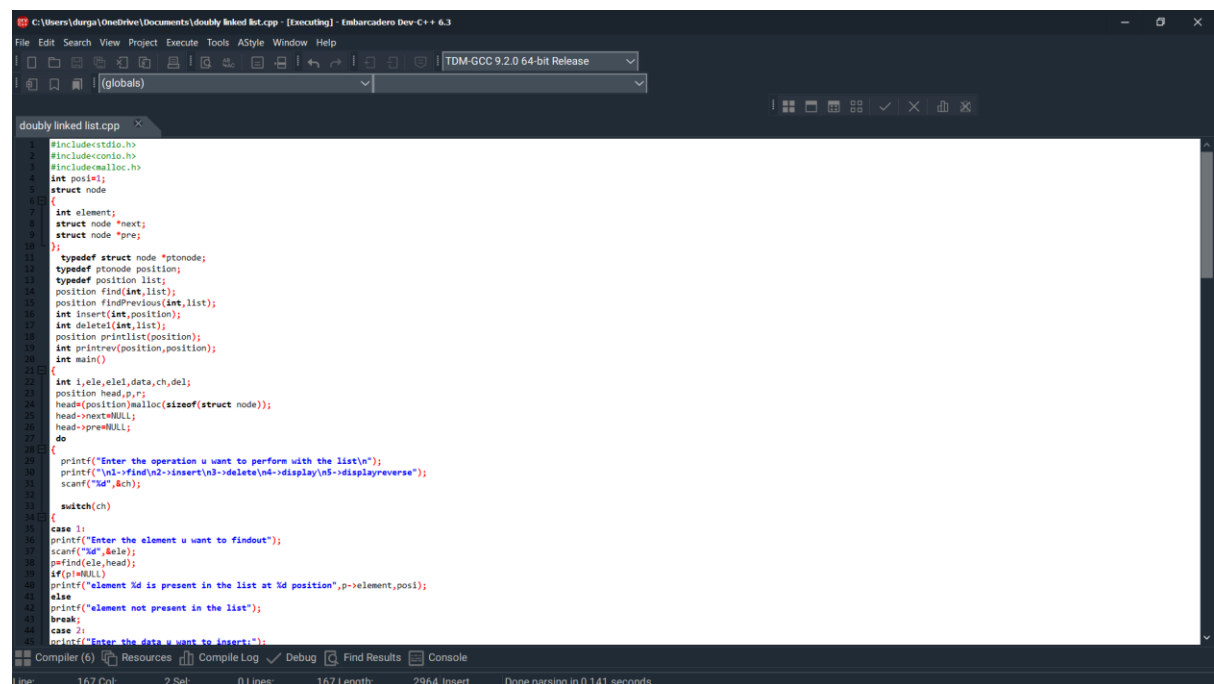
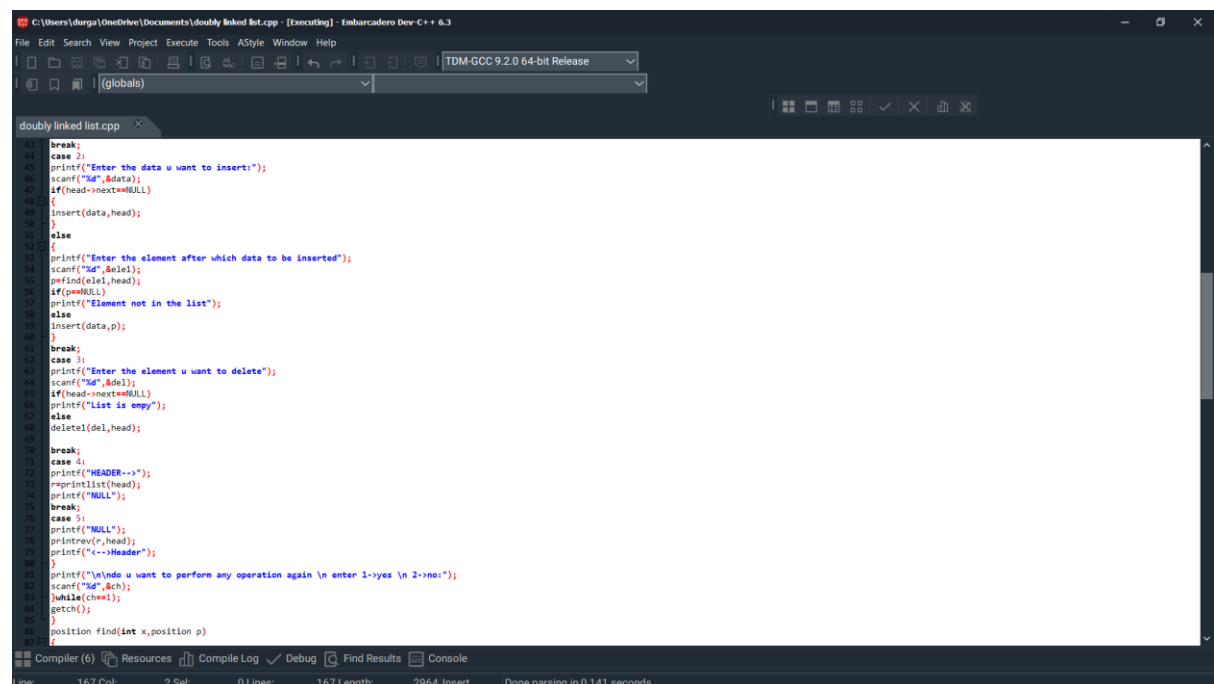


Day 4

1)doubly linked list



```
1 #include<stdio.h>
2 #include<conio.h>
3 #include<malloc.h>
4 int posi=1;
5 struct node
6 {
7     int element;
8     struct node *next;
9     struct node *pre;
10 };
11 typedef struct node *ptnode;
12 typedef ptnode position;
13 position *find(int, list);
14 position *findPrevious(int, list);
15 int insert(int, position);
16 int delete1(int, list);
17 position printlist(position);
18 int printrev(position, position);
19 int main()
20 {
21     int i, ele, ele1, data, ch, del;
22     position head, p, r;
23     head=(position)malloc(sizeof(struct node));
24     head->next=NULL;
25     head->pre=NULL;
26     do
27     {
28         printf("Enter the operation u want to perform with the list\n");
29         printf("\n1->find\n2->insert\n3->delete\n4->display\n5->displayreverse");
30         scanf("%d", &ch);
31         switch(ch)
32         {
33             case 1:
34                 printf("Enter the element u want to findout");
35                 scanf("%d", &ele);
36                 p=find(ele, head);
37                 if(p==NULL)
38                 {
39                     printf("element %d is present in the list at %d position", p->element, posi);
40                 }
41                 else
42                 {
43                     printf("element not present in the list");
44                 }
45                 break;
46             case 2:
47                 printf("Enter the data u want to insert");
48                 scanf("%d", &data);
49                 if(head->next==NULL)
50                 {
51                     Insert(data, head);
52                 }
53                 else
54                 {
55                     printf("Enter the element after which data to be inserted");
56                     scanf("%d", &ele1);
57                     p=find(ele1, head);
58                     if(p==NULL)
59                     {
60                         printf("Element not in the list");
61                     }
62                     else
63                     {
64                         Insert(data, p);
65                     }
66                 }
67                 break;
68             case 3:
69                 printf("Enter the element u want to delete");
70                 scanf("%d", &del);
71                 if(head->next==NULL)
72                 {
73                     printf("List is empty");
74                 }
75                 else
76                 {
77                     delete1(del, head);
78                 }
79                 break;
80             case 4:
81                 printf("Header-->");
82                 r=printlist(head);
83                 printf("NULL");
84                 break;
85             case 5:
86                 printf("NULL");
87                 printrev(r, head);
88                 printf("Header");
89                 break;
90             default:
91                 printf("\n u want to perform any operation again \n enter 1-yes \n 2-no");
92                 scanf("%d", &ch);
93                 while(ch==1)
94                 {
95                     getch();
96                 }
97                 position find(int x, position p)
98             }
```



```
99     {
100         break;
101     }
102     case 2:
103         printf("Enter the data u want to insert");
104         scanf("%d", &data);
105         if(head->next==NULL)
106         {
107             Insert(data, head);
108         }
109         else
110         {
111             printf("Enter the element after which data to be inserted");
112             scanf("%d", &ele1);
113             p=find(ele1, head);
114             if(p==NULL)
115             {
116                 printf("Element not in the list");
117             }
118             else
119             {
120                 Insert(data, p);
121             }
122         }
123         break;
124     case 3:
125         printf("Enter the element u want to delete");
126         scanf("%d", &del);
127         if(head->next==NULL)
128         {
129             printf("List is empty");
130         }
131         else
132         {
133             delete1(del, head);
134         }
135         break;
136     case 4:
137         printf("Header-->");
138         r=printlist(head);
139         printf("NULL");
140         break;
141     case 5:
142         printf("NULL");
143         printrev(r, head);
144         printf("Header");
145         break;
146     default:
147         printf("\n u want to perform any operation again \n enter 1-yes \n 2-no");
148         scanf("%d", &ch);
149         while(ch==1)
150         {
151             getch();
152         }
153         position find(int x, position p)
154     {
155         if(p==NULL)
156             return NULL;
157         if(p->element==x)
158             return p;
159         return find(x, p->next);
160     }
161 }
```

```
C:\Users\durga\OneDrive\Documents\doubly linked list.cpp - [Executing] - Embarcadero Dev C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)
doubly linked list.cpp
70 printf("c-->Header");
71 }
72 printf("\n\n do u want to perform any operation again \n enter 1->yes \n 2->no:");
73 scanf("%d",&ch);
74 while(ch==1)
75 {
76     position find(int x,position p)
77     {
78         position k;
79         k=p->next;
80         while(k!=NULL && k->element!=x)
81         {
82             k=k->next;
83             p=k;
84         }
85         return k;
86     }
87     int insert(int y,position p)
88     {
89         position tempcell;
90         tempcell=(position)malloc(sizeof(struct node));
91         tempcell->element=y;
92         tempcell->next=NULL;
93         tempcell->pre=NULL;
94         if(p->next==NULL)
95         {
96             p->next=tempcell;
97             tempcell->pre=p;
98         }
99         else
100         {
101             tempcell->next=p->next;
102             tempcell->pre=p;
103             p->next->pre=tempcell;
104             p->next=tempcell;
105         }
106     }
107     int deletel(int y,list h)
108     {
109         position p,pl;
110         p=find(y,h);
111         if(p->next==NULL)
112         {
113             return 0;
114         }
115     }
116 }
117
118 Compiler (6) Resources Compile Log Debug Find Results Console
Line: 167 Col: 2 Sel: 0 Lines: 167 Length: 2964 Insert Done parsing in 0.141 seconds
```

```
C:\Users\durga\OneDrive\Documents\doubly linked list.cpp - [Executing] - Embarcadero Dev C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)
doubly linked list.cpp
124 p->pre->next=NULL;
125 printf("the element %d is deleted from the list",y);
126 free(p);
127 }
128 else if(p==NULL)
129 {
130     printf("Element Not in the List");
131 }
132 else
133 {
134     p->pre->next=p->next;
135     p->next->pre=p;
136     printf("the element %d is deleted from the list",y);
137     free(p);
138 }
139 }
140
141 //position findPrevious(int y,list h)
142 {
143     position p;
144     p=h;
145     while(p->next!=NULL && p->next->element!=y)
146     {
147         p=p->next;
148     }
149     return p;
150 }
151
152 position printlist(position n)
153 {
154     position l,m;
155     for(l=n->next;l!=NULL;l=l->next)
156     {
157         printf("%d<-->",l->element);
158         m=l;
159     }
160     return(m);
161 }
162
163 int printrev(position l,position n)
164 {
165     position m;
166     for(m=l;m!=n;m=m->pre)
167     {
168         printf("c-->%d",m->element);
169     }
170 }
171
172 Compiler (6) Resources Compile Log Debug Find Results Console
Line: 167 Col: 2 Sel: 0 Lines: 167 Length: 2964 Insert Done parsing in 0.141 seconds
```

```
C:\Users\durga\OneDrive\Doc x + v
Enter the operation u want to perform with the list
1->find
2->insert
3->delete
4->display
5->displayreverse
2
Enter the data u want to insert:34

do u want to perform any operation again
enter 1->yes
2->no:1
Enter the operation u want to perform with the list
1->find
2->insert
3->delete
4->display
5->displayreverse2
Enter the data u want to insert:445
Enter the element after which data to be inserted34

do u want to perform any operation again
enter 1->yes
2->no:1
Enter the operation u want to perform with the list
1->find
2->insert
3->delete
4->display
5->displayreverse3
Enter the element u want to delete34
the element 34 is deleted from the list

do u want to perform any operation again
enter 1->yes
2->no:1
Enter the operation u want to perform with the list
```

2)singly linked list

```
C:\Users\durga\OneDrive\Documents\singly linked list.cpp - [Executing] - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)
doubly linked list.cpp x singly linked list.cpp
1 #include<stdio.h>
2 #include<conio.h>
3 #include<malloc.h>
4 int posi=1;
5 struct node
6 {
7     int element;
8     struct node *next;
9 };
10 typedef struct node *ptnode;
11 typedef ptnode position;
12 typedef position list;
13 position find(int,list);
14 position findPrevious(int,list);
15 int insert(int,position);
16 int delete(int,list);
17 int printlist(position);
18 int main()
19 {
20     int i,ele,del,data,ch,del;
21     position head,p;
22     head=(position)malloc(sizeof(struct node));
23     head->next=NULL;
24     do
25     {
26         printf("Enter the operation u want to perform with the list\n");
27         printf("\n1->Find\n2->insert\n3->delete\n4->display\n");
28         scanf("%d",&ch);
29     }
30     switch(ch)
31     {
32     case 1:
33         printf("Enter the element u want to findout");
34         scanf("%d",&ele);
35         p=find(ele,head);
36         if(p!=NULL)
37             printf("element %d is present in the list at %d position",p->element,posi);
38         else
39             printf("element not present in the list");
40         break;
41     case 2:
42         printf("Enter the data u want to insert:");
43         scanf("%d",&data);
44         if(head->next==NULL)
45             break;
```

```
C:\Users\durga\Desktop\Documents\shgpy linked list.cpp - [Executing] - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)

doubly linked list.cpp x singly linked list.cpp x
46 Insert(data,head);
47 }
48 else
49 {
50 printf("Enter the element after which data to be inserted");
51 scanf("%d",&del);
52 p=find(del,head);
53 if(p==NULL)
54 printf("Element not in the list");
55 else
56 insert(data,p);
57 }
58 break;
59 case 3:
60 printf("Enter the element u want to delete");
61 scanf("%d",&del);
62 delete(del,head);
63 break;
64 case 4:
65 printf("HEADER");
66 printlist(head);
67 printf("NULL");
68 break;
69 }
70 printf("\n u want to perform any operation again \n enter 1->yes \n 2->no:");
71 scanf("%d",&ch);
72 while(ch==1);
73 getch();
74 }
75 position find(int x,position p)
76 {
77 position k;
78 k=p->next;
79 while(k!=NULL && k->element!=x)
80 {
81 k=k->next;
82 p=k;
83 }
84 return k;
85 }
86 int insert(int y,position p)
87 {
88 position tempcell;
89 tempcell=(position)malloc(sizeof(struct node));
90 tempcell->element=y;
91
```

```
C:\Users\durga\Desktop\Documents\shgpy linked list.cpp - [Executing] - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)

doubly linked list.cpp x singly linked list.cpp x
94 return k;
95 }
96 int insert(int y,position p)
97 {
98 position tempcell;
99 tempcell=(position)malloc(sizeof(struct node));
100 tempcell->element=y;
101 tempcell->next=p->next;
102 p->next=tempcell;
103 }
104 int delete(int y,list h)
105 {
106 position p,pl;
107 p=findPrevious(y,h);
108 if(p->next!=NULL)
109 {
110 p->next;
111 p->next->next;
112 free(pl);
113 printf("the element %d is deleted from the list",y);
114 }
115 else
116 printf("The element does not exist");
117 position findPrevious(int y,list h)
118 {
119 position p;
120 p=h;
121 while(p->next!=NULL && p->next->element!=y)
122 p=p->next;
123 return p;
124 }
125 int printlist(position n)
126 {
127 position l;
128 for(l=n->next;l!=NULL;l=l->next)
129 printf("-->%d-->",l->element);
130 }
131
132
133
134
135
136
137
```

```
C:\Users\durga\OneDrive\Doc  x  +  v  -  o  x

do u want to perform any operation again
enter 1->yes
2->no:1
Enter the operation u want to perform with the list

1->find
2->insert
3->delete
4->display
4
HEADER-->45-->NULL

do u want to perform any operation again
enter 1->yes
2->no:1
Enter the operation u want to perform with the list

1->find
2->insert
3->delete
4->display
2
Enter the data u want to insert:2345
Enter the element after which data to be inserted45

do u want to perform any operation again
enter 1->yes
2->no:1
Enter the operation u want to perform with the list

1->find
2->insert
3->delete
4->display
4
HEADER-->45-->-->2345-->NULL

do u want to perform any operation again
enter 1->yes
2->no:
```