Answer Sheet

Connor Deakin
MAT 345
Project 3

- B -
Python

- C -
[7.66712306, 0.31262773, 0.15289359, 0.43866389]

- D -
66.20961110405005
48.56357988180149
75.74333708245999
64.71719402590662
68.00762600673907
76.33680974479256
69.53807620564262
78.8838002086061
77.34208887020759
75.73992603943982
72.74934632418142
84.25469179318978
68.69585681693411
74.83081547478496
84.6943652281883
79.43723912005609
67.87184302472384
83.24640249079995
70.41188903153412
76.36749754250403
86.19785409464728
82.9943301652025
81.35937499922
79.64475319751767
87.12889672106729
82.85511767658497
88.8903928232747
87.2886308585523
89.48195029928343
82.59620480136502
85.5339753059674
82.33729192614508
78.70194465817656
64.25882868456583

83.56003976299976
85.28190298036994
90.57272706318842
86.06005201892744
83.20788306019583
88.8517694852898
82.7173156008651
91.23168048856968
89.63675907346976
82.77103045099267
90.10912093630228
84.87794661376228
93.48555532905087
91.44512947618225
89.12577387265239
97.77301547277817
95.45365986924831
90.02955820796323
94.57633209295585
94.53629834207327

- E -
I used the Gradient Descent algorithm.

- F -
I used a step factor of 0.05. The algorithm stopped when the magnitude of the gradient vector was below a certain epsilon. The epsilon I chose was 0.001.

- G -
[-14.60362618 7.61206173 5.2962236 9.66512732]
These weights are scaled by 0.01. All the input values were scaled by this factor to get the gradient descent algorithm to work.

- H -
0.543028581855916
0.00830377925665794
0.9395192858280503
0.4971022006703465
0.7057501972849617
0.948458044834331
0.721017355433517
0.964187724016022
0.958753143139811
0.9119508379403886
0.87102741523855
0.9912869648728148

0.7171300416993506
0.8967426582255776
0.989308330372472
0.9657070922981641
0.5810549169772861
0.9897476049192963
0.7963823169023624
0.9518662619004379
0.9944927260167652
0.9893224542378992
0.9827231456018511
0.9776609246738758
0.9957404738342776
0.9880654025785669
0.9970148925605187
0.9958375782383551
0.9974286343871984
0.9879319208224757
0.9938850320996512
0.9877969645862456
0.9734043425135777
0.5225120745317373
0.9871663158226873
0.9936303498311132
0.9980579506598533
0.9948058994852896
0.9818457006176735
0.997151443257763
0.9887399302564549
0.9983361179007151
0.9976086185294786
0.989439642969867
0.9978341383860432
0.9905524106178063
0.9990084530269482
0.9984761010470705
0.9974804972708102
0.9996270398134367
0.9993829102674548
0.996770457661217
0.9992514145135084
0.9991522743495859