```
#include<stdio.h>
     #include<conio.h>
      #include<malloc.h>
     #includecess.h>
      struct node
    Е
       int info;
        struct node *rlink;
        struct node *llink;
10
      typedef struct node *NODE;
11
     NODE getnode()
12
13
    ₽ (
14
     NODE X;
     x=(NODE) malloc(sizeof(struct node));
15
16
     if (x==NULL)
17
    白
18
       printf("Memory Full\n");
19
       exit(0);
20
      return x;
22
     void freenode (NODE x)
    B (
24
     free(x);
26
     NODE insert (NODE root, int item)
    B (
29
     NODE temp, cur, prev;
30
     temp=getnode();
31
     temp->rlink=NULL;
32
     temp->llink=NULL;
     temp->info=item;
33
     if (root == NULL)
34
      return temp;
35
36
     prev=NULL;
37
     cur=root;
     while (cur!=NULL)
38
```

```
prev=NULL;
      cur=root;
37
      while (cur!=NULL)
 39
     白{
40
      prev=cur;
      cur=(item<cur->info)?cur->llink:cur->rlink;
41
      if (item<prev->info)
43
       prev->llink=temp;
44
45
      else
       prev->rlink=temp;
47
      return root;
48
      void display (NODE root, int i)
50
     ₽{
51
      int j;
      if (root!=NULL)
53
 54
        display(root->rlink, i+1);
55
        for (j=0; j<i; j++)
56
            printf(" ");
57
         printf("%d\n", root->info);
58
           display(root->llink, i+1);
 60
      NODE delete (NODE root, int item)
     NODE cur, parent, q, suc;
      if (root==NULL)
64
 65
      printf("empty\n");
      return root;
67
68
69
      parent=NULL;
70
      cur=root;
      while (cur!=NULL&&item!=cur->info)
      parent=cur;
<
```

```
₽{
 72
      parent=cur;
 73
      cur=(item<cur->info)?cur->llink:cur->rlink;
 74
 75
 76
      if (cur==NULL)
 77
     白(
       printf("not found\n");
 78
 79
       return root;
 80
      if (cur->llink==NULL)
       g=cur->rlink;
      else if (cur->rlink==NULL)
 84
       g=cur->llink;
 85
      else
 86
       suc=cur->rlink;
 87
       while (suc->llink!=NULL)
 88
 89
        suc=suc->llink;
 90
       suc->llink=cur->llink;
       g=cur->rlink;
 91
 92
 93
       if (parent == NULL)
 94
        return q;
 95
       if (cur==parent->llink)
 96
        parent->llink=q;
 97
       else
 98
        parent->rlink=q;
       freenode (cur);
 99
100
       return root;
101
102
      void preorder (NODE root)
103
104
     ₽{
      if (root!=NULL)
105
106
        printf("%d\n", root->info);
107
        preorder (root->llink);
108
```

while (cur!=NULL&&item!=cur->info)

```
106
     白
        printf("%d\n", root->info);
107
        preorder (root->llink);
108
        preorder (root->rlink);
109
110
111
      void postorder (NODE root)
112
113
     B{
114
      if (root!=NULL)
115
     116
117
         postorder(root->llink);
118
        postorder (root->rlink);
119
        printf("%d\n", root->info);
120
121
122
      void inorder (NODE root)
123
      if (root!=NULL)
124
125
126
         inorder (root->llink);
127
         printf("%d\n", root->info);
128
129
         inorder (root->rlink);
130
131
132
      int main()
133
      int item, choice;
134
135
      NODE root=NULL;
136
      for(;;)
137
     日{
      printf("\n1.Insert\n2.Display\n3.Preorder\n4.Postorder\n5.Inorder\n6.Delete\n7.Exit\n");
138
      printf("Enter the Choice :");
139
      scanf ("%d", &choice);
140
      switch (choice)
141
142
         case 1:printf("Enter the Item :\n");
143
<
```

```
128
        printf("%d\n", root->info);
        inorder(root->rlink);
129
130
131
      int main()
132
133
134
      int item, choice;
     NODE root=NULL;
135
136
     for (;;)
137
      printf("\n1.Insert\n2.Display\n3.Preorder\n4.Postorder\n5.Inorder\n6.Delete\n7.Exit\n");
138
      printf("Enter the Choice :");
139
      scanf ("%d", &choice);
140
      switch (choice)
141
142
        case 1:printf("Enter the Item :\n");
143
               scanf("%d", &item);
144
               root=insert(root, item);
145
               break:
146
        case 2:display(root, 0);
147
               break;
148
149
        case 3:preorder(root);
150
               break;
151
        case 4:postorder(root);
152
               break;
153
        case 5:inorder(root);
154
               break;
        case 6:printf("Enter the Item :\n");
155
               scanf ("%d", &item);
156
157
               root=delete (root, item);
158
               break;
159
        default:exit(0);
160
                break;
161
162
          return 0;
163
164
165
<
```

```
1. Insert
2.Display
Preorder
4. Postorder
5. Inorder
6.Delete
7.Exit
Enter the Choice :1
Enter the Item :
100
1. Insert
2.Display
3.Preorder
4.Postorder
5. Inorder
6.Delete
7.Exit
Enter the Choice :1
Enter the Item :
20
1. Insert
2.Display
Preorder
4.Postorder
5. Inorder
6.Delete
7.Exit
Enter the Choice :1
Enter the Item :
10
```

1.Insert 2.Display 3.Preorder 4.Postorder 5.Inorder 6.Delete 7.Exit

Enter the Choice :1

```
C:\WINDOWS\SYSTEM32\cmd.exe
6.Delete
7.Exit
Enter the Choice :1
Enter the Item :
30
1. Insert
2.Display
3.Preorder
4.Postorder
5. Inorder
6.Delete
7.Exit
Enter the Choice :2
100
    30
  20
    10
1. Insert
2.Display
3.Preorder

    Postorder

5. Inorder
6.Delete
7.Exit
Enter the Choice :1
Enter the Item :
200
1. Insert
2.Display
3.Preorder
4. Postorder
```

5.Inorder 6.Delete

Enter the Choice :1

Enter the Item :

7.Exit

1. Insert

150

```
GT C:\WINDOWS\SYSTEM32\cmd.exe
150
1. Insert
2.Display
3.Preorder
4.Postorder
5.Inorder
6.Delete
7.Exit
Enter the Choice :1
Enter the Item :
300
1. Insert
2.Display
3.Preorder
4. Postorder
5.Inorder
6.Delete
7.Exit
Enter the Choice :2
    300
  200
    150
100
    30
  20
    10
1. Insert
2.Display
3. Preorder
4. Postorder
5. Inorder
6.Delete
7.Exit
Enter the Choice :3
100
20
10
30
200
```

C:\WINDOWS\SYSTEM32\cmd.exe 150 300 1. Insert 2.Display 3.Preorder 4.Postorder 5. Inorder 6.Delete 7.Exit Enter the Choice :4 10 30 20 150 300 200 100 1.Insert 2.Display 3.Preorder Postorder 5. Inorder 6.Delete 7.Exit Enter the Choice :5 10 20 30 100 150 200 300 1. Insert 2.Display 3. Preorder 4. Postorder 5. Inorder

6.Delete

7.Exit

```
C:/WIINDOWS/2121EM35/CING.exe
4.Postorder
5.Inorder
6.Delete
7.Exit
Enter the Choice :4
10
30
20
150
300
200
100
1. Insert
2.Display
3.Preorder
4.Postorder
5. Inorder
6.Delete
7.Exit
Enter the Choice :5
10
20
30
100
150
200
300
1. Insert
2.Display
3. Preorder
4. Postorder
5. Inorder
6.Delete
7.Exit
Enter the Choice :7
(program exited with code: 0)
```