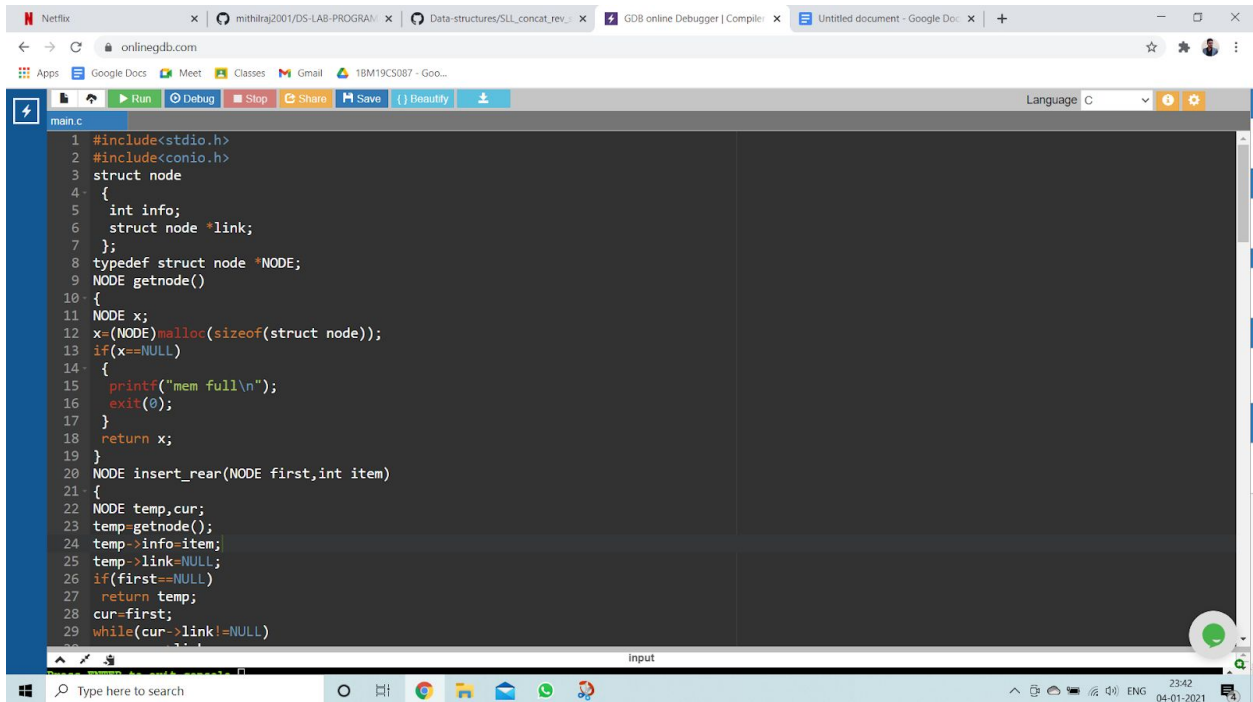


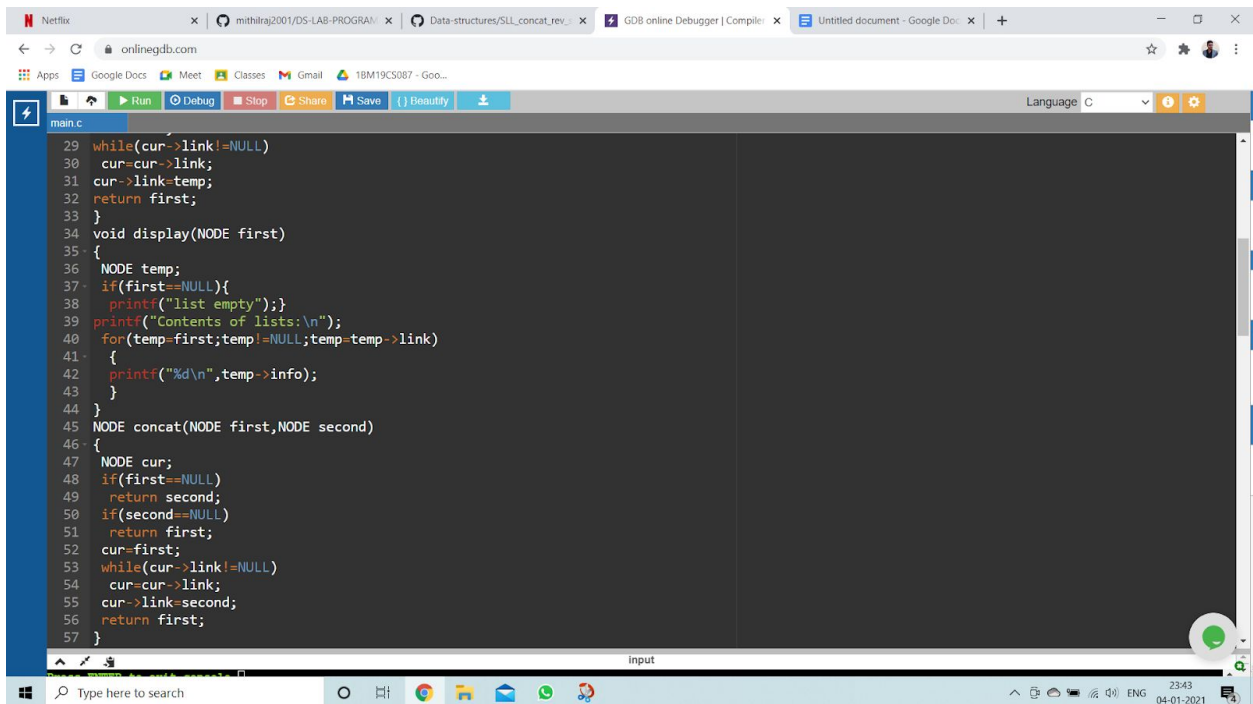
DS LAB PROGRAM 7

EXECUTION:-



This screenshot shows the first part of a C program in the onlinegdb.com IDE. The code defines a linked list structure and includes functions to get a new node and insert a new node at the rear of the list.

```
main.c
1 #include<stdio.h>
2 #include<conio.h>
3 struct node
4 {
5     int info;
6     struct node *link;
7 };
8 typedef struct node *NODE;
9 NODE getnode()
10 {
11     NODE x;
12     x=(NODE)malloc(sizeof(struct node));
13     if(x==NULL)
14     {
15         printf("mem full\n");
16         exit(0);
17     }
18     return x;
19 }
20 NODE insert_rear(NODE first,int item)
21 {
22     NODE temp,cur;
23     temp=getnode();
24     temp->info=item;
25     temp->link=NULL;
26     if(first==NULL)
27         return temp;
28     cur=first;
29     while(cur->link!=NULL)
```

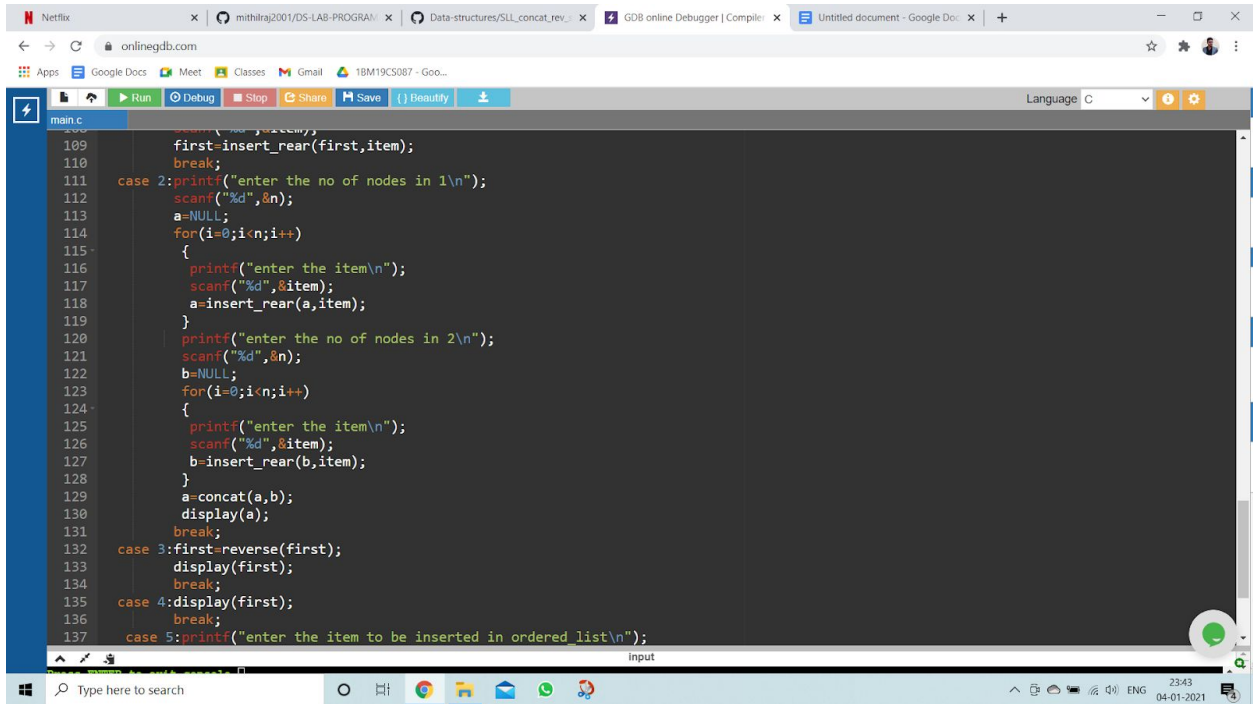


This screenshot shows the second part of the C program, including functions to display the contents of the linked list and to concatenate two linked lists.

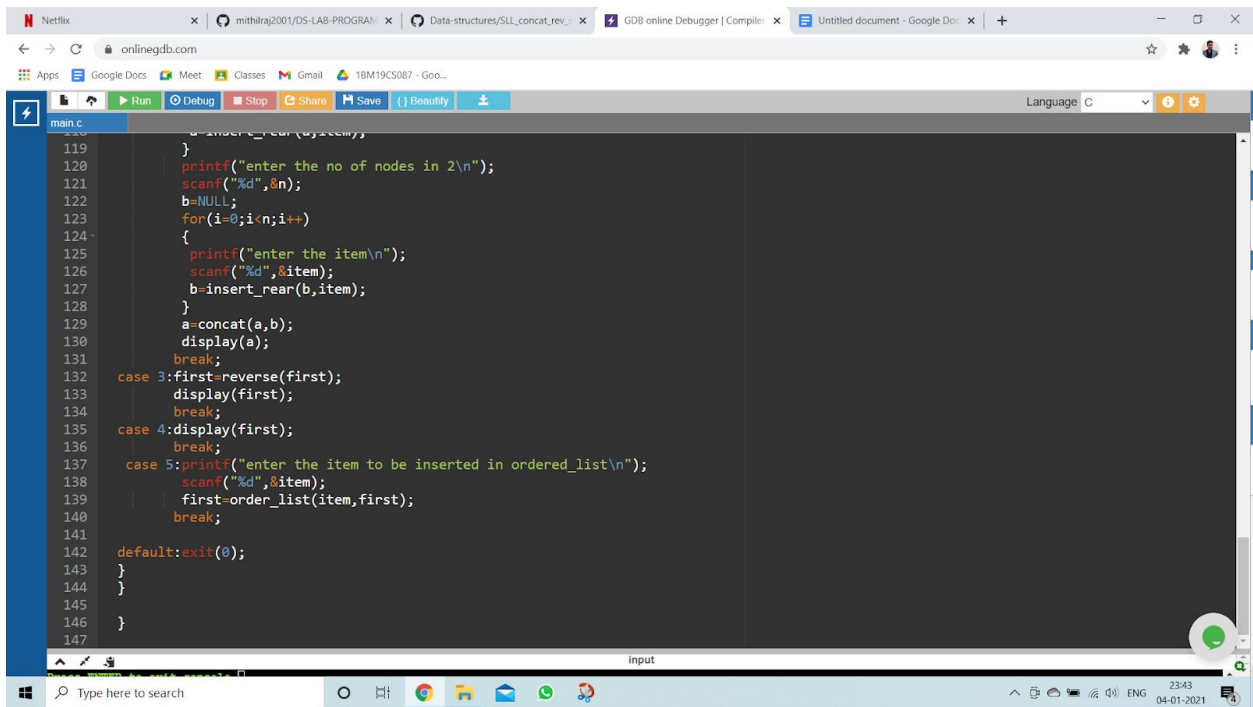
```
29 while(cur->link!=NULL)
30     cur=cur->link;
31     cur->link=temp;
32     return first;
33 }
34 void display(NODE first)
35 {
36     NODE temp;
37     if(first==NULL){
38         printf("list empty");
39     }
40     printf("Contents of lists:\n");
41     for(temp=first;temp!=NULL;temp=temp->link)
42     {
43         printf("%d\n",temp->info);
44     }
45 }
46 NODE concat(NODE first,NODE second)
47 {
48     NODE cur;
49     if(first==NULL)
50         return second;
51     if(second==NULL)
52         return first;
53     cur=first;
54     while(cur->link!=NULL)
55         cur=cur->link;
56     cur->link=second;
57     return first;
58 }
```

```
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Apps Google Docs Meet Classes Gmail 1BM19CS087 - Goo...
Language C
main.c
56 reverse first;
57 }
58 NODE reverse(NODE first)
59 {
60     NODE cur,temp;
61     cur=NULL;
62     while(first!=NULL)
63     {
64         temp=first;
65         first=first->link;
66         temp->link=cur;
67         cur=temp;
68     }
69     return cur;
70 }
71 NODE order_list(int item,NODE first)
72 {
73     NODE temp,prev,cur;
74     temp=getnode();
75     temp->info=item;
76     temp->link=NULL;
77     if(first==NULL) return temp;
78     if(item<first->info)
79     {
80         temp->link=first;
81         return temp;
82     }
83     prev=NULL;
84     cur=first;
85     while(cur!=NULL&&item>cur->info)
```

```
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Apps Google Docs Meet Classes Gmail 1BM19CS087 - Goo...
Language C
main.c
84 cur=first;
85 while(cur!=NULL&&item>cur->info)
86 {
87     prev=cur;
88     cur=cur->link;
89 }
90 prev->link=temp;
91 temp->link=cur;
92 return first;
93 }
94
95 void main()
96 {
97     int item,choice,pos,i,n;
98     NODE first=NULL,a,b;
99
100     for(;;)
101     {
102         printf("1.insert_front\n2.concat\n3.reverse\n4.display\n5.order list\n6.exit\n");
103         printf("enter the choice\n");
104         scanf("%d",&choice);
105         switch(choice)
106         {
107             case 1:printf("enter the item\n");
108                     scanf("%d",&item);
109                     first=insert_rear(first,item);
110                     break;
111             case 2:printf("enter the no of nodes in 1\n");
112                     scanf("%d",&n);
113                     a=NULL;
```



```
main.c
109     first=insert_rear(first,item);
110     break;
111 case 2:printf("enter the no of nodes in 1\n");
112     scanf("%d",&n);
113     a=NULL;
114     for(i=0;i<n;i++)
115     {
116         printf("enter the item\n");
117         scanf("%d",&item);
118         a=insert_rear(a,item);
119     }
120     printf("enter the no of nodes in 2\n");
121     scanf("%d",&n);
122     b=NULL;
123     for(i=0;i<n;i++)
124     {
125         printf("enter the item\n");
126         scanf("%d",&item);
127         b=insert_rear(b,item);
128     }
129     a=concat(a,b);
130     display(a);
131     break;
132 case 3:first=reverse(first);
133     display(first);
134     break;
135 case 4:display(first);
136     break;
137 case 5:printf("enter the item to be inserted in ordered_list\n");
138     scanf("%d",&item);
139     first=insert_rear(first,item);
140     break;
141 default:exit(0);
142 }
143 }
144 }
145 }
146 }
```



```
main.c
119     }
120     printf("enter the no of nodes in 2\n");
121     scanf("%d",&n);
122     b=NULL;
123     for(i=0;i<n;i++)
124     {
125         printf("enter the item\n");
126         scanf("%d",&item);
127         b=insert_rear(b,item);
128     }
129     a=concat(a,b);
130     display(a);
131     break;
132 case 3:first=reverse(first);
133     display(first);
134     break;
135 case 4:display(first);
136     break;
137 case 5:printf("enter the item to be inserted in ordered_list\n");
138     scanf("%d",&item);
139     first=insert_rear(first,item);
140     break;
141 default:exit(0);
142 }
143 }
144 }
145 }
146 }
```

OUTPUT:-

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main.c

```
118 }
119 }
120 printf("enter the no of nodes in 2\n");
121 scanf("%d",&n);
122 b=NULL;
```

Input

```
main.c:142:11: warning: incompatible implicit declaration of built-in function 'exit'
main.c:142:11: note: include '<stdlib.h>' or provide a declaration of 'exit'
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit
enter the choice
1
enter the item
10
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit
enter the choice
1
enter the item
20
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit
```

Type here to search

23:43 04-01-2021

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main.c

```
118 }
119 }
120 printf("enter the no of nodes in 2\n");
121 scanf("%d",&n);
122 b=NULL;
```

Input

```
4.display
5.order list
6.exit
enter the choice
1
enter the item
30
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit
enter the choice
5
enter the item to be inserted in ordered_list
15
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit
enter the choice
4
Contents of lists:
10
```

Type here to search

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main.c

119 }
120 printf("enter the no of nodes in 2\n");
121 scanf("%d",&n);
122 b=NULL;

Language C

input

Contents of lists:
10
15
20
30
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit
enter the choice
2
enter the no of nodes in 1
2
enter the item
12
enter the item
14
enter the no of nodes in 2
3
enter the item
15
enter the item
16
enter the item
17

Type here to search

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main.c

```
118 }
119 }
120 printf("enter the no of nodes in 2\n");
121 scanf("%d",&n);
122 b=NULL;
```

input

enter the item
17
Contents of lists:
12
14
15
16
17
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit
enter the choice
3
Contents of lists:
30
20
15
10
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit

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main.c

```
118 }
119 }
120 printf("enter the no of nodes in 2\n");
121 scanf("%d",&n);
122 b=NULL;
```

input

16
17
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit
enter the choice
3
Contents of lists:
30
20
15
10
1.insert_front
2.concat
3.reverse
4.display
5.order list
6.exit
enter the choice
6
...Program finished with exit code 0
Press ENTER to exit console.

Type here to search

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