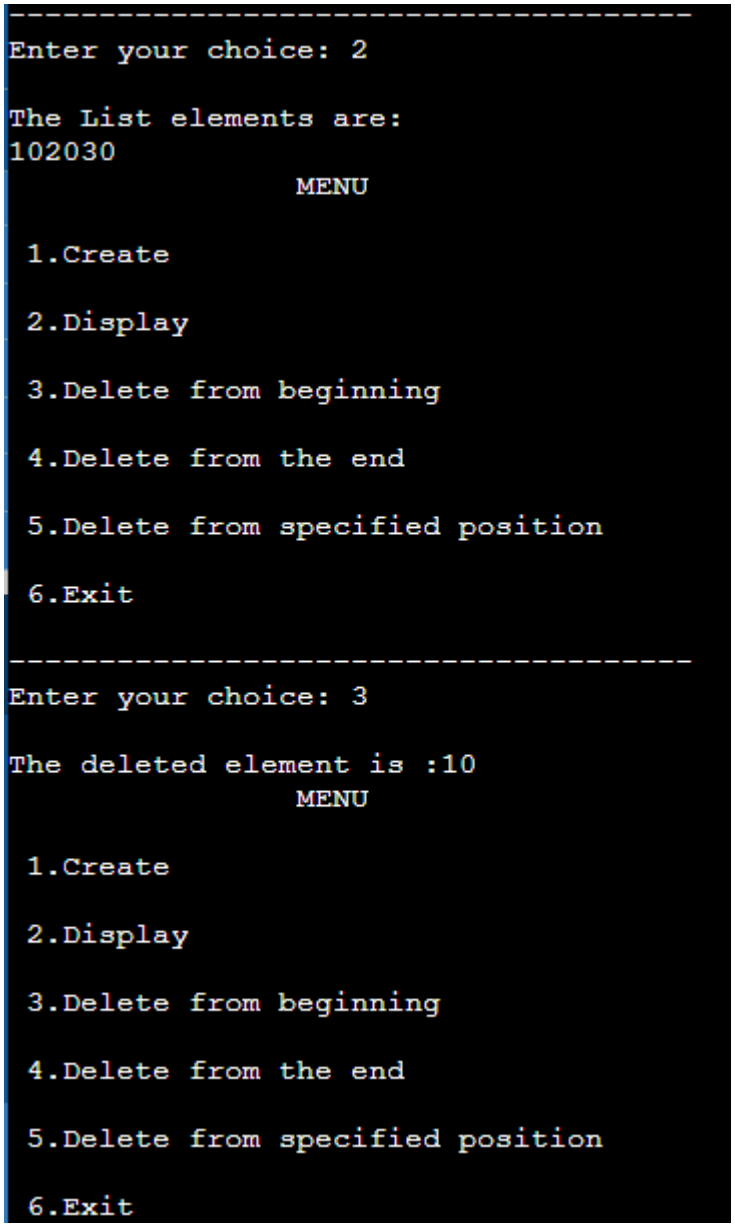
```
        printf("\nThe deleted element is:%d", ptr->info);
        free(ptr);
    }
}
void delete_pos()
{
    int i, pos;
    struct node *temp, *ptr;
    if (start == NULL)
    {
        printf("\nThe List is Empty:\n");
        exit(0);
    }
    else
    {
        printf("\nEnter the position of the node to be deleted:");
        scanf("%d", &pos);
        if (pos == 0)
        {
            ptr = start;
            start = start->next;
            printf("\nThe deleted element is:%d", ptr->info);
            free(ptr);
        }
```

```
        else
        {
            ptr = start;
            for (i = 0; i < pos; i++)
            {
                temp = ptr;
                ptr = ptr->next;
                if (ptr == NULL)
                {
                    printf("\nPosition not Found:\n");
                    return;
                }
            }
            temp->next = ptr->next;
            printf("\nThe deleted element is:%d", ptr->info);
            free(ptr);
        }
    }
}
```

Output:

```
                MENU

 1.Create

 2.Display

 3.Delete from beginning

 4.Delete from the end

 5.Delete from specified position

 6.Exit

---------------------------------------
Enter your choice: 1

Enter the data value for the node: 10

                MENU

 1.Create

 2.Display

 3.Delete from beginning

 4.Delete from the end

 5.Delete from specified position

 6.Exit

---------------------------------------
```

```
Enter your choice: 1

Enter the data value for the node: 20

                MENU

 1.Create

 2.Display

 3.Delete from beginning

 4.Delete from the end

 5.Delete from specified position

 6.Exit

--------------------------------------
Enter your choice: 1

Enter the data value for the node: 30

                MENU

 1.Create

 2.Display

 3.Delete from beginning

 4.Delete from the end

 5.Delete from specified position

 6.Exit
```


Enter your choice: 2
The List elements are:
102030
MENU
1.Create
2.Display
3.Delete from beginning
4.Delete from the end
5.Delete from specified position
6.Exit
Enter your choice: 3
The deleted element is :10
MENU
1.Create
2.Display
3.Delete from beginning
4.Delete from the end
5.Delete from specified position
6.Exit

```
--------------------------------------
Enter your choice: 2

The List elements are:
2030
                MENU

 1.Create

 2.Display

 3.Delete from beginning

 4.Delete from the end

 5.Delete from specified position

 6.Exit

--------------------------------------
Enter your choice: 4

The deleted element is:30
                MENU

 1.Create

 2.Display

 3.Delete from beginning

 4.Delete from the end

 5.Delete from specified position

 6.Exit
```

```
---------------------------------------
Enter your choice: 2

The List elements are:
20
                MENU

 1.Create

 2.Display

 3.Delete from beginning

 4.Delete from the end

 5.Delete from specified position

 6.Exit

---------------------------------------
Enter your choice: 5

Enter the position of the node to be deleted: 0

The deleted element is:20
```

```
                MENU

 1.Create

 2.Display

 3.Delete from beginning

 4.Delete from the end

 5.Delete from specified position

 6.Exit

---------------------------------------
Enter your choice: 2

List is empty:

                MENU

 1.Create

 2.Display

 3.Delete from beginning

 4.Delete from the end

 5.Delete from specified position

 6.Exit

---------------------------------------
Enter your choice: 6
```