الجامعة الهاشمية

Submitted to the

Mechatronics Engineering Department

The Hashemite University

The project of Artificial Intelligence

(Calculator Find Summation & Average Of Two Number)

Supervised by:

Dr. Mohammed Abu Mallouh

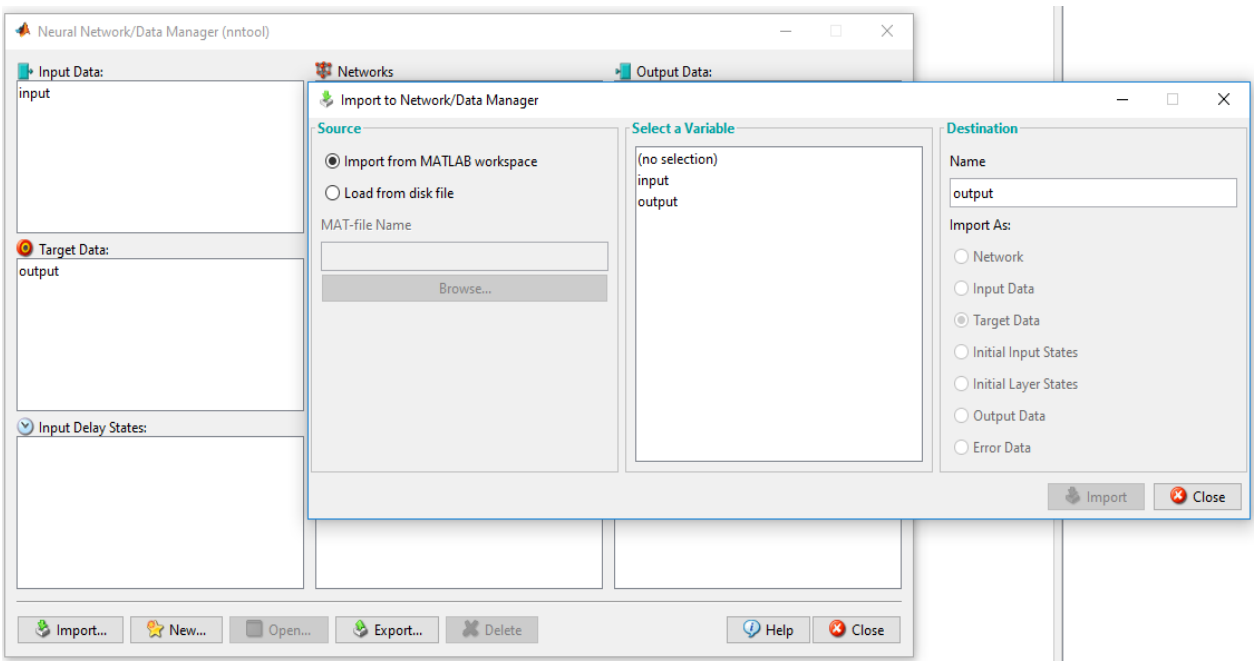
Student Name	ID Number
1. Mu'men Fayez Abu-Zeneh	1636716

We get some correct data

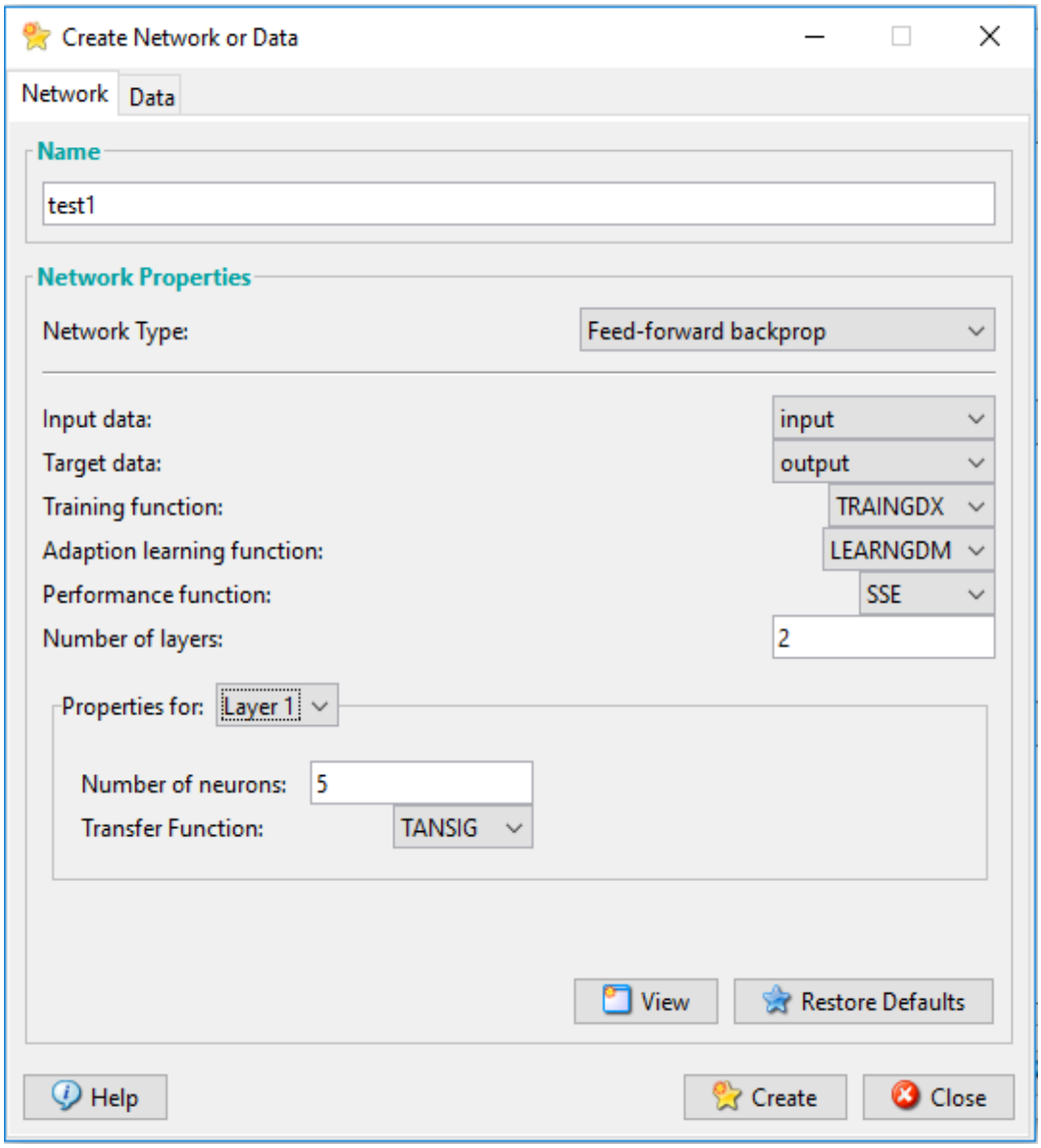
H	G	F	E	D	C	B	A	
EX7	EX6	EX5	EX4	EX3	EX2	EX1		1
0	0	0	0	0	0	0	IN 1	2
6	5	4	3	2	1	0	IN 2	3
								4
6	5	4	3	2	1	0	SUM	5
3	2.5	2	1.5	1	0.5	0	Avg	6

Include it to workspace in matlab as to group input & output

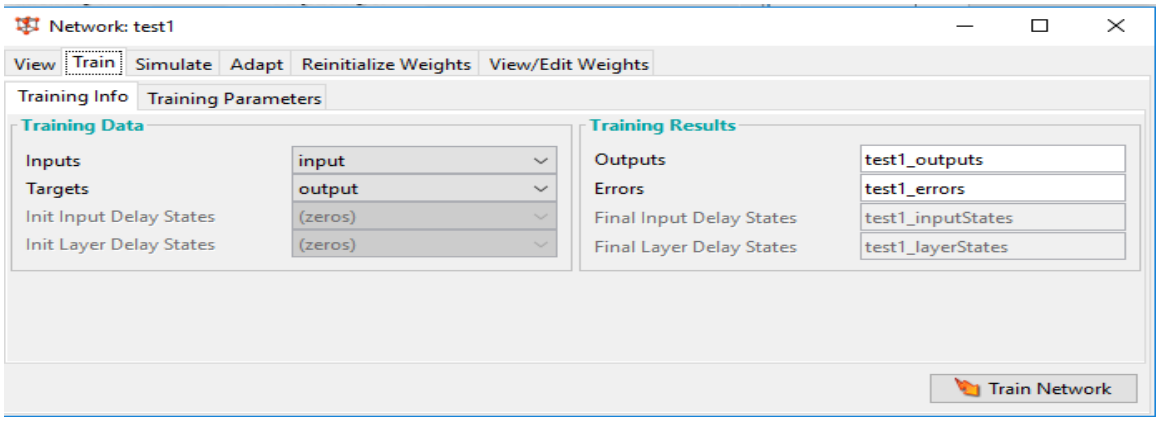
Run nntool & import input & target data from workspace



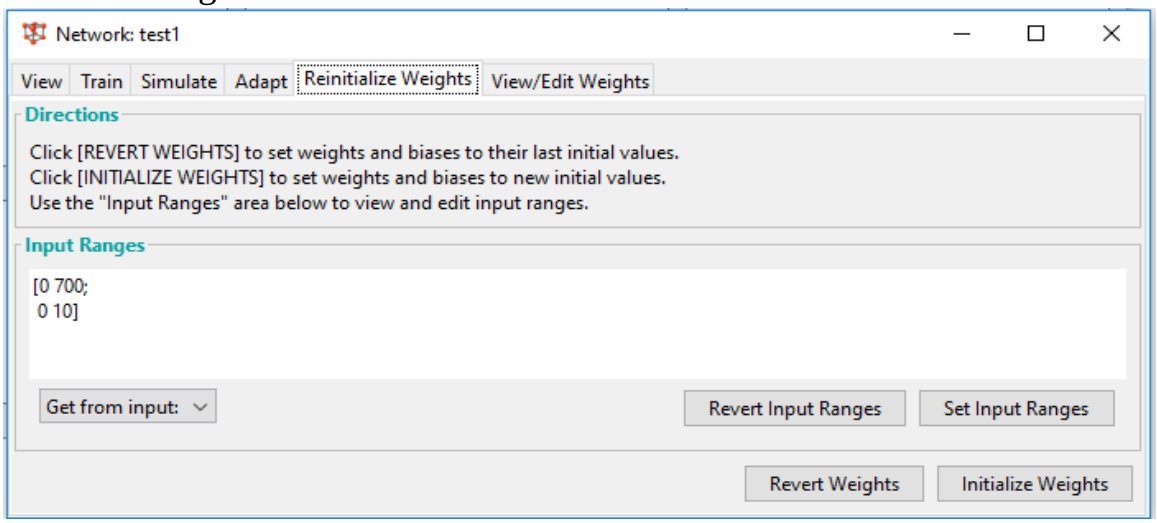
Create new neural network & name it test1 type of it feed-forward backprop with training function variable learning rate gradient decent and performance function is square of sum and two layer with 5 neurons has transfer function TANSIG



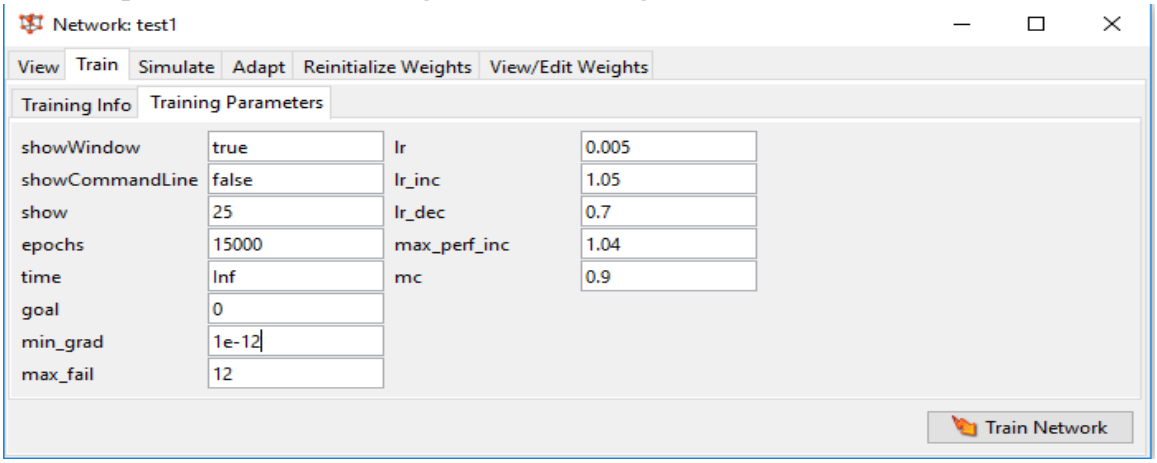
Select input & target



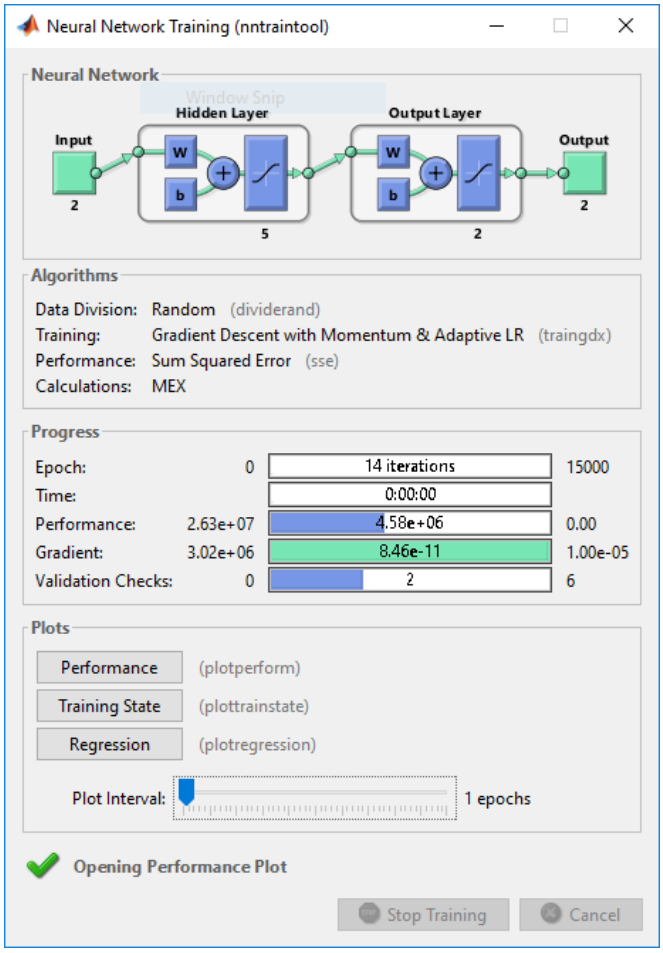
Initialize weight



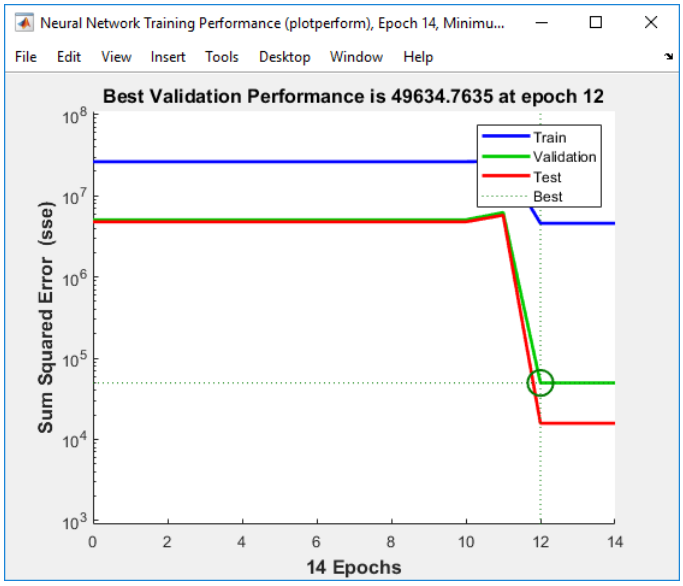
Chose epochs max fail min grad & learning rate



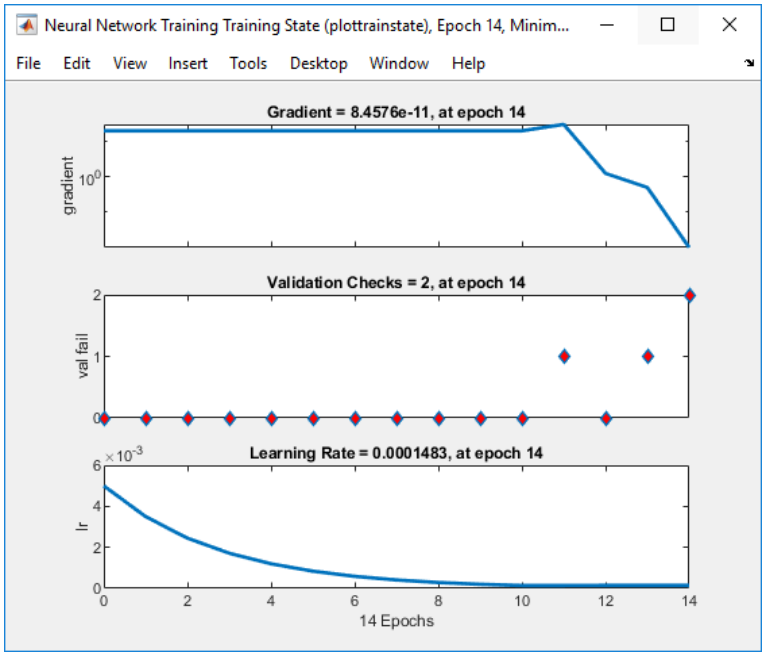
After train 14 epochs gradient stop learning



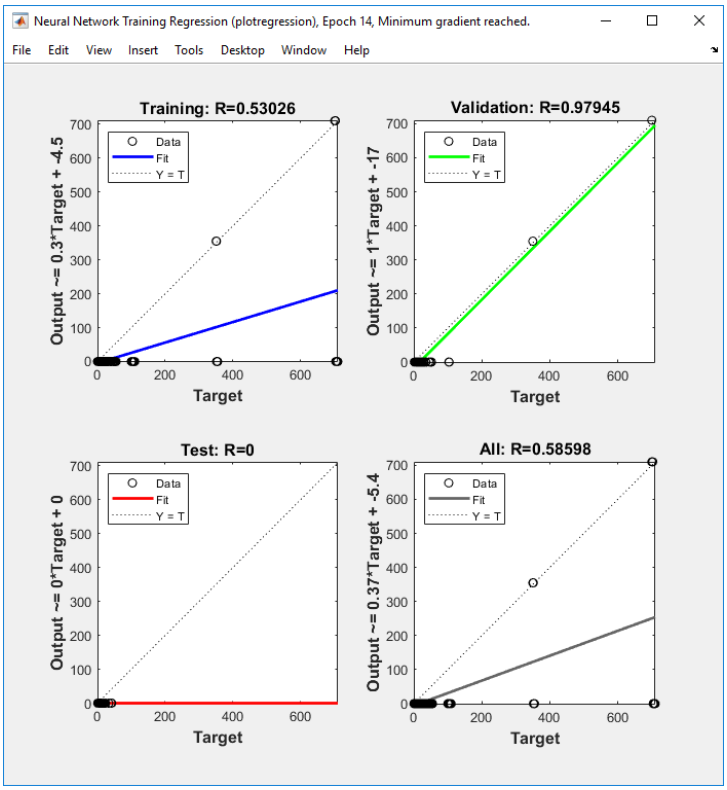
Train performance



Train state

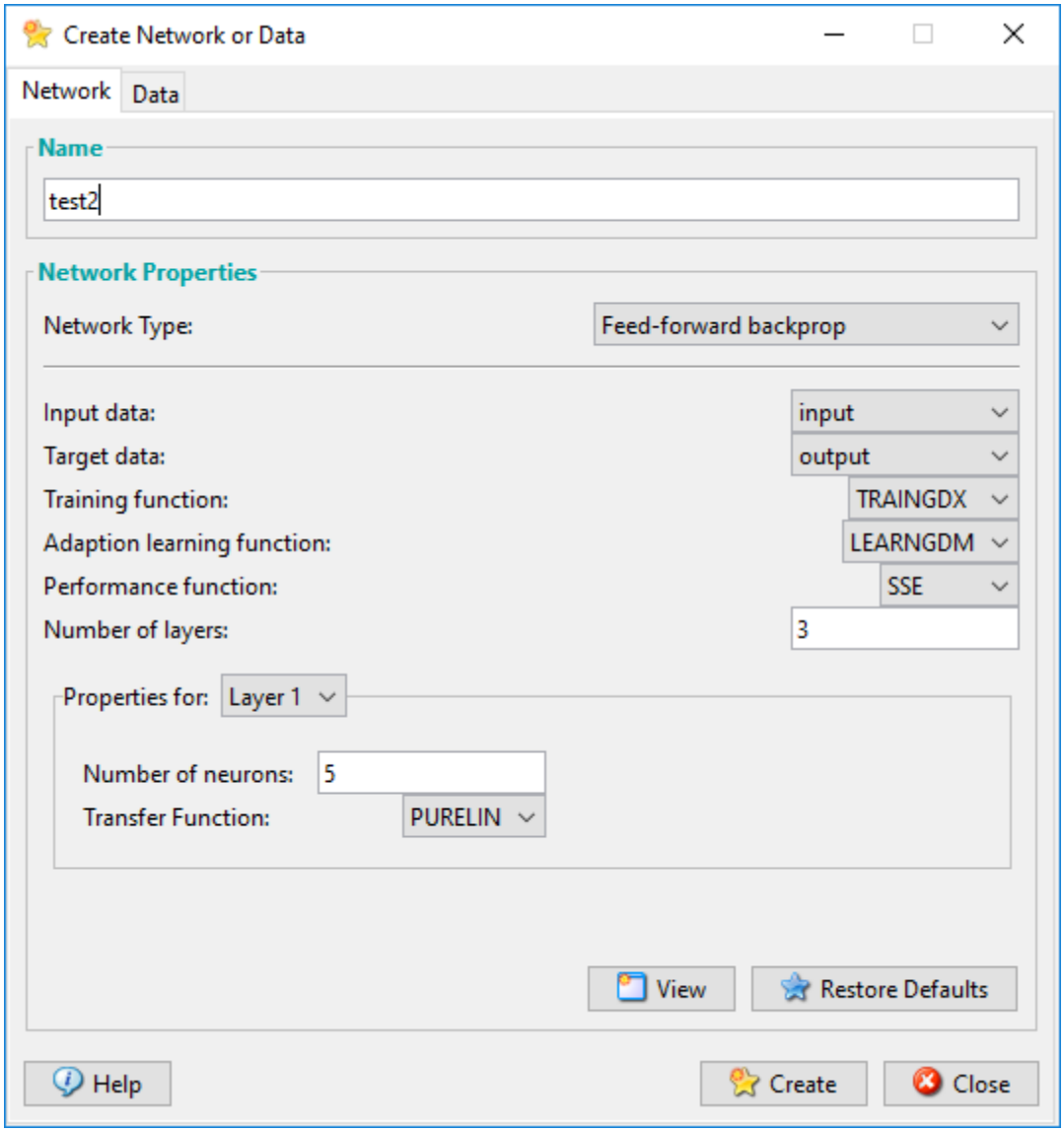


Train regression

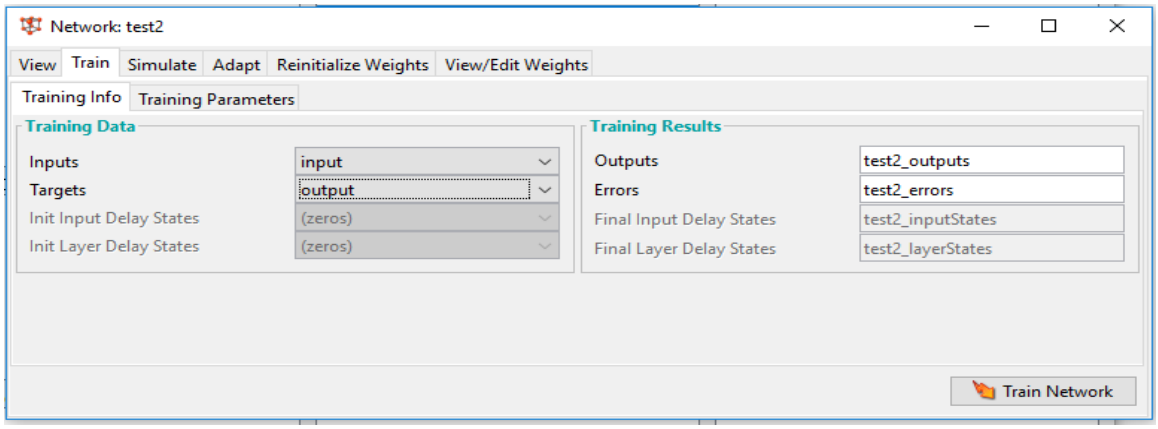


That's bad performance

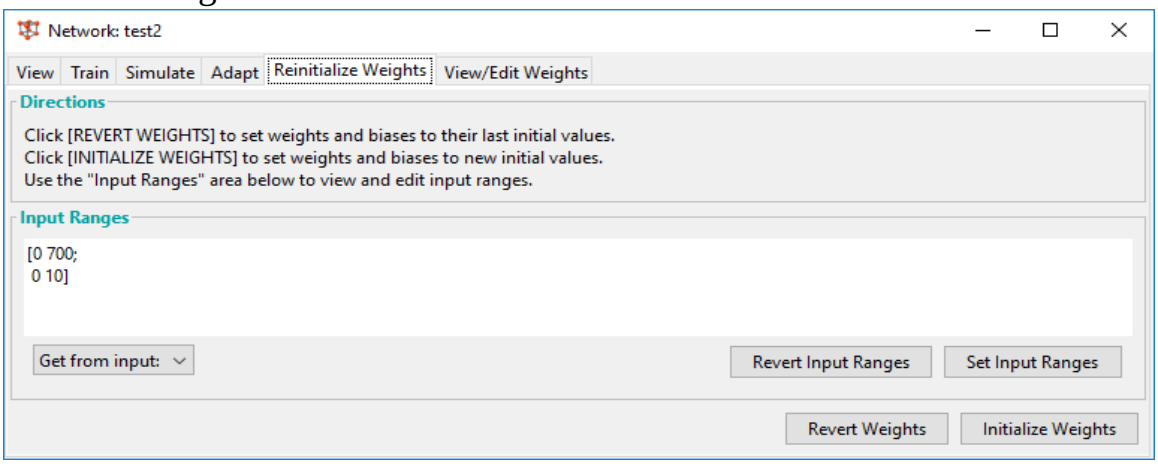
We create new neural network named test2 type of it feed-forward backprop with training function variable learning rate gradient decent and performance function is square of sum and 3 layer with 5 neurons in layer 1 & 3 neurons in layer 2 has transfer function PURELIN



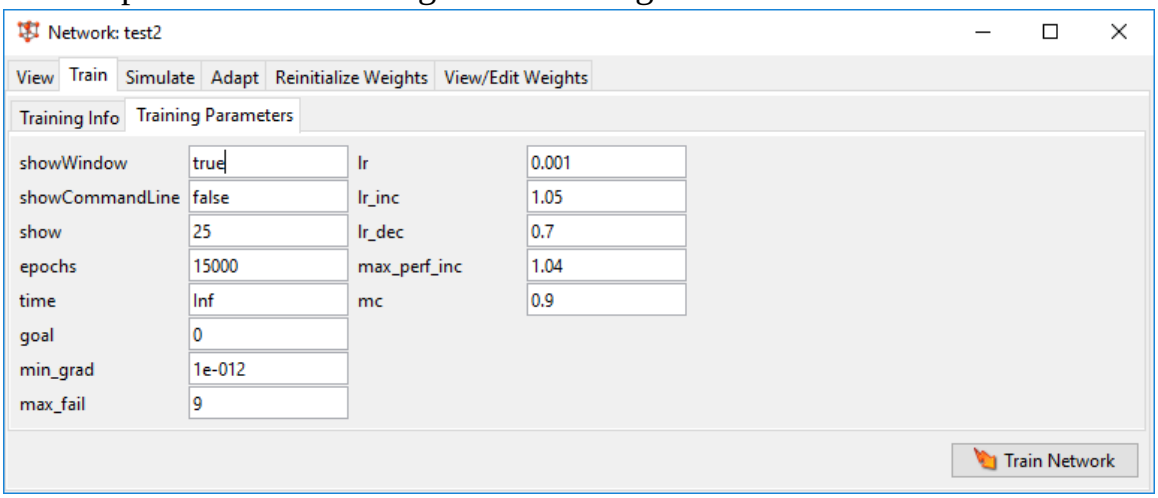
Select input & target



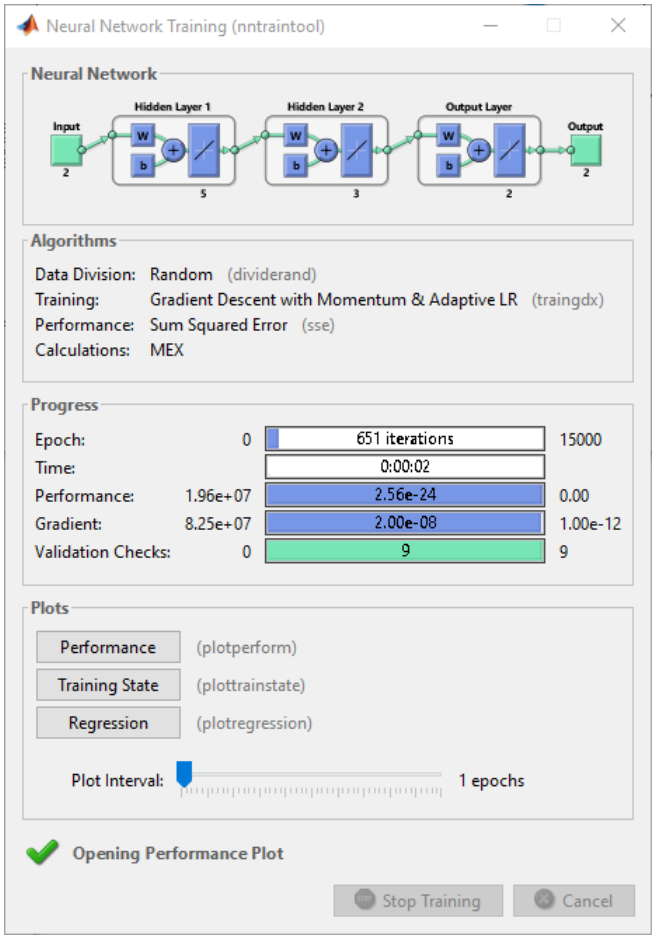
Initialize weight



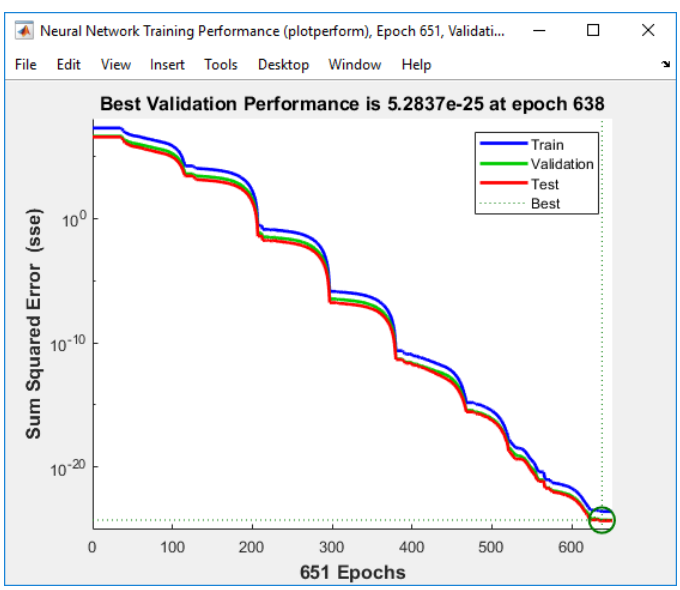
Chose epochs max fail min grad & learning rate



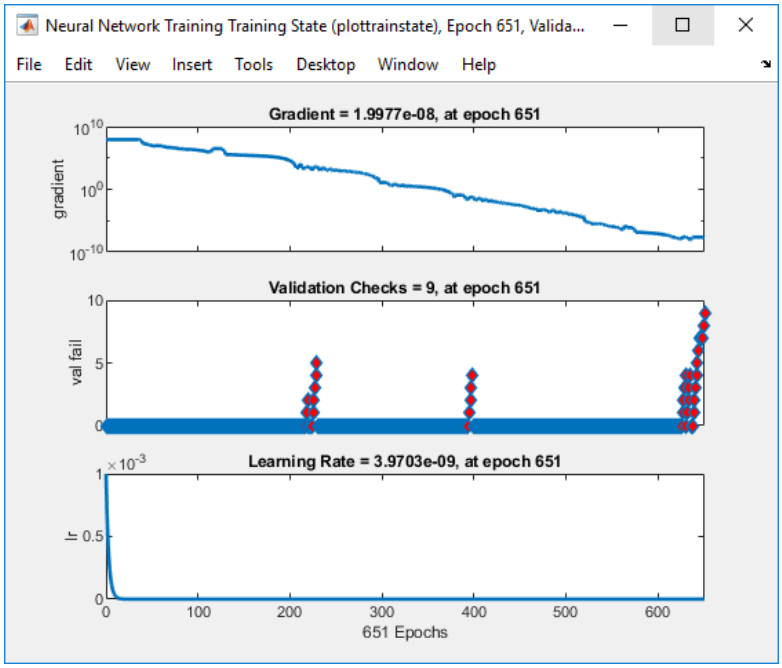
After train 651 epochs validation check stop learning



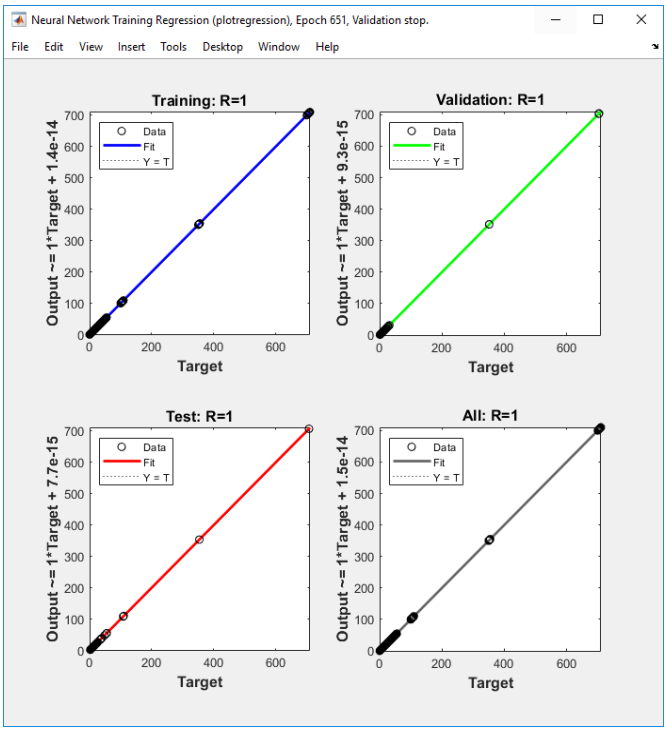
Train performance



Train state

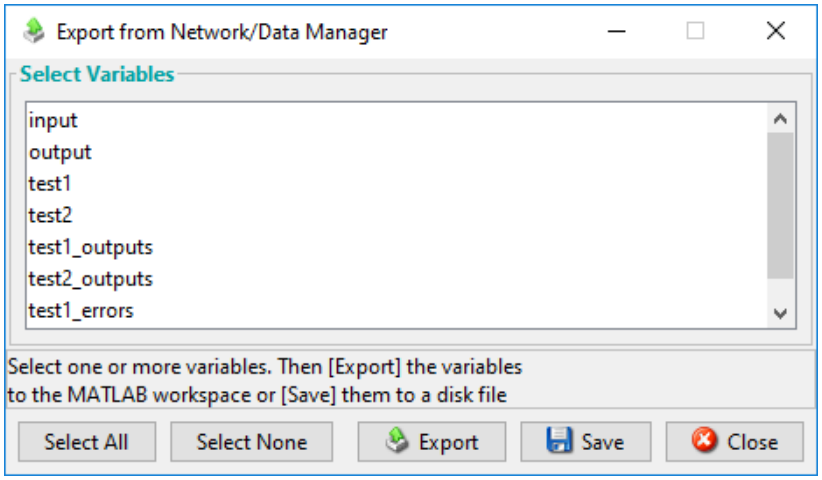


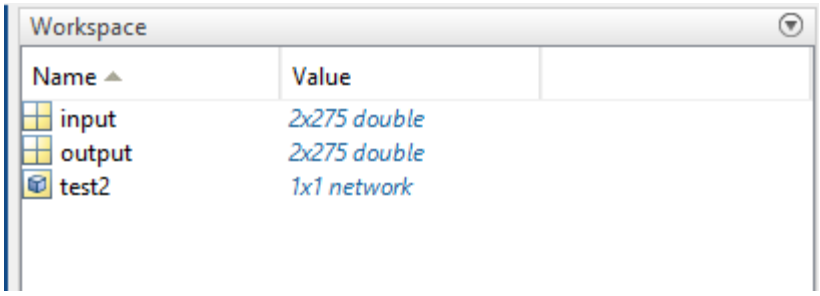
Train regression



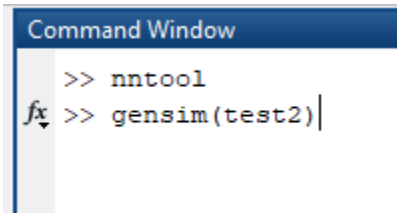
That’s good performance let's test it

We export test2 to workspace

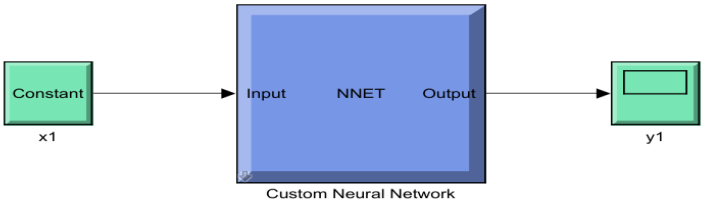




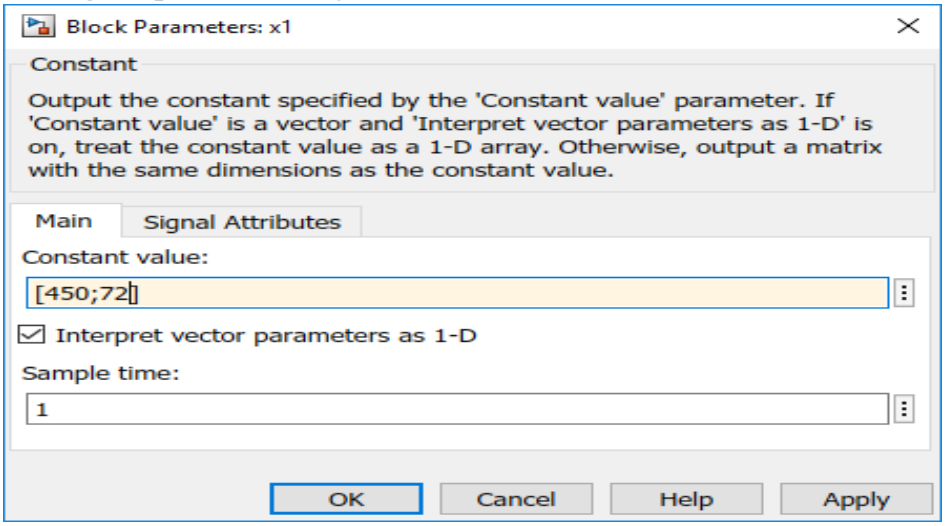
Write { genism(test2) } in command window



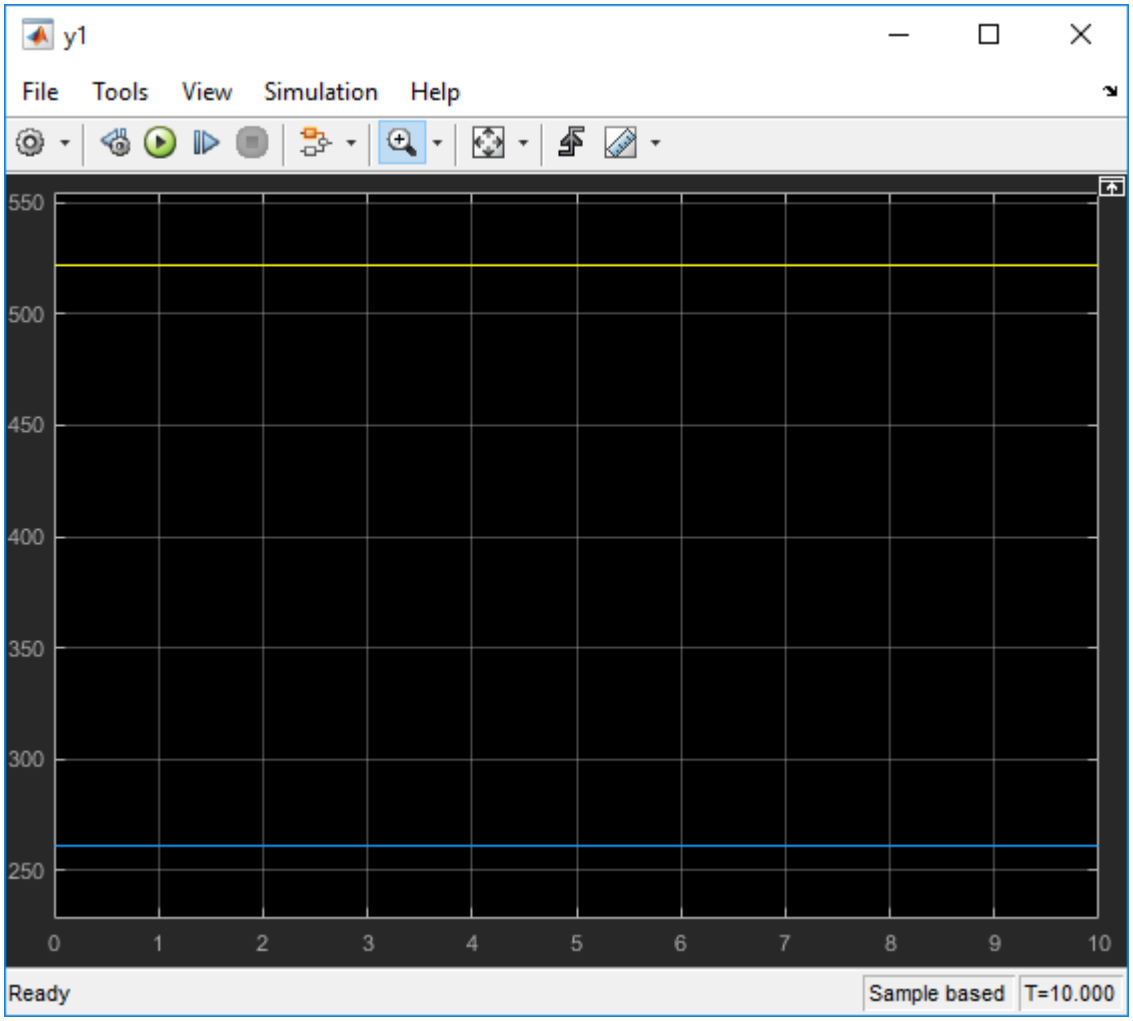
Run Simulink as black box has input & output



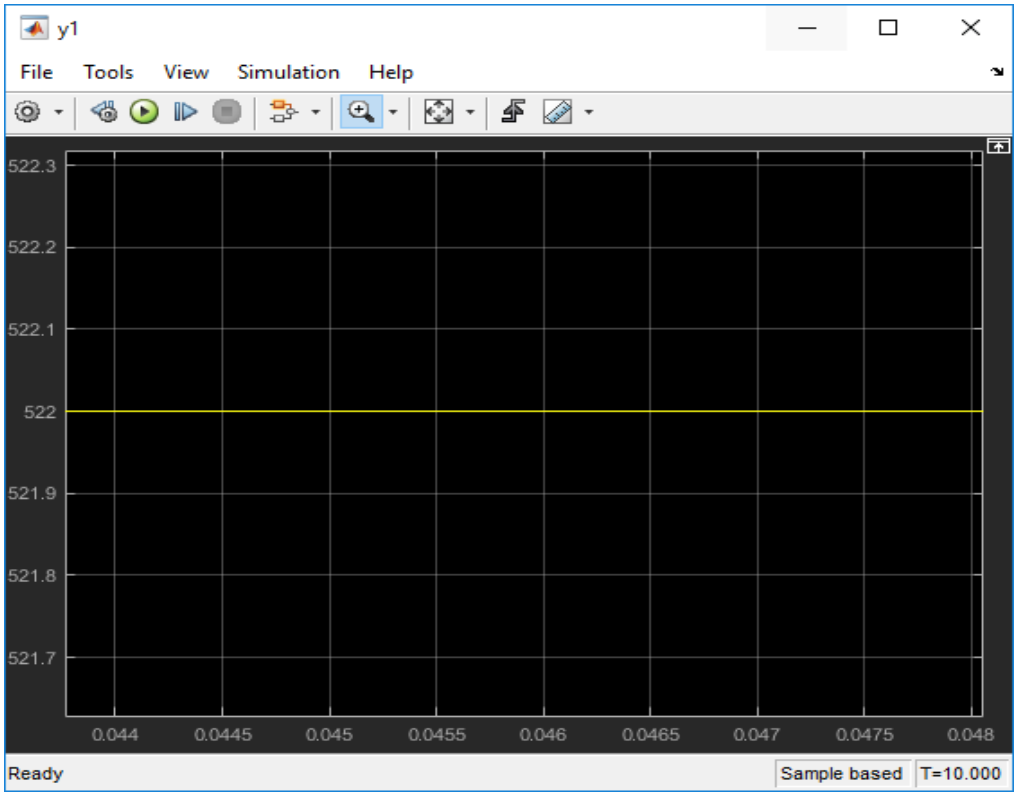
Change input randomly number



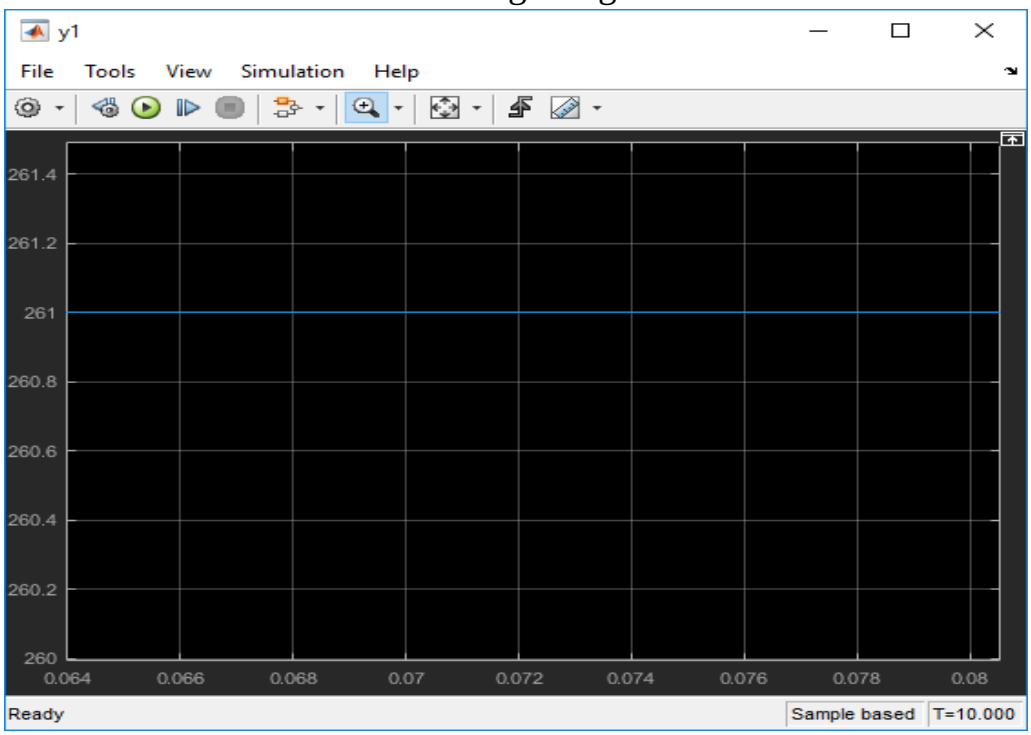
Then output get



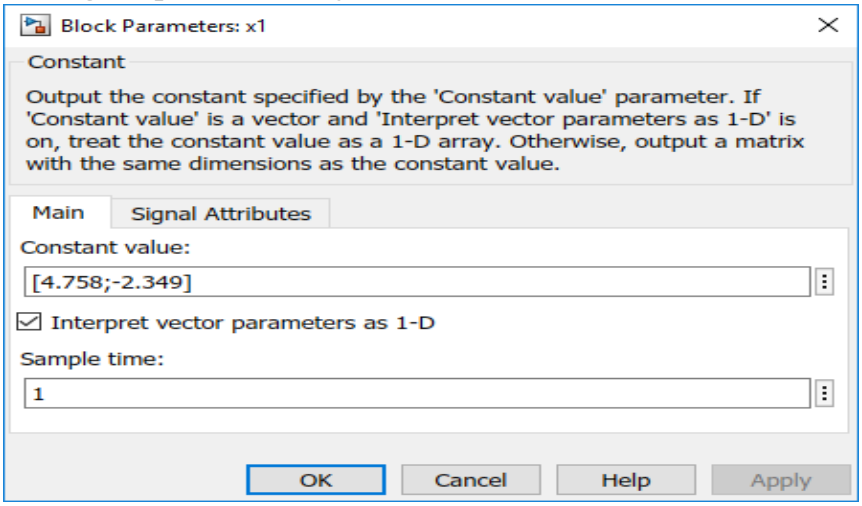
After zoom in to the yellow line we get sum



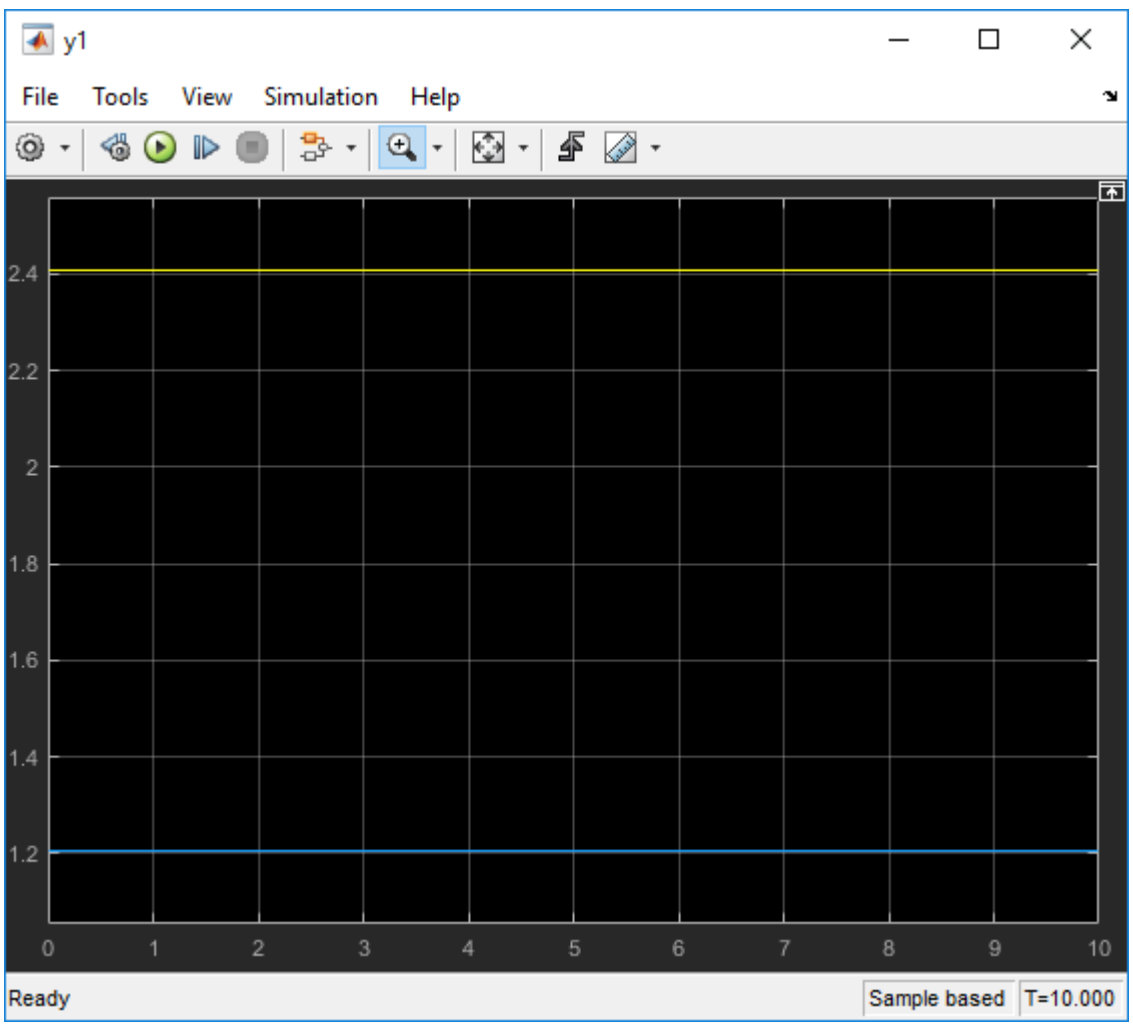
After zoom in to the blue line we get avg



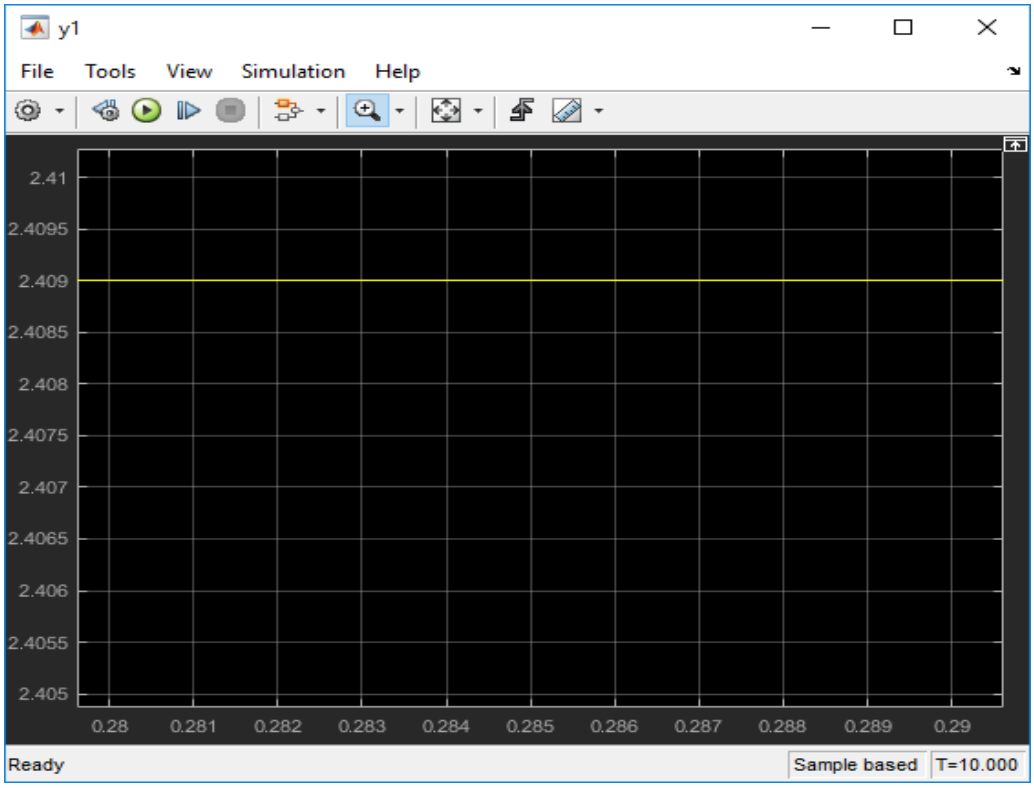
Change input randomly number



Then output get



After zoom in to the yellow line we get sum



After zoom in to the blue line we get avg