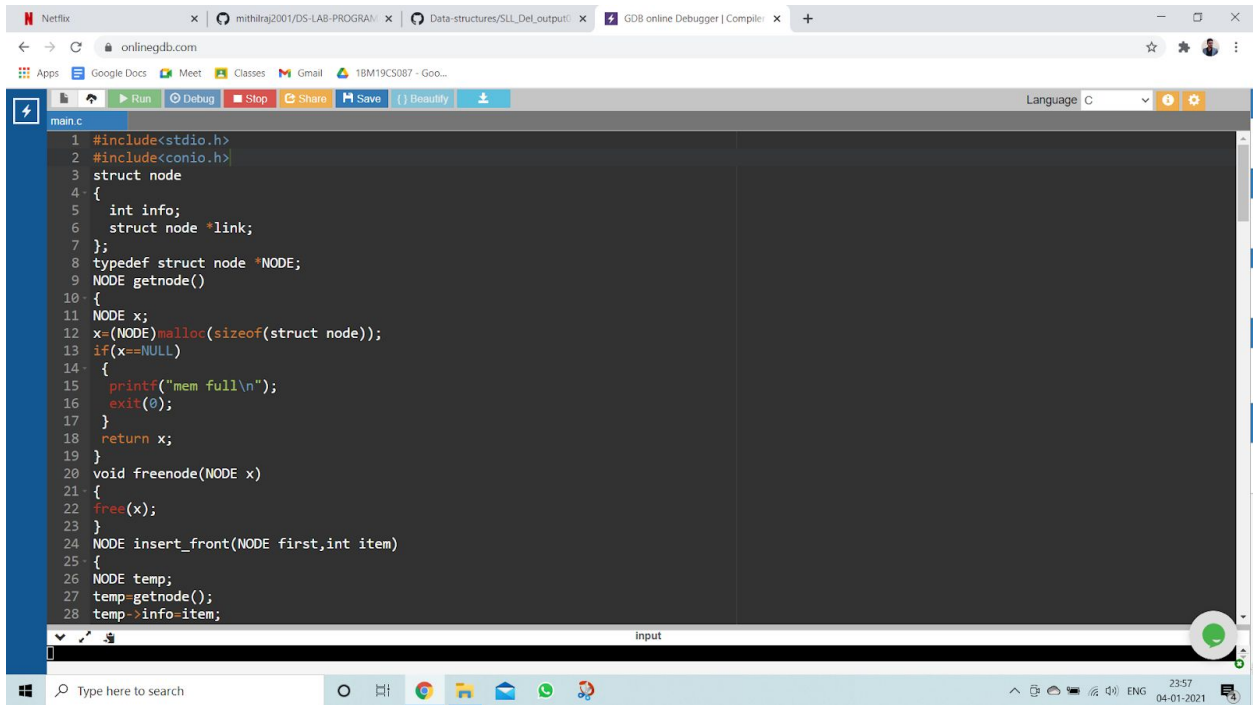


DS LAB PROGRAM 6

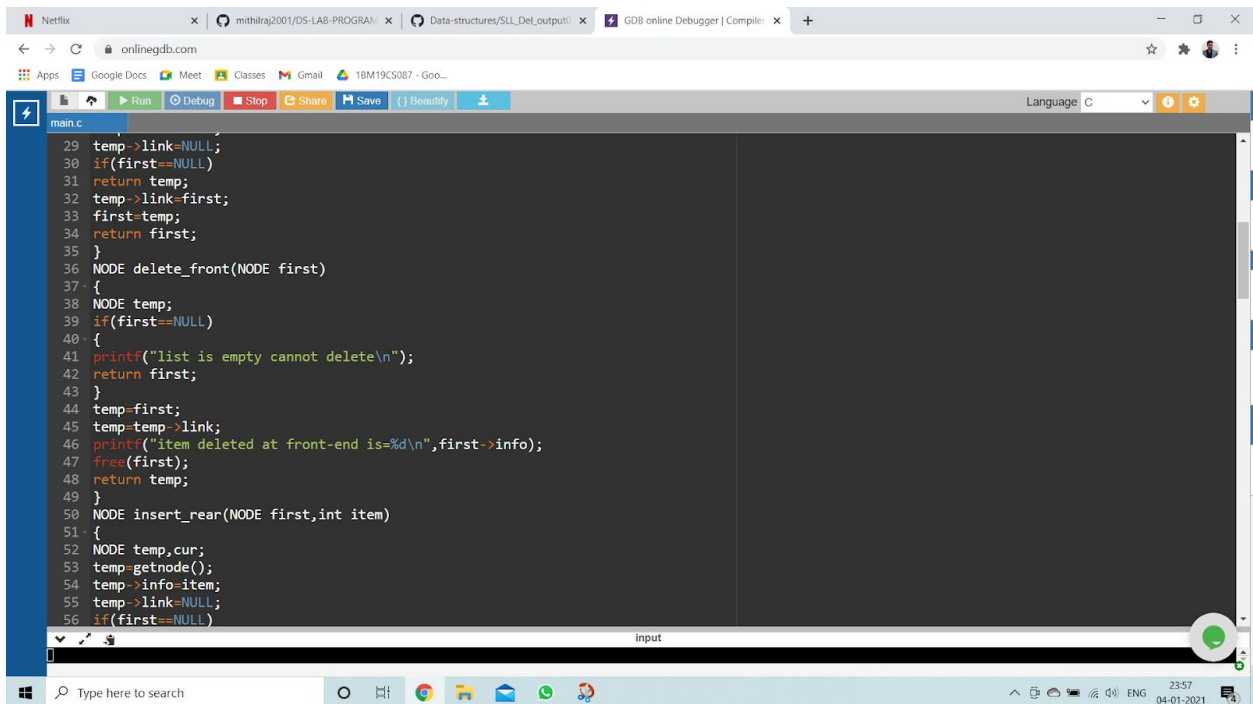
EXECUTION:-



The screenshot shows the onlinegdb.com IDE with a C program for a linked list. The code is as follows:

```
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 void freenode(NODE x)
21 {
22     free(x);
23 }
24 NODE insert_front(NODE first,int item)
25 {
26     NODE temp;
27     temp=getnode();
28     temp->info=item;
```

The IDE interface includes a top toolbar with buttons for Run, Debug, Stop, Share, Save, and Beautify. The bottom status bar shows the system time as 23:57 on 04-01-2021.



The screenshot shows the continuation of the C program in the onlinegdb.com IDE. The code is as follows:

```
29     temp->link=NULL;
30     if(first==NULL)
31         return temp;
32     temp->link=first;
33     first=temp;
34     return first;
35 }
36 NODE delete_front(NODE first)
37 {
38     NODE temp;
39     if(first==NULL)
40     {
41         printf("list is empty cannot delete\n");
42         return first;
43     }
44     temp=first;
45     temp=temp->link;
46     printf("item deleted at front-end is=%d\n",first->info);
47     free(first);
48     return temp;
49 }
50 NODE insert_rear(NODE first,int item)
51 {
52     NODE temp,cur;
53     temp=getnode();
54     temp->info=item;
55     temp->link=NULL;
56     if(first==NULL)
```

The IDE interface is consistent with the previous screenshot, showing the same toolbar and system status bar.

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 for deleting the rear node and deleting a node by its information.

```
main.c
56 {first=NULL;
57 return temp;
58 cur=first;
59 while(cur->link!=NULL)
60 cur=cur->link;
61 cur->link=temp;
62 return first;
63 }
64 NODE delete_rear(NODE first)
65 {
66 NODE cur,prev;
67 if(first==NULL)
68 {
69 printf("list is empty cannot delete\n");
70 return first;
71 }
72 if(first->link==NULL)
73 {
74 printf("item deleted is %d\n",first->info);
75 free(first);
76 return NULL;
77 }
78 prev=NULL;
79 cur=first;
80 while(cur->link!=NULL)
81 {
82 prev=cur;
83 cur=cur->link;
84 }
```

The IDE interface includes a top toolbar with buttons for Run, Debug, Stop, Share, Save, and Beautify. The language is set to C. The Windows taskbar at the bottom shows the search bar and several open applications.

This screenshot shows the second part of the C program in the onlinegdb.com IDE. It continues the implementation of the delete_rear function and introduces a new function, delete_info, which deletes a node based on a specific key.

```
main.c
81 {
82 prev=cur;
83 cur=cur->link;
84 }
85 printf("item deleted at rear-end is %d",cur->info);
86 free(cur);
87 prev->link=NULL;
88 return first;
89 }
90
91 NODE delete_info(int key,NODE first)
92 {
93 NODE prev,cur;
94 if(first==NULL)
95 {
96 printf("list is empty\n");
97 return NULL;
98 }
99 if(key==first->info)
100 {
101 cur=first;
102 first=first->link;
103 free(cur);
104 return first;
105 }
106 prev=NULL;
107 cur=first;
108 while(cur->link!=NULL)
```

The IDE interface is consistent with the previous screenshot, showing the same toolbar and Windows taskbar. The code continues with the implementation of the delete_info function.

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main.c

```
105 }
106 prev=NULL;
107 cur=first;
108 while(cur!=NULL)
109 {
110     if(key==cur->info)break;
111     prev=cur;
112     cur=cur->link;
113 }
114 if(cur==NULL)
115 {
116     printf("search is unsuccessful\n");
117     return first;
118 }
119 prev->link=cur->link;
120 printf("key deleted is %d",cur->info);
121 freenode(cur);
122 return first;
123 }
124 void display(NODE first)
125 {
126     NODE temp;
127     if(first==NULL){
128         printf("list empty cannot display items\n");
129         printf("Contents of lists:\n");
130         for(temp=first;temp!=NULL;temp=temp->link)
131         {
132             printf("%d\n",temp->info);
133         }
134     }
135 }
```

input

Type here to search

23:58 04-01-2021

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main.c

```
122     printf("Contents of lists:\n");
123     for(temp=first;temp!=NULL;temp=temp->link)
124     {
125         printf("%d\n",temp->info);
126     }
127 }
128 void main()
129 {
130     int item,choice,key;
131     NODE first=NULL;
132     for(;;)
133     {
134         printf("\n 1:Insert_front\n 2:Delete_front\n 3:Insert_rear\n 4:Delete_rear\n");
135         printf(" 5:Delete_info\n 6:Display_list\n 7:Exit\n");
136         printf("enter the choice\n");
137         scanf("%d",&choice);
138         switch(choice)
139         {
140             case 1:printf("enter the item at front-end\n");
141                     scanf("%d",&item);
142                     first=insert_front(first,item);
143                     break;
144             case 2:first=delete_front(first);
145                     break;
146             case 3:printf("enter the item at rear-end\n");
147                     scanf("%d",&item);
148                     first=insert_rear(first,item);
149                     break;
150             case 4:first=delete_rear(first);
151                     break;
152             case 5:printf("key deleted is %d",cur->info);
153                     freenode(cur);
154                     return first;
155             case 6:display(first);
156             case 7:exit(0);
157         }
```

input

Type here to search

23:58 04-01-2021

```
140- {
141-     printf("\n 1:Insert_front\n 2:Delete_front\n 3:Insert_rear\n 4:Delete_rear\n");
142-     printf(" 5:Delete_info\n 6:Display_list\n 7:Exit\n");
143-     printf("enter the choice\n");
144-     scanf("%d",&choice);
145-     switch(choice)
146-     {
147-     case 1:printf("enter the item at front-end\n");
148-            scanf("%d",&item);
149-            first=insert_front(first,item);
150-            break;
151-     case 2:first=delete_front(first);
152-            break;
153-     case 3:printf("enter the item at rear-end\n");
154-            scanf("%d",&item);
155-            first=insert_rear(first,item);
156-            break;
157-     case 4:first=delete_rear(first);
158-            break;
159-     case 5:printf("enter the key to be deleted\n");
160-            scanf("%d",&key);
161-            first=delete_info(key,first);
162-            break;
163-     case 6:display(first);
164-            break;
165-     default:exit(0);
166-            break;
167-     }
168- }
```

input

```
144- scanf("%d",&choice);
145- switch(choice)
146- {
147- case 1:printf("enter the item at front-end\n");
148-        scanf("%d",&item);
149-        first=insert_front(first,item);
150-        break;
151- case 2:first=delete_front(first);
152-        break;
153- case 3:printf("enter the item at rear-end\n");
154-        scanf("%d",&item);
155-        first=insert_rear(first,item);
156-        break;
157- case 4:first=delete_rear(first);
158-        break;
159- case 5:printf("enter the key to be deleted\n");
160-        scanf("%d",&key);
161-        first=delete_info(key,first);
162-        break;
163- case 6:display(first);
164-        break;
165- default:exit(0);
166-        break;
167- }
168- }
169- getch();
170- }
```

input

OUTPUT:-

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Language C

```
main.c:86:1: warning: incompatible implicit declaration of built-in function 'free'
main.c:86:1: note: include '<stdlib.h>' or provide a declaration of 'free'
main.c:165:11: warning: incompatible implicit declaration of built-in function 'exit'
main.c:165:11: note: include '<stdlib.h>' or provide a declaration of 'exit'

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
1
enter the item at front-end
10

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
1
enter the item at front-end
20

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
```

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Language C

```
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
1
enter the item at front-end
30

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
1
enter the item at front-end
40

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
1
enter the item at front-end
50
```

Type here to search

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input

Language G

50

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
6
Contents of lists:
50
40
30
20
10

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
5
enter the key to be deleted
40
key deleted is 40
1:Insert_front
2:Delete_front
3:Insert_rear

Type here to search

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Language C

```
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
5
enter the key to be deleted
50

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
6
Contents of lists:
30
20
10

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
```

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Language C

```
7:Exit
enter the choice
5
enter the key to be deleted
50

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
6
Contents of lists:
30
20
10

1:Insert_front
2:Delete_front
3:Insert_rear
4:Delete_rear
5:Delete_info
6:Display_list
7:Exit
enter the choice
7

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

Type here to search

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