

# LAPORAN KELOMPOK STUKTUR DATA TUGAS 10

## NAMA KELOMPOK

Nila Gayatri	21091397066
Ahmed Nur Sidik	21091397038
Affandika Febrian Putra Yunanto	21091397030
Ahmad Donny Damanik	21091397008
Diego Athalla Samudero	21091397042

## Laporan tugas stuktur data

The screenshot shows a C++ IDE with the following code in `binary.cpp`:

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 struct node {
5     int key;
6     struct node *left, *right;
7 };
8
9 // Create a node
10 struct node *newNode(int item) {
11     struct node *temp = (struct node *)malloc(sizeof(struct node));
12     temp->key = item;
13     temp->left = temp->right = NULL;
14     return temp;
15 }
16
17 // Inorder Traversal
18 void inorder(struct node *root) {
19     if (root != NULL) {
20         // Traverse Left
21         inorder(root->left);
22
23         // Traverse root
24         printf("%d -> ", root->key);
25
26         // Traverse right
27         inorder(root->right);
28     }
29 }
30
31 // Insert a node
32 struct node *insert(struct node *node, int key) {
```

The IDE shows a compilation error in the `Message` window:

Line	Col	File	Message
11	64	C:\KULIAH\1. tugas\semester 2\Struktur data\kerpok\bi...	In function 'node* newNode(int)': [Error] invalid type argument of unary '*' (have 'long long unsigned int')

The status bar at the bottom indicates: Line: 110, Col: 2, Sel: 0, Lines: 110, Length: 2548, Insert, Done parsing in 0,031 seconds. The system clock shows 21:23 on 14/05/2022.

C:\KULIAH1\tugas\semester 2\Struktur data\kerpok\v.cpp - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

Project Classes Debug [v] binary.cpp v.cpp

```
31 // Insert a node
32 struct node *insert(struct node *node, int key) {
33     // Return a new node if the tree is empty
34     if (node == NULL) return newNode(key);
35
36     // Traverse to the right place and insert the node
37     if (key < node->key)
38         node->left = insert(node->left, key);
39     else
40         node->right = insert(node->right, key);
41
42     return node;
43 }
44
45 // Find the inorder successor
46 struct node *minValueNode(struct node *node) {
47     struct node *current = node;
48
49     // Find the leftmost leaf
50     while (current->left != NULL)
51         current = current->left;
52
53     return current;
54 }
55
56 // Deleting a node
57 struct node *deleteNode(struct node *root, int key) {
58     // Return if the tree is empty
59     if (root == NULL) return root;
60
61     // Find the node to be deleted
62     if (key < root->key)
```

Compiler Resources Compile Log Debug Find Results Close

Compilation Time: 3,09s

Line: 110 Col: 2 Sel: 0 Lines: 110 Length: 2548 Insert Done parsing in 0,031 seconds

21:24 14/05/2022

C:\KULIAH1\tugas\semester 2\Struktur data\kerpok\v.cpp - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

Project Classes Debug [v] binary.cpp v.cpp

```
55
56 // Deleting a node
57 struct node *deleteNode(struct node *root, int key) {
58     // Return if the tree is empty
59     if (root == NULL) return root;
60
61     // Find the node to be deleted
62     if (key < root->key)
63         root->left = deleteNode(root->left, key);
64     else if (key > root->key)
65         root->right = deleteNode(root->right, key);
66
67     else {
68         // If the node is with only one child or no child
69         if (root->left == NULL) {
70             struct node *temp = root->right;
71             free(root);
72             return temp;
73         } else if (root->right == NULL) {
74             struct node *temp = root->left;
75             free(root);
76             return temp;
77         }
78
79         // If the node has two children
80         struct node *temp = minValueNode(root->right);
81
82         // Place the inorder successor in position of the node to be deleted
83         root->key = temp->key;
84
85         // Delete the inorder successor
86         root->right = deleteNode(root->right, temp->key);
87     }
```

Compiler Resources Compile Log Debug Find Results Close

Compilation Time: 3,09s

Line: 110 Col: 2 Sel: 0 Lines: 110 Length: 2548 Insert Done parsing in 0,031 seconds

21:24 14/05/2022

C:\KULIAH\1. tugas\semester 2\Struktur data\kerpok\v.cpp - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

Project Classes Debug [v] binary.cpp v.cpp

```
79 // If the node has two children
80 struct node *temp = minValueNode(root->right);
81
82 // Place the inorder successor in position of the node to be deleted
83 root->key = temp->key;
84
85 // Delete the inorder successor
86 root->right = deleteNode(root->right, temp->key);
87 }
88 return root;
89 }
90
91 // Driver code
92 int main()
93 {
94     struct node *root = NULL;
95     root = insert(root, 8);
96     root = insert(root, 3);
97     root = insert(root, 1);
98     root = insert(root, 6);
99     root = insert(root, 7);
100     root = insert(root, 10);
101     root = insert(root, 14);
102     root = insert(root, 4);
103
104     printf("Inorder traversal: ");
105     inorder(root);
106
107     printf("\nAfter deleting 10\n");
108     root = deleteNode(root, 10);
109     printf("Inorder traversal: ");
110     inorder(root);
111 }
```

Compiler Resources Compile Log Debug Find Results Close

Compilation Time: 3,09s

Line: 110 Col: 2 Sel: 0 Lines: 110 Length: 2548 Insert Done parsing in 0,031 seconds

21:25 14/05/2022



