Binary Search Tree as a Web Service

A WCF implementation

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Introduction

The Binary Search Tree as a Web Service has been realized using the Windows Communication Foundation (WCF) version .NET 4.5.

Path to Create a WCF project:

1. Open Visual Studio
2. Click File
3. Click New
4. Click Project
5. Select WCF Service Application from list of available projects for Visual C#
6. Give Name for Project Below

This is how you create the WCF project.

In the Solution Explorer in the right hand side of Visual Studio you will see the files generated for the project.

Technologies

There was no external API that was used in the process of building this web service.

Usage of Web Service

Create a Binary Search Tree

```
public void CreateTree()
```

This Web Service call will create a Binary Search Tree object.

Setting root of the Binary Search Tree

```
public void setRoot(int data)
```

Input Parameters :

data: The data which is to be set as the root of the tree.

This Web Service call will set the root node of the Binary Search Tree.

Adding Elements to the Binary Search Tree

```
public void AddElements(string data)
```

Input Parameters :

data: The integers to be added to the BST in string format.

This Web Service call will add tree nodes to the BST.

Inorder Traversal of the Binary Search Tree

```
public string TraverseInorder()
```

This Web Service call will return the string representation of the elements of the tree printed in the Inorder fashion.

Postorder Traversal of the Binary Search Tree

```
Public string TraversePostorder()
```

This Web Service call will return the string representation of the elements of the tree printed in the Postorder fashion.

Preorder Traversal of the Binary Search Tree

```
public string TraversePreorder()
```

This Web Service call will return the string representation of the elements of the tree printed in the Preorder fashion.

Class Structure

IService1.cs

Contains the OperationContracts i.e. the definition of the possible set of operations that can be performed using this web service.

Service1.svc.cs

Contains the implementations of the OperationContracts i.e. the implementations of the possible set of operations that can be performed using this web service.

TreeNode.cs

Contains the implementations of the singular representation of a node in a Binary Search Tree

BinaryTree.cs

Contains the implementations of the of the Binary Search Tree example adding elements , traversing the tree etc.