

```
1  /*addition of two Long integers*/
2
3  #include<stdio.h>
4  #include<stdlib.h>
5  #include<string.h>
6  struct NODE
7  {
8      int info;
9      struct NODE*link;
10 };
11 typedef struct NODE*node;
12 node getnode()
13 {
14     node x;
15     x=(node)malloc(sizeof(struct NODE));
16     if(x==NULL)
17     {
18         printf("out of memory\n");
19         exit(0);
20     }
21     return x;
22 }
23 node ins_front(node first,int item)
24 {
25     node temp;
26     temp=getnode();
27     temp->info=item;
28     temp->link=first;
29     return temp;
30 }
31 node extract(char *s,node head)
32 {
33     int i,n;
34     for(i=0;i<strlen(s);i++)
35     {
36         n=s[i]-'0';
37         head=ins_front(head,n);
38     }
39     return head;
```

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37     head=ins_front(head,n);
38 }
39 return head;
40 }
41
42 node addlong(node head1,node head2,node head3)
43 {
44     int temp,sum,carry=0;
45     node cur1,cur2;
46     cur1=head1;
47     cur2=head2;
48     while(cur1!=NULL&&cur2!=NULL)
49     {
50         temp=cur1->info+cur2->info+carry;
51         if(temp>9)
52         {
53             sum=temp%10;
54             carry=temp/10;
55         }
56         else
57         {
58             sum=temp;
59             carry=0;
60         }
61         head3=ins_front(head3,sum);
62         cur1=cur1->link;
63         cur2=cur2->link;
64     }
65     while(cur1!=NULL)
66     {
67         temp=cur1->info+carry;
68         if(temp>9)
69         {
70             sum=temp%10;
71             carry=temp/10;
72         }
73         else
74         {
75             sum=temp;
```

```
73     else
74     {
75         sum=temp;
76         carry=0;
77     }
78     head3=ins_front(head3,sum);
79     cur1=cur1->link;
80 }
81 while(cur2!=NULL)
82 {
83     temp=cur2->info+carry;
84     if(temp>9)
85     {
86         sum=temp%10;
87         carry=temp/10;
88     }
89     else
90     {
91         sum=temp;
92         carry=0;
93     }
94     head3=ins_front(head3,sum);
95     cur2=cur2->link;
96 }
97 if(cur1==NULL&&cur2==NULL)
98 {
99     if(carry==1)
100     head3=ins_front(head3,carry);
101 }
102 return head3;
103 }
104 void display(node first)
105 {
106     node cur;
107     if(first==NULL)
108     {
109         printf("Empty\n");
110         return;
111     }
```

main.c

```
102     return head3;
103 }
104 void display(node first)
105 {
106     node cur;
107     if(first==NULL)
108     {
109         printf("Empty\n");
110         return;
111     }
112     cur=first;
113     while(cur!=NULL)
114     {
115         printf("%d\t",cur->info);
116         cur=cur->link;
117     }
118 }
119 void main()
120 {
121     int ch;
122     node head1=NULL;
123     node head2=NULL;
124     node head3=NULL;
125     char s1[30],s2[30];
126     printf("\nEnter first integer\n");
127     scanf("%s",s1);
128     head1=extract(s1,head1);
129     display(head1);
130     printf("\nEnter second integer\n");
131     scanf("%s",s2);
132     head2=extract(s2,head2);
133     display(head2);
134     head3=addlong(head1,head2,head3);
135     printf("\nThe result is\n");
136     display(head3);
137 }
138
139
140
```

input

Enter first integer

12458912

2	1	9	8	5	4	2	1
---	---	---	---	---	---	---	---

Enter second integer

34791309

9	0	3	1	9	7	4	3
---	---	---	---	---	---	---	---

The result is

4	7	2	5	0	2	2	1
---	---	---	---	---	---	---	---

...Program finished with exit code 0

Press ENTER to exit console.