
MA588: R-Programming Lab

Lab # 08 (1 Questions, 50 Points)

Submission time: on or before 16-May-2020 at 11:59 hrs Pages: 1

IIT Guwahati

13-May-2020 (Wed)

Question 1: (50 points)

Find the minimum of the function $f(x) = 0.65 - \frac{0.75}{1+x^2} - 0.65x \tan^{-1} \frac{1}{x}$ using Newton's method.

Your own R function Implement the Newton's method for the above objective function

In built Newton-Raphson Invoke R optimization library Newton Raphson method
Compare the output of the two solutions.

For details about Newton-Raphson method go through page 286 to 288 of the book
http://mec.nit.ac.ir/file_part/master_doc/20149281833165301436305785.pdf

You should start your initial value of x at 100 different points and show that your implementation and tool box implementation has same optimal value.

Instructions Adhere to the following

File Name Keep your roll number as the name of the file. Example: 180101000.R

Independent efforts You should make an honest and independent effort in obtaining the solution to the above problem.

Submission Table below shows which student should submit the code to which TA

TA Name	TA E-mail	From Roll No.	To Roll No.
Saroj	s.shivagunde@iitg.ac.in	194161001	194161010
Maithilee	maith176101104@iitg.ac.in	194161011	194161021

Marking Scheme The evaluation criteria is as follows:

Your method 40 Marks

Library method 5 Marks

Agreement Solution agreement with library method 5 Marks