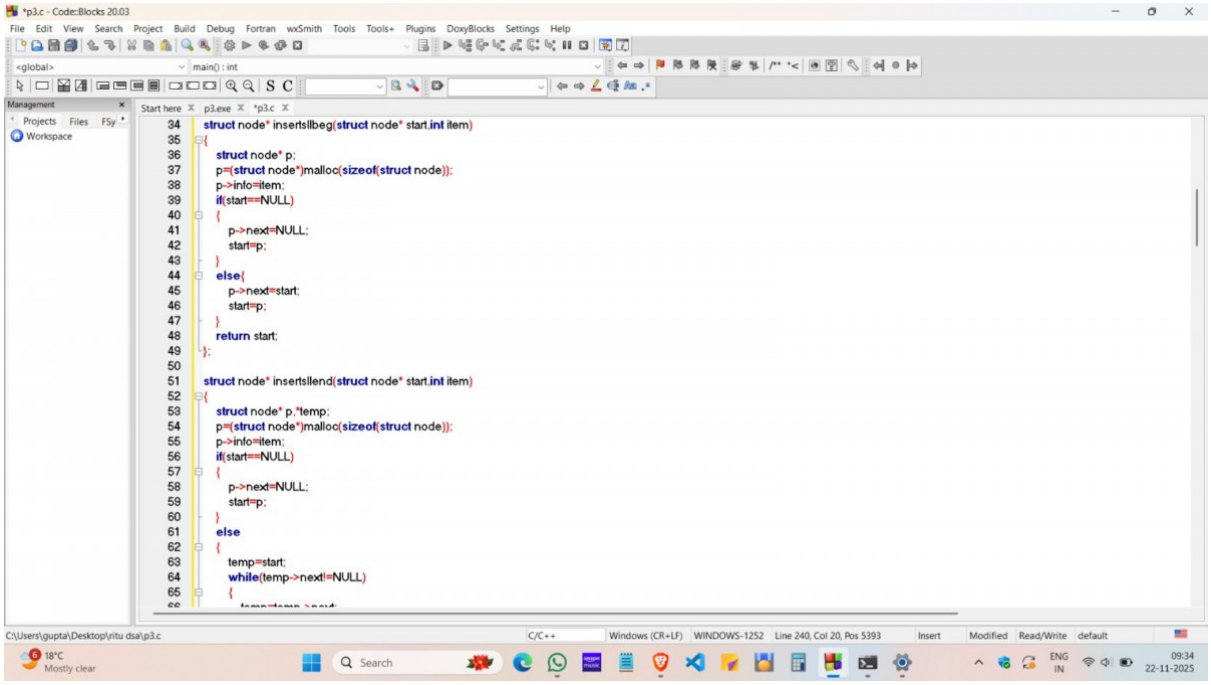
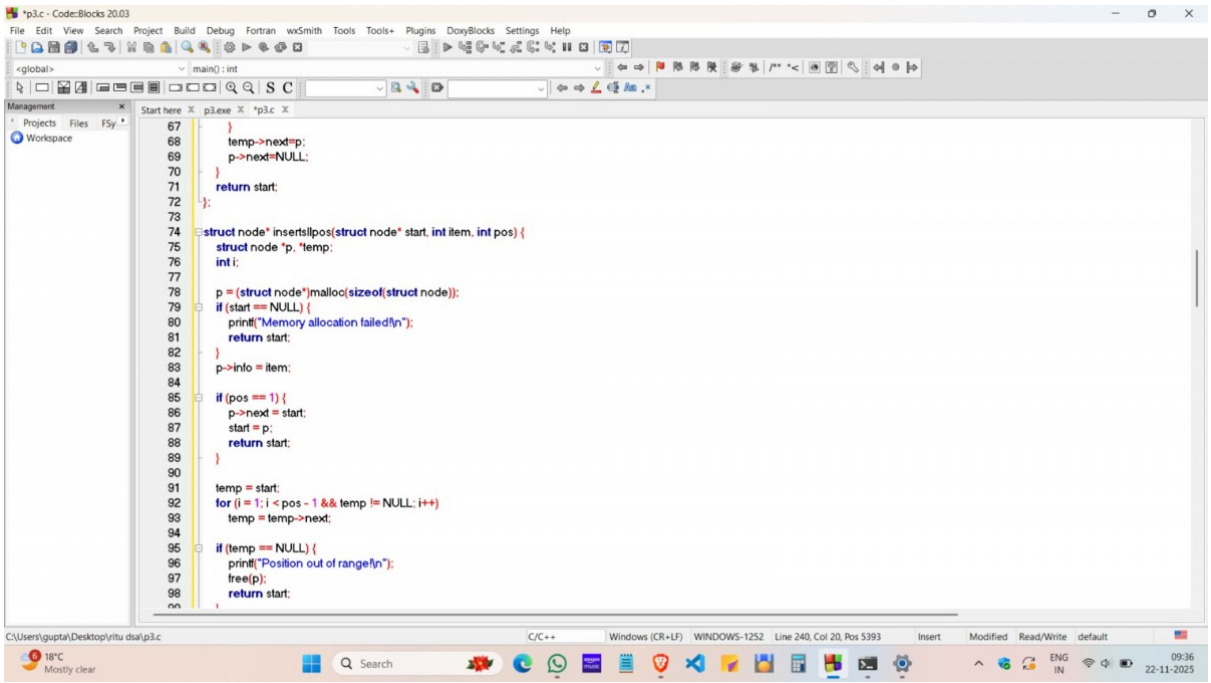
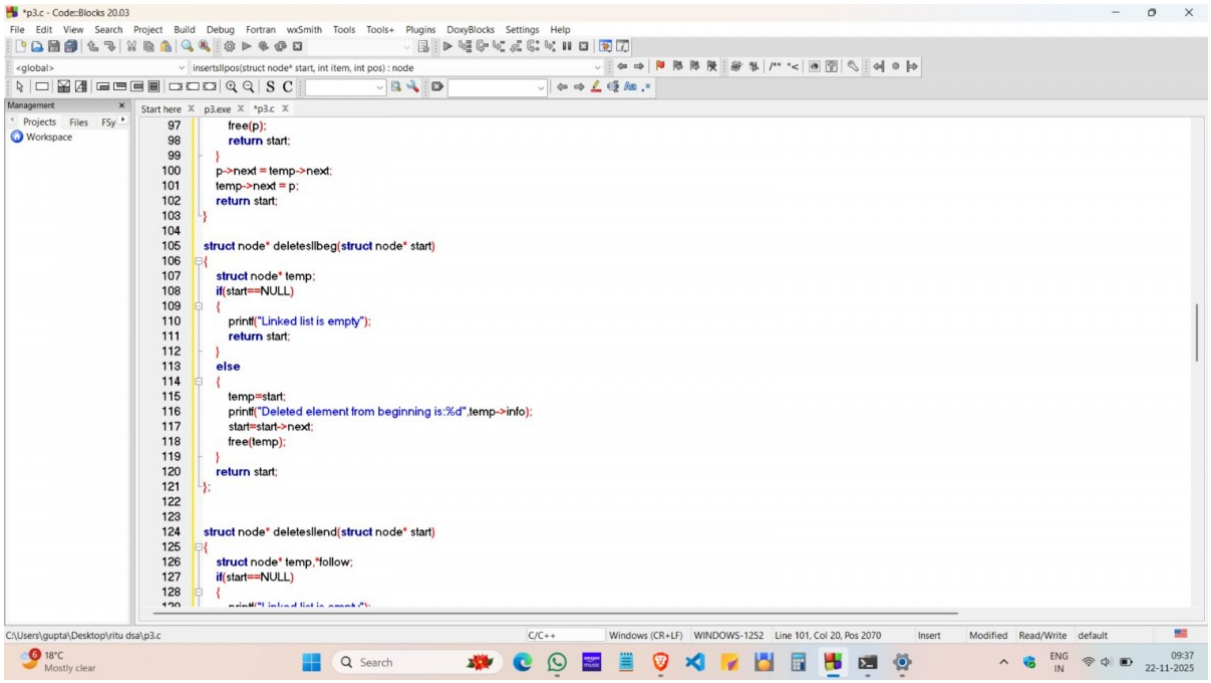
PROGRAM- 4 AND 5

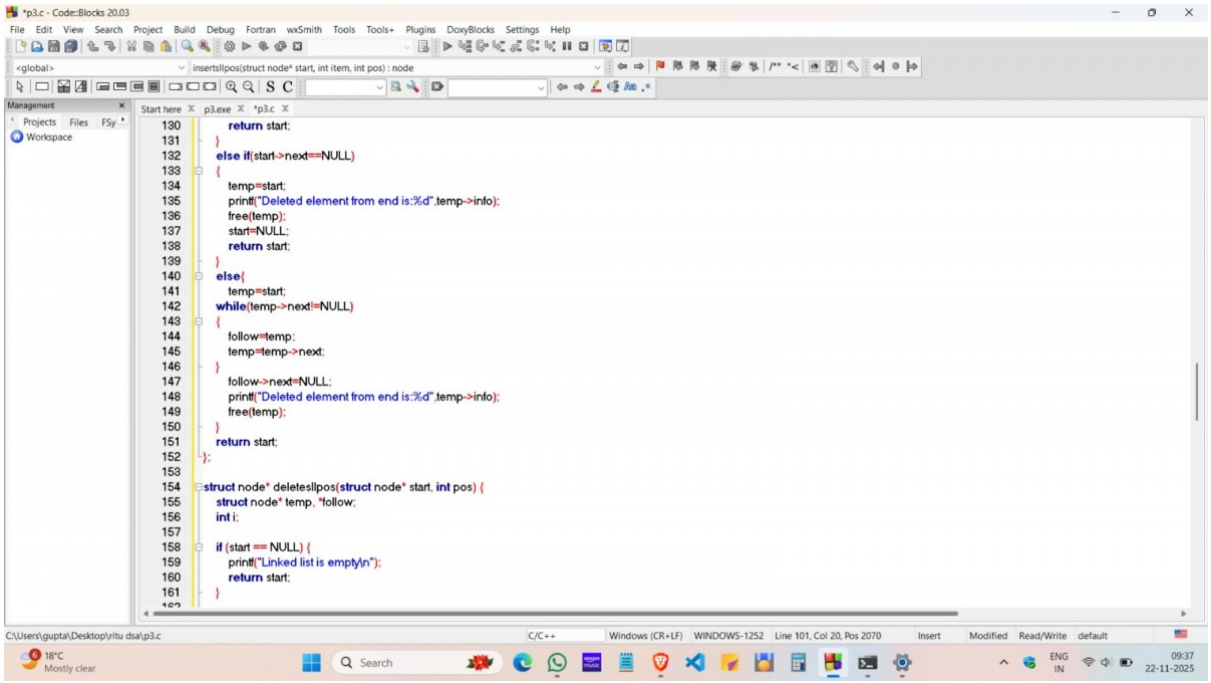


```
34  struct node* insertsllbeg(struct node* start,int item)
35  {
36      struct node* p;
37      p=(struct node*)malloc(sizeof(struct node));
38      p->info=item;
39      if(start==NULL)
40      {
41          p->next=NULL;
42          start=p;
43      }
44      else{
45          p->next=start;
46          start=p;
47      }
48      return start;
49  };
50
51  struct node* insertsllend(struct node* start,int item)
52  {
53      struct node* p,*temp;
54      p=(struct node*)malloc(sizeof(struct node));
55      p->info=item;
56      if(start==NULL)
57      {
58          p->next=NULL;
59          start=p;
60      }
61      else
62      {
63          temp=start;
64          while(temp->next!=NULL)
65          {
```



```
67          }
68          temp->next=p;
69          p->next=NULL;
70      }
71      return start;
72  };
73
74  struct node* insertsllpos(struct node* start, int item, int pos) {
75      struct node *p, *temp;
76      int i;
77
78      p = (struct node*)malloc(sizeof(struct node));
79      if (start == NULL) {
80          printf("Memory allocation failed!\n");
81          return start;
82      }
83      p->info = item;
84
85      if (pos == 1) {
86          p->next = start;
87          start = p;
88          return start;
89      }
90
91      temp = start;
92      for (i = 1; i < pos - 1 && temp != NULL; i++)
93          temp = temp->next;
94
95      if (temp == NULL) {
96          printf("Position out of range!\n");
97          free(p);
98          return start;
```


*p3.c - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
<global>
insertsllpos(struct node* start, int item, int pos) : node
Management
Projects Files FSy
Workspace
Start here
p3.exe
*p3.c
97 free(p);
98 return start;
99 }
100 p->next = temp->next;
101 temp->next = p;
102 return start;
103 }
104
105 struct node* deletesllbeg(struct node* start)
106 {
107 struct node* temp;
108 if(start==NULL)
109 {
110 printf("Linked list is empty");
111 return start;
112 }
113 else
114 {
115 temp=start;
116 printf("Deleted element from beginning is:%d",temp->info);
117 start=start->next;
118 free(temp);
119 }
120 return start;
121 };
122
123
124 struct node* deletesllend(struct node* start)
125 {
126 struct node* temp,*follow;
127 if(start==NULL)
128 {
C:\Users\gupta\Desktop\ritu dsa\p3.c
C/C++
Windows (CR+LF)
WINDOWS-1252
Line 101, Col 20, Pos 2070
Insert
Modified
Read/Write
default
18°C
Mostly clear
Search
ENG
IN
09:37
22-11-2025


*p3.c - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
<global>
insertsllpos(struct node* start, int item, int pos) : node
Management
Projects Files FSy
Workspace
Start here
p3.exe
*p3.c
130 return start;
131 }
132 else if(start->next==NULL)
133 {
134 temp=start;
135 printf("Deleted element from end is:%d",temp->info);
136 free(temp);
137 start=NULL;
138 return start;
139 }
140 else{
141 temp=start;
142 while(temp->next!=NULL)
143 {
144 follow=temp;
145 temp=temp->next;
146 }
147 follow->next=NULL;
148 printf("Deleted element from end is:%d",temp->info);
149 free(temp);
150 }
151 return start;
152 };
153
154 struct node* deletesllpos(struct node* start, int pos) {
155 struct node* temp, *follow;
156 int i;
157
158 if (start == NULL) {
159 printf("Linked list is empty\n");
160 return start;
161 }
C:\Users\gupta\Desktop\ritu dsa\p3.c
C/C++
Windows (CR+LF)
WINDOWS-1252
Line 101, Col 20, Pos 2070
Insert
Modified
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default
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Mostly clear
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ENG
IN
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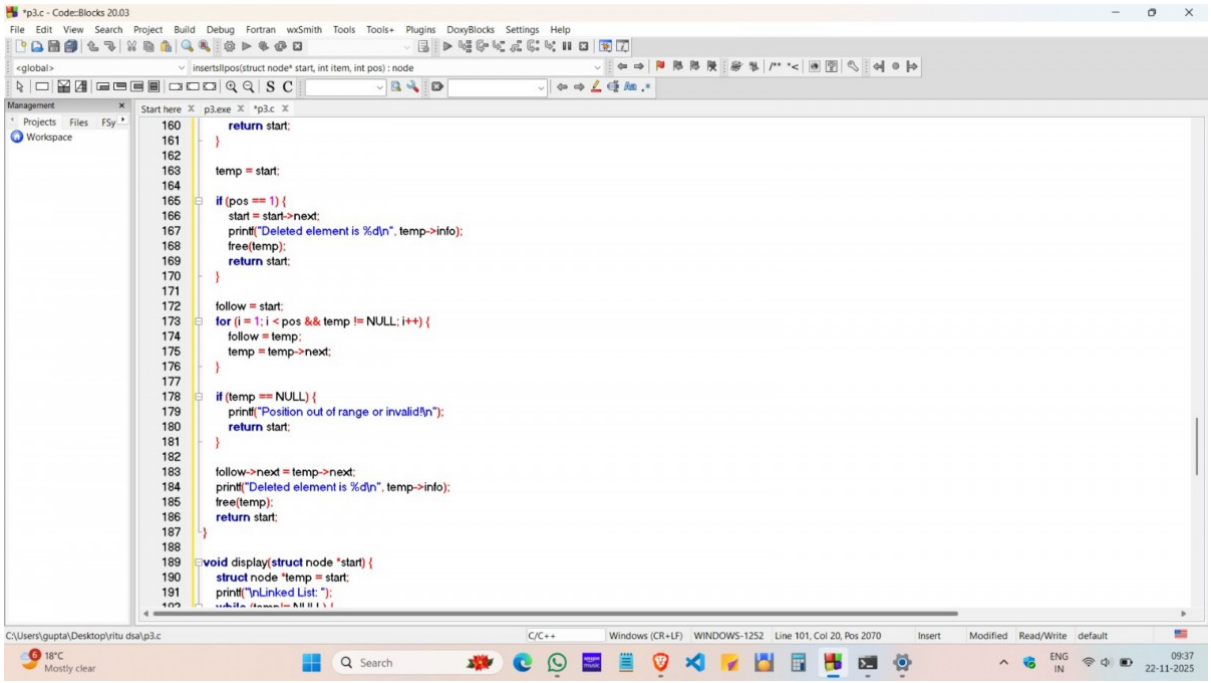
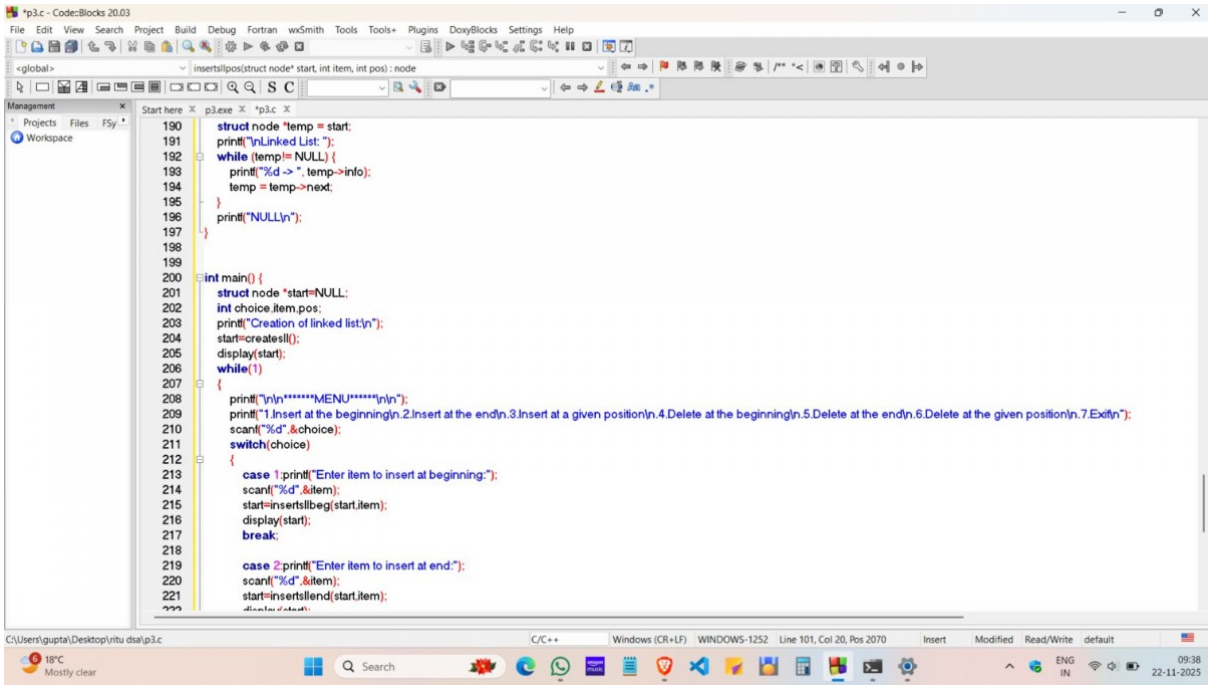
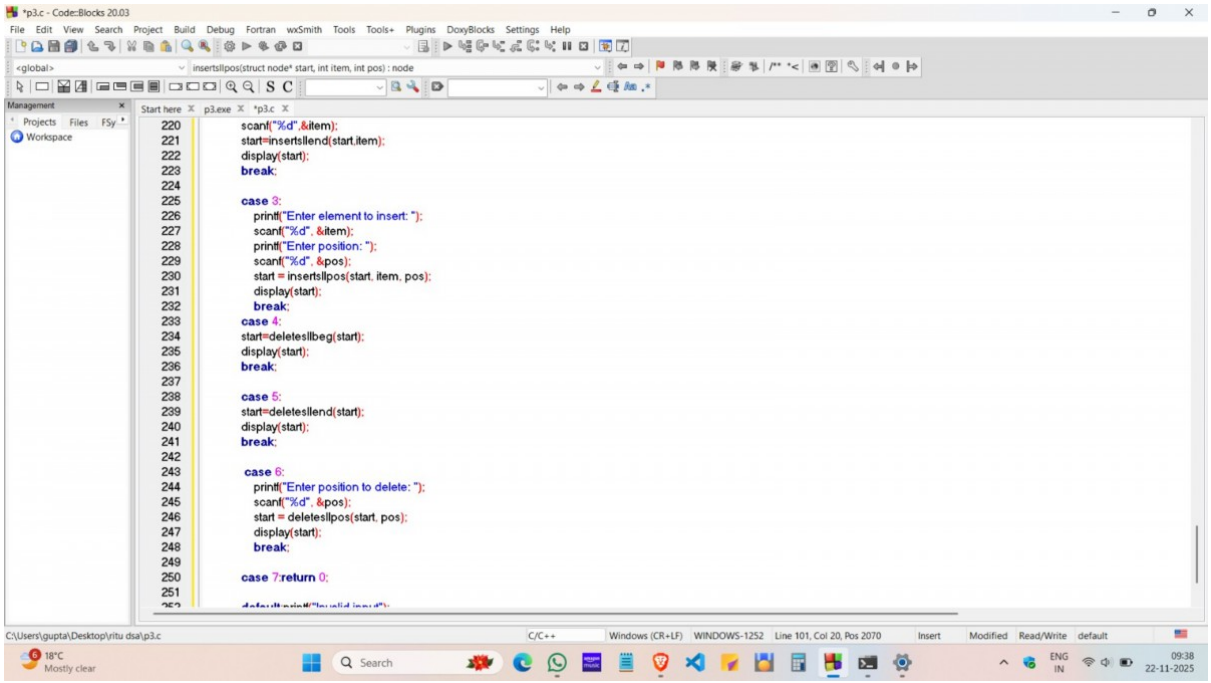
22-11-2025

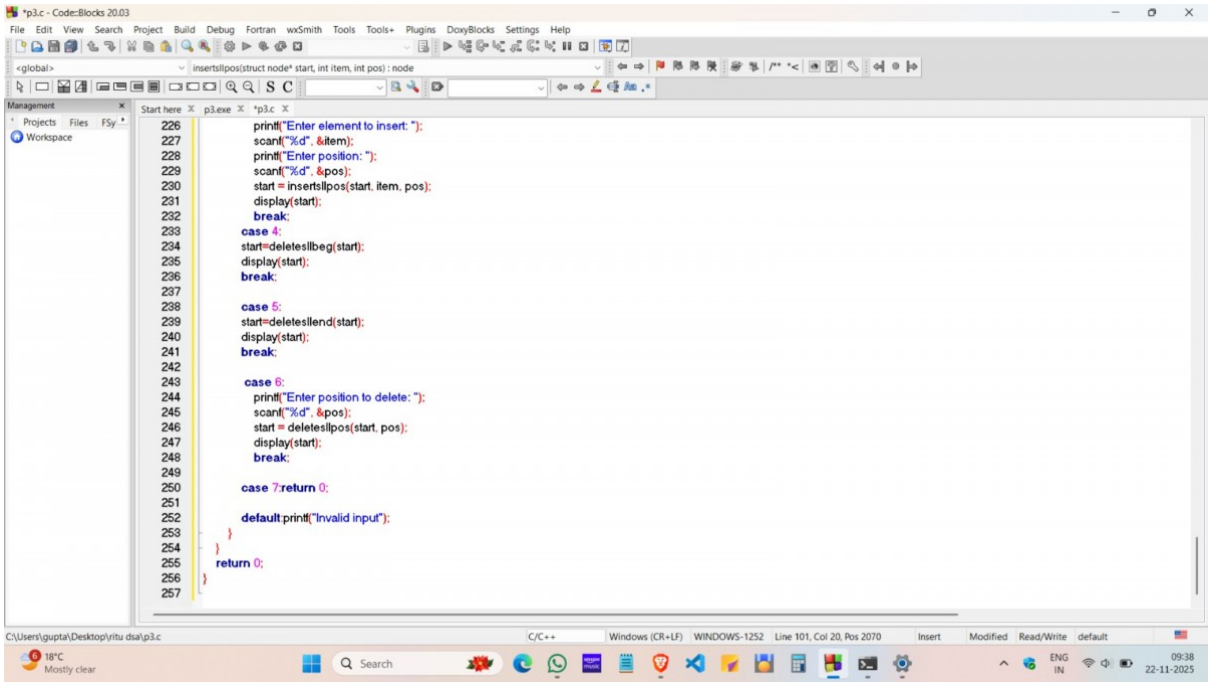


```
        return start;
    }

    temp = start;

    if (pos == 1) {
        start = start->next;
        printf("Deleted element is %d\n", temp->info);
        free(temp);
        return start;
    }

    follow = start;
    for (i = 1; i < pos && temp != NULL; i++) {
        follow = temp;
        temp = temp->next;
    }

    if (temp == NULL) {
        printf("Position out of range or invalid!\n");
        return start;
    }

    follow->next = temp->next;
    printf("Deleted element is %d\n", temp->info);
    free(temp);
    return start;
}

void display(struct node *start) {
    struct node *temp = start;
    printf("\nLinked List: ");
```

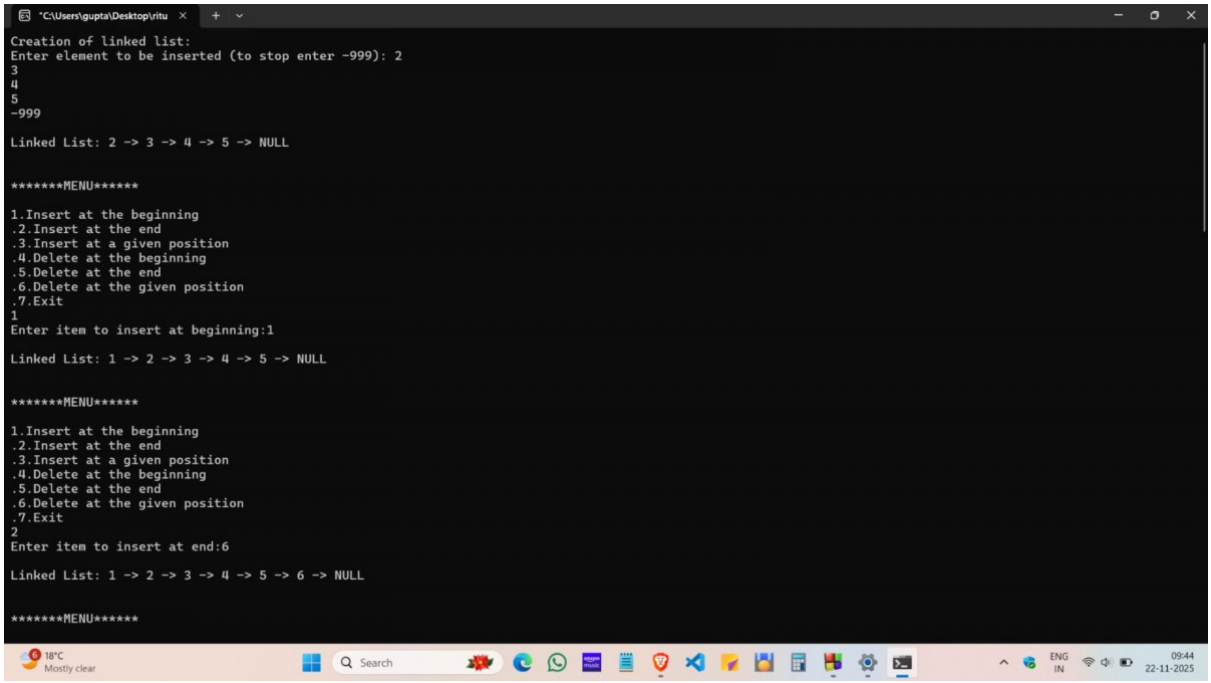


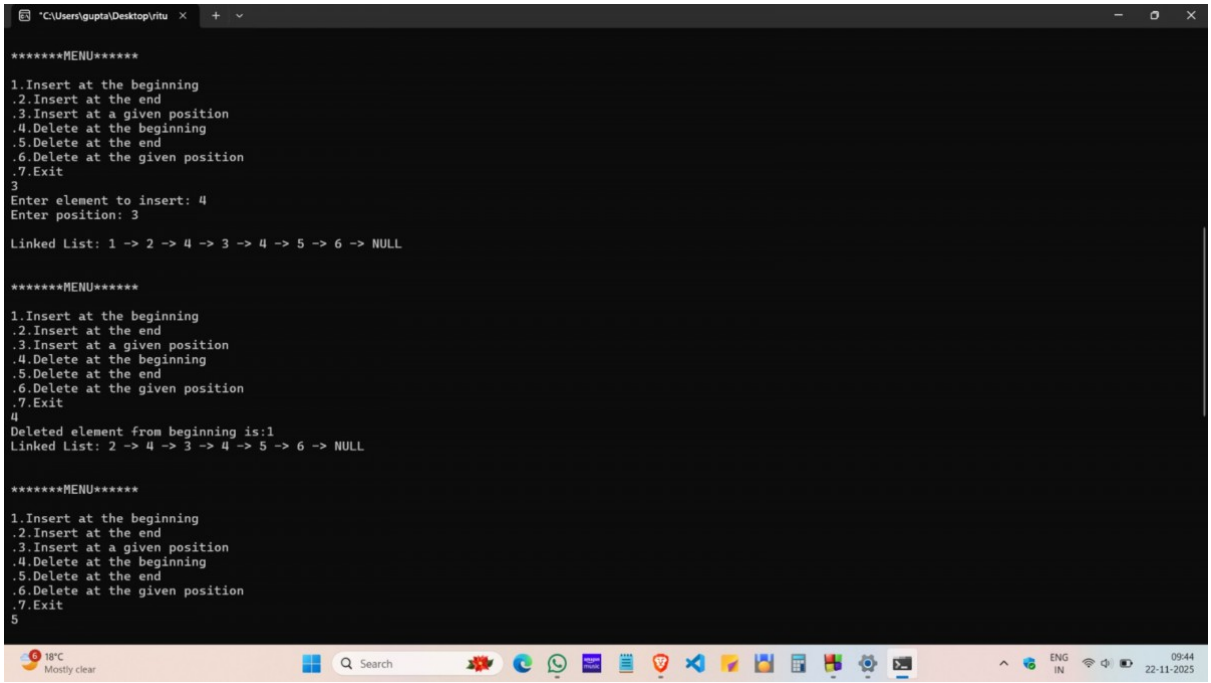
```
    struct node *temp = start;
    printf("\nLinked List: ");
    while (temp!= NULL) {
        printf("%d -> ", temp->info);
        temp = temp->next;
    }
    printf("NULL\n");
}


int main() {
    struct node *start=NULL;
    int choice,item,pos;
    printf("Creation of linked list:\n");
    start=createsll();
    display(start);
    while(1)
    {
        printf("\n\n*******MENU*******\n\n");
        printf("1.Insert at the beginning\n.2.Insert at the end\n.3.Insert at a given position\n.4.Delete at the beginning\n.5.Delete at the end\n.6.Delete at the given position\n.7.Exit\n");
        scanf("%d",&choice);
        switch(choice)
        {
            case 1:printf("Enter item to insert at beginning:");
            scanf("%d",&item);
            start=insertsllbeg(start,item);
            display(start);
            break;

            case 2:printf("Enter item to insert at end:");
            scanf("%d",&item);
            start=insertsllend(start,item);
```

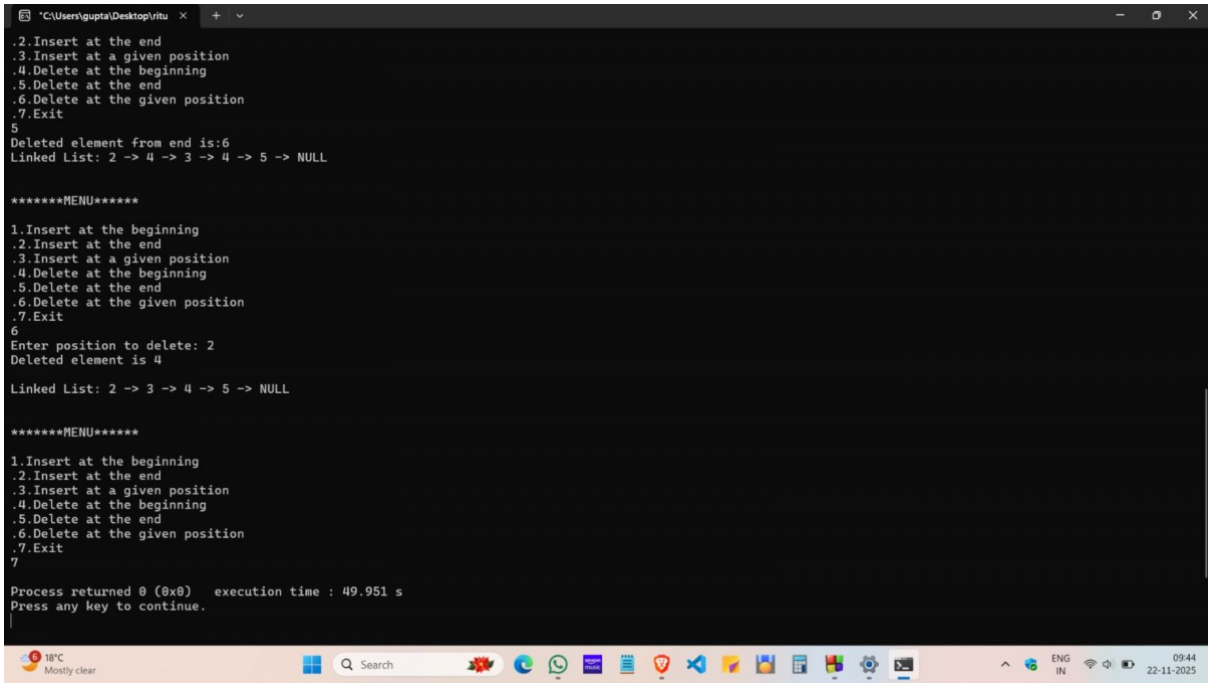

*p3.c - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
<global>
insertsllpos(struct node* start, int item, int pos) : node
Management
Projects Files FSy
Workspace
Start here
p3.exe
*p3.c
220 scanf("%d",&item);
221 start=insertsllend(start,item);
222 display(start);
223 break;
224
225 case 3:
226 printf("Enter element to insert: ");
227 scanf("%d", &item);
228 printf("Enter position: ");
229 scanf("%d", &pos);
230 start = insertsllpos(start, item, pos);
231 display(start);
232 break;
233 case 4:
234 start=deletesllbeg(start);
235 display(start);
236 break;
237
238 case 5:
239 start=deletesllend(start);
240 display(start);
241 break;
242
243 case 6:
244 printf("Enter position to delete: ");
245 scanf("%d", &pos);
246 start = deletesllpos(start, pos);
247 display(start);
248 break;
249
250 case 7:return 0;
251
C:\Users\gupta\Desktop\ritu dsa\p3.c
C/C++
Windows (CR+LF)
WINDOWS-1252
Line 101, Col 20, Pos 2070
Insert
Modified
Read/Write
default
18°C
Mostly clear
Search
ENG
IN
09:38
22-11-2025


*p3.c - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
<global>
insertsllpos(struct node* start, int item, int pos) : node
Management
Projects Files FSy
Workspace
Start here
p3.exe
*p3.c
226 printf("Enter element to insert: ");
227 scanf("%d", &item);
228 printf("Enter position: ");
229 scanf("%d", &pos);
230 start = insertsllpos(start, item, pos);
231 display(start);
232 break;
233 case 4:
234 start=deletesllbeg(start);
235 display(start);
236 break;
237
238 case 5:
239 start=deletesllend(start);
240 display(start);
241 break;
242
243 case 6:
244 printf("Enter position to delete: ");
245 scanf("%d", &pos);
246 start = deletesllpos(start, pos);
247 display(start);
248 break;
249
250 case 7:return 0;
251
252 default:printf("Invalid input");
253 }
254 }
255 return 0;
256 }
257
C:\Users\gupta\Desktop\ritu dsa\p3.c
C/C++
Windows (CR+LF)
WINDOWS-1252
Line 101, Col 20, Pos 2070
Insert
Modified
Read/Write
default
18°C
Mostly clear
Search
ENG
IN
09:38
22-11-2025

OUTPUT:


"C:\Users\gupta\Desktop\ritu
Creation of linked list:
Enter element to be inserted (to stop enter -999): 2
3
4
5
-999
Linked List: 2 -> 3 -> 4 -> 5 -> NULL
*******MENU******
1.Insert at the beginning
.2.Insert at the end
.3.Insert at a given position
.4.Delete at the beginning
.5.Delete at the end
.6.Delete at the given position
.7.Exit
1
Enter item to insert at beginning:1
Linked List: 1 -> 2 -> 3 -> 4 -> 5 -> NULL
*******MENU******
1.Insert at the beginning
.2.Insert at the end
.3.Insert at a given position
.4.Delete at the beginning
.5.Delete at the end
.6.Delete at the given position
.7.Exit
2
Enter item to insert at end:6
Linked List: 1 -> 2 -> 3 -> 4 -> 5 -> 6 -> NULL
*******MENU******
18°C
Mostly clear
Search
ENG
IN
09:44
22-11-2025


"C:\Users\gupta\Desktop\ritu
*******MENU******
1.Insert at the beginning
.2.Insert at the end
.3.Insert at a given position
.4.Delete at the beginning
.5.Delete at the end
.6.Delete at the given position
.7.Exit
3
Enter element to insert: 4
Enter position: 3
Linked List: 1 -> 2 -> 4 -> 3 -> 4 -> 5 -> 6 -> NULL
*******MENU******
1.Insert at the beginning
.2.Insert at the end
.3.Insert at a given position
.4.Delete at the beginning
.5.Delete at the end
.6.Delete at the given position
.7.Exit
4
Deleted element from beginning is:1
Linked List: 2 -> 4 -> 3 -> 4 -> 5 -> 6 -> NULL
*******MENU******
1.Insert at the beginning
.2.Insert at the end
.3.Insert at a given position
.4.Delete at the beginning
.5.Delete at the end
.6.Delete at the given position
.7.Exit
5
18°C
Mostly clear
Search
ENG
IN
09:44
22-11-2025


"C:\Users\gupta\Desktop\ritu
.2.Insert at the end
.3.Insert at a given position
.4.Delete at the beginning
.5.Delete at the end
.6.Delete at the given position
.7.Exit
5
Deleted element from end is:6
Linked List: 2 -> 4 -> 3 -> 4 -> 5 -> NULL
*******MENU******
1.Insert at the beginning
.2.Insert at the end
.3.Insert at a given position
.4.Delete at the beginning
.5.Delete at the end
.6.Delete at the given position
.7.Exit
6
Enter position to delete: 2
Deleted element is 4
Linked List: 2 -> 3 -> 4 -> 5 -> NULL
*******MENU******
1.Insert at the beginning
.2.Insert at the end
.3.Insert at a given position
.4.Delete at the beginning
.5.Delete at the end
.6.Delete at the given position
.7.Exit
7
Process returned 0 (0x0) execution time : 49.951 s
Press any key to continue.
18°C
Mostly clear
Search
ENG
IN
09:44
22-11-2025