Rami Wail Shoula: Day 4 Tasks (run)

I- Binary Tree selection process

Case statement for: Creation, Searching, Recursive traversals, full deletion, exit

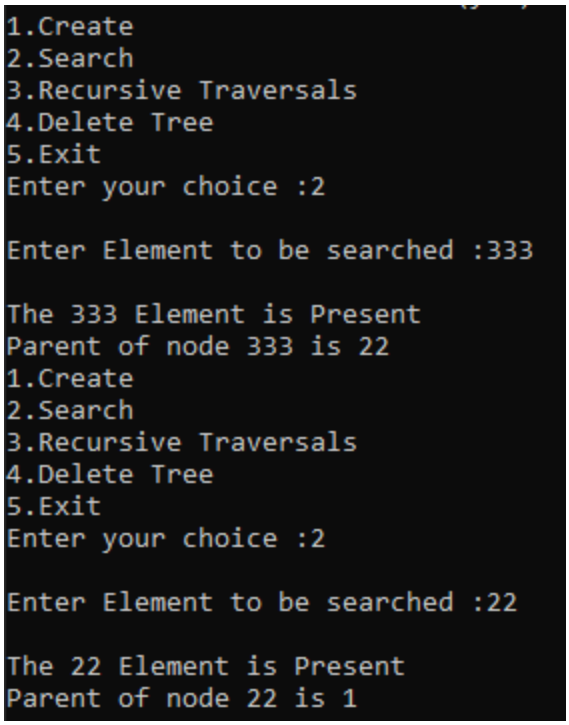
```
Program For Binary Tree (Creation, Searching, Recursive traversals and full deletion)
1.Create
2.Search
3.Recursive Traversals
4.Delete Tree
5.Exit
Enter your choice :
```

II- Create Binary Tree (add elements)

Elements are added automatically as required.

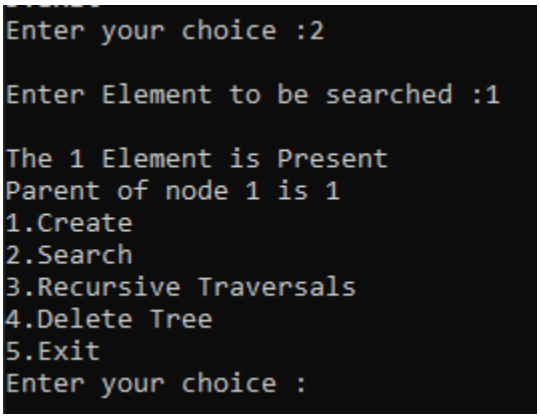
```
Enter your choice :1

Enter The Element 1

Want To enter More Elements?(y/n)
Enter The Element 22

Want To enter More Elements?(y/n)
Enter The Element 333

Want To enter More Elements?(y/n)
Enter The Element 444

Want To enter More Elements?(y/n)
```

III- Search Binary Tree (Parent and child relation)




All cases are checked and correct for parent & child relations.

All the data is saved and stored correctly.




Also, the special case of searching for the first root (absolute parent), it returns that it is its own parent which is logical for this case as it has no other parents.

IV- Recursive Traversals (Full Tree relations)

```
Enter your choice :3

The Inorder display : 122333444
The Preorder display : 122333444
The Postorder display : 444333221
1.Create
2.Search
3.Recursive Traversals
4.Delete Tree
5.Exit
Enter your choice :
```

All Traversals are correct, L V R, V L R & L R V.

V- Delete Tree (Bonus)

```
Enter your choice :4

 Deleting node: 444
 Deleting node: 333
 Deleting node: 22
 Deleting node: 1
 Tree deleted
1.Create
2.Search
3.Recursive Traversals
4.Delete Tree
5.Exit
Enter your choice :
```

As required, each node from tree is deleted and replaced with the right most node. This function is called recursively in postorder (L R V) to clear all elements in the tree and return a NULL node to act as the seed for a new tree creation (find below): -

```
Enter your choice :4
Tree Is Not Created
```

```
Enter your choice :3
Tree Is Not Created
```

It is worth mentioning, data is updated as shown above as no tree is available after deletion.

```
Enter your choice :1

Enter The Element 11

Want To enter More Elements?(y/n)
1.Create
2.Search
3.Recursive Traversals
4.Delete Tree
5.Exit
Enter your choice :1

Enter The Element 222

Want To enter More Elements?(y/n)
Enter The Element 3

Want To enter More Elements?(y/n)
1.Create
2.Search
3.Recursive Traversals
4.Delete Tree
5.Exit
Enter your choice :3

The Inorder display : 311222
The Preorder display : 113222
The Postorder display : 322211
```

As shown here, creating a new tree with elements [ 1 222 3] is applicable and operation still works as required.

VI- Exit Function

```
5.Exit
Enter your choice :5

C:\Users\Sarah\source\repos\Day4Problem_RamiWailShoula_c\x64\Debug\Day4Problem_RamiWailShoula_c.exe (process 21792) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

Exits with correct code 0 and ends functionality.