Assignment 13.2 (Finding Square Root)

Here I have written a method square\_root which takes two parameters, first parameter n of type Double is one to which square root needs to be calculated, second one x of type Double is guess of square root.

We define a variable tolerance of 0.00001. parameter x is assigned to guess. There is another variable y which is of type Double. In each step we take average of x and guess and assign to guess. Variable y is refined in each step by dividing n by guess. These steps are done until absolute value of difference between n and square of guess is more than tolerance. Once it is less than tolerance, then guess is returned as the square root of number

Code is as below:

def square\_root(n:Double, x:Double):Double = {

var tolerance = 0.000001

var guess = x

var y = 1.0

while (Math.abs(n - guess \* guess ) > tolerance) {

guess = (guess + y) / 2.0

y = n / guess

}

return guess

}

Screenshot with a few examples are as below:

