

Numerical Methods (ECE 204)
Simulation Assignment # 4
Due date: 18.11.2019

Part (1) 80%

Write a general regression m.file that can do the following:

Once you run it, the following screen will appear to choose from:

Select the function to fit your data:

1. Linear: $y = a_0 + a_1x$
2. Polynomial: $(y = a_0 + a_1x + \dots + a_mx^m)$
3. Exponential: $(y = ae^{bx})$
4. Power: $(y = ax^b)$

(if you selected polynomial, then another screen will open to ask you to determine the degree of the polynomial)

Once you select the proper function by selecting the number (1, 2, 3 or 4), then your program will calculate the proper function and do the following:

- Draw the data
- Write the estimated formula on the Figure you drew
- Calculate R^2 and present it on the Figure you drew

To test your program, load the two files “test1.txt”, and “test2.txt” and run your program using these two files.

Part (2) 20%

Repeat part (1) but this time make your program sort of “smart” meaning that the new developed m.file will be able to use the proper function without selecting it. So basically, your m.file will load the file and then generate the results, as discussed in part (1) automatically.