Scala Assignment two explanation

Exercise # 2

I have used five function to solve the problem

1. comp(Double,Double):Double: Compares two double numbers and later i used this when inside the secantMethod function
2. fx(Double): definition of a sample function x2-8.0 for testing purpose and used on both secantMethod secantStream functions
3. findRoot(Double,Double,fx):function to compute root of a function according to secant method formula . This function calculates only one root value which is the x2 from x0 and x1
4. secantStream(Double,Double, Double=>Double):Stream[Double]: Function that computes a stream for a given input
5. secantMethod(Double,Double,Double=>Double,ep): a function that computes the successive stream values till the convergence of the function is satisfied.

Reference and concepts

Reference :Textbook ,wikipedia and youtube

Concepts: scla functions, streams and scala loops

How to run.

1. First save it as SecantMethod.scala then
2. scala> scalac SecantMethod.scala

Exercise #3: Binary search tree using algebraic data types

Function , case classes and case objects

Case classes and objects

1. One case object called leaf to implement the empty leaf without out object
2. Second case class called Add for binary tree with root ,left and right subtrees

Functions

1. addElem: add an object to binary search tree based on its magnitude
2. isThere: searches for a particular object in ordered tree
3. numElems: counts the number of objects in the binary search tree excluding the empty nodes using concept of scala recursion
4. maxDepth: finds the height of the tree/depth of the tree recursively
5. Inorder: traverse the tree in left, root and right fashion and display the result using a list

References and concepts

1. Textbook , Wikipedia, youtube and https://www.scala-lang.org/
2. Introduction to Programming and Problem-Solving Using Scala by Mark Lewis
3. Previous knowledge of binary search. I have done similar assignment using java

Concepts I have used: functions, algebraic data type(polymorphic types), recursion, higher order functions and pattern matching

How to run

First save its BinarySearchTree.scala

scala> scalac BinarySearchTree.scala

Note: I provide some examples on the main method of the two programs .