Language C

main.c

```c

#include <stdio.h>
#include<string.h>
#include<stdlib.h>
/*this program is a menu driven program of insertion in lenked list
  insertion any-where in linked list possible through this program
  1.basically you asked to creat a list any numbers
  2.traverse that linked list
  3.option menu display
  4.select any one according to your wish
  5.display that OPERATION based changes in already existing list
 */
 struct node
  {
      char name[50];//node data part
      long telephone;
      struct node*next;//pointer part of node
  };
      //fuctions to be needed declaration
      void cREATlist(int);//function declaration for creating a list
      void insertMIDDLEAFTER(int);//any position after a node
      void insertMIDDLEBEfore(int);//any position before a node
      int display();
      void menu(void);
      void search();

      void deleteMIDDLE(int);
      //some pointer to struct node declared which further needed in program

      struct node*head=NULL;//constant pointer always holds the adress of node1 of list
      struct node*newnode=NULL;//node created memory allocated adress holds
      struct node*temp=NULL;//this pointer needed for traversing of list
int main()
{


    int num;
    int pos;
    int choice;
    int userchoice;
    int count;
    char name[50];
    long telephone;
    //this is menu based of inserting program
    //used do-while loop for again asked user choice
    //used control statements switch CASE for menu based option selection
```

```c

do{
    printf("ENTER HOW MANY CUSTOMER DETAILS Y WANT TO STORE:");
    scanf("%d",&num);
    //cREATlist function call for creating list
    cREATlist(num);

    count=display();
    //menu function call
    menu();
    printf("\nEnter your choice:(1,2,3,4):");
    scanf("%d",&userchoice);
    switch(userchoice)
    {

     //insert after given position operation
        case 1:
    printf("\nEnter the position after which the cunstomer DETAILS is to be inserted:");
   scanf("%d",&pos);

        if(pos>count)
        {
          printf("INVALID POSITION");
        }
       else{
     //insertMIDDLE function call
        insertMIDDLEAFTER(pos);
        printf("\nINSERTION HAS COMPLETED SUCCESSFULY:\n");
        display();
        }
      break;

     //insert before given position operation
     case 2:
       printf("\nEnter position before which the CUSTOMER DETAILS is to be inserted:");
       scanf("%d",&pos);

       if(pos==0||pos>count)
        {
        printf("INVALID POSITION");
        }
        else
        {
        insertMIDDLEBEfore(pos);
        printf("\nINSERTION HAS COMPLETED SUCCESSFULY:\n");
        display();
        }
       break;

    //delete operation
    case 3:
        printf("\nEnter position which CUSTOMER data you want to delete:");
        scanf("%d",&pos);
        deleteMIDDLE(pos);
        printf("\nDELETION RESULT:\n");
        display();
        break;

    //searching data operation
    case 4:
        printf("\nEnter the name which you want to search from list:");
        scanf("%s",name);
        search(name);
        break;

    default:
        printf("\nCHOICE ONLY 1,2,3,4\n");
    break;
    }

    printf("\nDO YOU WISH TO PERFORM THIS AGAIN(Y=1,N=0):");
    scanf("%d",&choice);
  }
   while(choice!=0);
  printf("\n\nTHANK YOU SIR FOR VISIT HARE!");

    return 0;
}
    //function defination of creating a list named cREATlist
```

```c
}
//function defination of creating a list named cREATlist
void  cREATlist(int num)
 {
      int i;
      newnode=(struct node*)malloc(sizeof(struct node));
      //condition for memory allocation
      if(newnode==NULL)
       {
        printf("NO memory available in HEAP");
        exit(0);
       }
       else
        {
         printf("Enter name of customer:");
         scanf("%s",newnode->name);
         printf("Enter telephone number:");
         scanf("%ld",&newnode->telephone);

         newnode->next=NULL;
         head=newnode;
         temp=head;
        }
   for(i=2;i<=num;i++)
     {
       newnode=(struct node*)malloc(sizeof(struct node));
       if(newnode==NULL)
        {
         printf("MEMORY AVAILABLE ONLY FOR ONE NODE CTREAT:");
        }
        else
         {
           printf("Enter name of customer:");
           scanf("%s",newnode->name);
           printf("Enter telephone number:");
           scanf("%ld",&newnode->telephone);
            newnode->next=NULL;
            temp->next=newnode;
            temp=newnode;

         }

     }

 }
 //display function defination for displaying elements of a exsisting linked list
 int display()
 {   int count=0;
      temp=head;
      printf("\n.....................CUSTOMER DETAILS.....................
      printf("\tNAME OF CUSTOMER\tTELEPHONE NUMBER:\n");
      while(temp!=NULL)
       {
        count++;
        printf("\t%s",temp->name);
        printf("\t\t\t%ld\n",temp->telephone);
        temp=temp->next;
       }

      printf("\tcurrently created node in a list:%d\n",count);
      printf("...................................................................
      /*if(pos>count)
      printf("\ninsertion at middle not posible due to this position not existin in
      return(count);
 }
 void menu(void)
 {

  printf("\t.....................OPERATION MENU.........................\n\n");
  printf("\t1.INTERTION A NEW CUSTOMER DETAILS AFTER GIVEN POSITION:");
  printf("\n\t2.INSERTION A  NEW CUSTOMER DETAILS BEFORE GIVEN POSITION:");
  printf("\n\t3.DELETE A DETAILS OF CUSTOMER FROM LIST:");
  printf("\n\t4.SEARCH A CUSTOMER DETAILS FROM LIST:\n");

 }
```

```c
//insertion a node after any postion of node
void insertMIDDLEAFTER(int pos)
 {
     int i=1;
     char name[50];
     long telephone;

     struct node*fnnode=NULL;

     fnnode=(struct node*)malloc(sizeof(struct node));
     if(fnnode==NULL)
      {
       printf("\ninsertion of node at middle of list not possible due to insufficien
      }
      else
      {
        fnnode->next=NULL;
        printf("Enter the name of new CUSTOMER:");
        scanf("%s",fnnode->name);
        printf("Enter the telephone number of new CUSTOMER:");
        scanf("%ld",&fnnode->telephone);
        //fnnode->name=name;
        //fnnode->telephone=telephone;
        temp=head;
        while(i<pos)
         {
           temp=temp->next;
           i++;
         }
         fnnode->next=temp->next;
         temp->next=fnnode;
      }

 }

 //function defination for insertion before position of node of list
void insertMIDDLEBEfore(int pos)
{
   struct node*fnnode=NULL;
   int i=1;
   char name[50];
   long telephone;

   fnnode=(struct node*)malloc(sizeof(struct node));
   if(fnnode==NULL)
    {
     printf("\nmemory not allocated");
    }
    else
    {
      fnnode->next=NULL;
      printf("Enter name of new CUSTOMER:");
      scanf("%s",fnnode->name);
      printf("Enter telephone number of new CUSTOMER:");
      scanf("%ld",&fnnode->telephone);

     if(pos==1)
      {

        fnnode->next=head;
        head=fnnode;
      }
   else{

   temp=head;
   while(i<pos-1)
   {
     temp=temp->next;
     i++;
   }

   fnnode->next=temp->next;
   temp->next=fnnode;
    }
    }

}
```

```
287
288   void deleteMIDDLE(int pos)
289 {
290    struct node*temp,*temp1;
291    int i=1;
292    int choice;
293    printf("DO YOU WANT TO DEEETE DATA(Y=1):");
294    scanf("%d",&choice);
295    switch(choice)
296    {
297
298    case 1:
299    if(head==NULL)
300     {
301      printf("no list created");
302     }
303     else
304     {
305      temp=head;
306      if(pos==1)
307      {
308
309        head=temp->next;
310        free(temp);
311      }
312     else{
313      for(i=1;i<pos;i++)
314      {
315        temp1=temp;
316        temp=temp->next;
317      }
318      temp1->next=temp->next;
319      free(temp);
320
321      }
322     }
323     break;
324     default:
325     printf("OK SIR AS YOUR WISH!\n");
326     break;
327    }
328 }
329
330 void search(char name[])
331 {
332    struct node*temp;
333    int i=1,count=0;
334    temp=head;
335    while(temp!=NULL)
336     {
337        if(strcmp(temp->name,name)==0){
338 printf("Data of a CUSTOMER to be SEARCH found in CUSTOMER DETAILS list at position:%d\n",i
339          count++;
340        }
341        i++;
342        temp=temp->next;
343     }
344
345     if(count==0)
346     printf("data of CUSTOMER to be SEARCH not founded in CUSTOMER DETAILS list");
347
348     else
349      printf("SEARCH SUCCESFUL:");
350 }
351
```

```
input
ENTER HOW MANY CUSTOMER DETAILS Y WANT TO STORE:2
Enter name of customer:vinit
Enter telephone number:7703931738
Enter name of customer:ritu
Enter telephone number:9871768552

.....................CUSTOMER DETAILS.....................................
        NAME OF CUSTOMER        TELEPHONE NUMBER:
        vinit                   7703931738
        ritu                    9871768552
        currently created node in a list:2
.............................................................................

        .....................OPERATION MENU.....................

        1.INTERTION A NEW CUSTOMER DETAILS AFTER GIVEN POSITION:
        2.INSERTION A  NEW CUSTOMER DETAILS BEFORE GIVEN POSITION:
        3.DELETE A DETAILS OF CUSTOMER FROM LIST:
        4.SEARCH A CUSTOMER DETAILS FROM LIST:

Enter your choice:(1,2,3,4):1

Enter the position after which the cunstomer DETAILS is to be inserted:2
Enter the name of new CUSTOMER:anupam
Enter the telephone number of new CUSTOMER:9911964926

INSERTION HAS COMPLETED SUCCESSFULY:

.....................CUSTOMER DETAILS.....................................
        NAME OF CUSTOMER        TELEPHONE NUMBER:
        vinit                   7703931738
        ritu                    9871768552
        anupam                  9911964926
        currently created node in a list:3
.............................................................................


DO YOU WISH TO PERFORM THIS AGAIN(Y=1,N=0):0


THANK YOU SIR FOR VISIT HARE!

...Program finished with exit code 0
Press ENTER to exit console.
```

```
input
ENTER HOW MANY CUSTOMER DETAILS Y WANT TO STORE:3
Enter name of customer:vinit
Enter telephone number:7703931738
Enter name of customer:ritu
Enter telephone number:9871768552
Enter name of customer:sumit
Enter telephone number:9911964926

.....................CUSTOMER DETAILS.....................................
        NAME OF CUSTOMER        TELEPHONE NUMBER:
        vinit                   7703931738
        ritu                    9871768552
        sumit                   9911964926
        currently created node in a list:3
.....................................................................

        .....................OPERATION MENU.........................

        1.INTERTION A NEW CUSTOMER DETAILS AFTER GIVEN POSITION:
        2.INSERTION A  NEW CUSTOMER DETAILS BEFORE GIVEN POSITION:
        3.DELETE A DETAILS OF CUSTOMER FROM LIST:
        4.SEARCH A CUSTOMER DETAILS FROM LIST:

Enter your choice:(1,2,3,4):3

Enter position which CUSTOMER data you want to delete:1
DO YOU WANT TO DEEETE DATA(Y=1):1

DELETION RESULT:

.....................CUSTOMER DETAILS.....................................
        NAME OF CUSTOMER        TELEPHONE NUMBER:
        ritu                    9871768552
        sumit                   9911964926
        currently created node in a list:2
.....................................................................


DO YOU WISH TO PERFORM THIS AGAIN(Y=1,N=0):0


THANK YOU SIR FOR VISIT HARE!

...Program finished with exit code 0
Press ENTER to exit console.
```

```
input
ENTER HOW MANY CUSTOMER DETAILS Y WANT TO STORE:5
Enter name of customer:ritu
Enter telephone number:981768552
Enter name of customer:vinit
Enter telephone number:9911964926
Enter name of customer:neeraj
Enter telephone number:6578901234
Enter name of customer:manish
Enter telephone number:3456789024
Enter name of customer:sumit
Enter telephone number:7703931738

.....................CUSTOMER DETAILS.....................................
        NAME OF CUSTOMER        TELEPHONE NUMBER:
        ritu                    981768552
        vinit                   9911964926
        neeraj                  6578901234
        manish                  3456789024
        sumit                   7703931738
        currently created node in a list:5
.....................................................................

        .....................OPERATION MENU.........................

        1.INTERTION A NEW CUSTOMER DETAILS AFTER GIVEN POSITION:
        2.INSERTION A  NEW CUSTOMER DETAILS BEFORE GIVEN POSITION:
        3.DELETE A DETAILS OF CUSTOMER FROM LIST:
        4.SEARCH A CUSTOMER DETAILS FROM LIST:

Enter your choice:(1,2,3,4):4

Enter the name which you want to search from list:manish
Data of a CUSTOMER to be SEARCH found in CUSTOMER DETAILS list at position:4
SEARCH SUCCESFUL:
DO YOU WISH TO PERFORM THIS AGAIN(Y=1,N=0):0


THANK YOU SIR FOR VISIT HARE!

...Program finished with exit code 0
Press ENTER to exit console.
```