

Epoch 778/1000
8/8 [=====] - 0s 804us/step - loss: 591845.0625
Epoch 779/1000
8/8 [=====] - 0s 857us/step - loss: 591834.0625
Epoch 780/1000
8/8 [=====] - 0s 831us/step - loss: 591823.0000
Epoch 781/1000
8/8 [=====] - 0s 871us/step - loss: 591812.0625
Epoch 782/1000
8/8 [=====] - 0s 941us/step - loss: 591801.1875
Epoch 783/1000
8/8 [=====] - 0s 874us/step - loss: 591790.1250
Epoch 784/1000
8/8 [=====] - 0s 825us/step - loss: 591779.1875
Epoch 785/1000
8/8 [=====] - 0s 916us/step - loss: 591768.1875
Epoch 786/1000
8/8 [=====] - 0s 821us/step - loss: 591757.1875
Epoch 787/1000
8/8 [=====] - 0s 856us/step - loss: 591746.2500
Epoch 788/1000
8/8 [=====] - 0s 806us/step - loss: 591735.1875
Epoch 789/1000
8/8 [=====] - 0s 867us/step - loss: 591724.2500
Epoch 790/1000
8/8 [=====] - 0s 866us/step - loss: 591713.3750
Epoch 791/1000
8/8 [=====] - 0s 905us/step - loss: 591702.3125
Epoch 792/1000
8/8 [=====] - 0s 842us/step - loss: 591691.3750
Epoch 793/1000
8/8 [=====] - 0s 843us/step - loss: 591680.3750
Epoch 794/1000
8/8 [=====] - 0s 962us/step - loss: 591669.3125
Epoch 795/1000
8/8 [=====] - 0s 744us/step - loss: 591658.4375
Epoch 796/1000
8/8 [=====] - 0s 934us/step - loss: 591647.3750
Epoch 797/1000
8/8 [=====] - 0s 994us/step - loss: 591636.3125
Epoch 798/1000
8/8 [=====] - 0s 808us/step - loss: 591625.6875
Epoch 799/1000
8/8 [=====] - 0s 1ms/step - loss: 591614.3125
Epoch 800/1000
8/8 [=====] - 0s 810us/step - loss: 591603.3750
Epoch 801/1000
8/8 [=====] - 0s 997us/step - loss: 591592.3125
Epoch 802/1000
8/8 [=====] - 0s 897us/step - loss: 591581.2500
Epoch 803/1000
8/8 [=====] - 0s 706us/step - loss: 591570.2500
Epoch 804/1000
8/8 [=====] - 0s 959us/step - loss: 591559.2500
Epoch 805/1000
8/8 [=====] - 0s 731us/step - loss: 591548.1875
Epoch 806/1000
8/8 [=====] - 0s 917us/step - loss: 591537.2500
Epoch 807/1000

```

8/8 [=====] - 0s 853us/step - loss: 591526.1250
Epoch 808/1000
8/8 [=====] - 0s 804us/step - loss: 591515.2500
Epoch 809/1000
8/8 [=====] - 0s 842us/step - loss: 591504.0000
Epoch 810/1000
8/8 [=====] - 0s 871us/step - loss: 591493.1250
Epoch 811/1000
8/8 [=====] - 0s 981us/step - loss: 591482.0000
Epoch 812/1000
8/8 [=====] - 0s 827us/step - loss: 591470.9375
Epoch 813/1000
8/8 [=====] - 0s 852us/step - loss: 591460.0000
Epoch 814/1000
8/8 [=====] - 0s 780us/step - loss: 591449.0000
Epoch 815/1000
8/8 [=====] - 0s 848us/step - loss: 591438.0625
Epoch 816/1000
8/8 [=====] - 0s 870us/step - loss: 591426.9375
Epoch 817/1000
8/8 [=====] - 0s 889us/step - loss: 591416.0625
Epoch 818/1000
8/8 [=====] - 0s 864us/step - loss: 591404.8125
Epoch 819/1000
8/8 [=====] - 0s 874us/step - loss: 591393.7500
Epoch 820/1000
8/8 [=====] - 0s 715us/step - loss: 591382.9375
Epoch 821/1000
8/8 [=====] - 0s 891us/step - loss: 591371.8750
Epoch 822/1000
8/8 [=====] - 0s 717us/step - loss: 591361.0000
Epoch 823/1000
8/8 [=====] - 0s 727us/step - loss: 591349.8750
Epoch 824/1000
8/8 [=====] - 0s 1000us/step - loss: 591339.0625
Epoch 825/1000
8/8 [=====] - 0s 1ms/step - loss: 591327.8750
Epoch 826/1000
8/8 [=====] - 0s 900us/step - loss: 591317.0625
Epoch 827/1000
8/8 [=====] - 0s 857us/step - loss: 591306.0625
Epoch 828/1000
8/8 [=====] - 0s 932us/step - loss: 591295.0625
Epoch 829/1000
8/8 [=====] - 0s 980us/step - loss: 591284.0625
Epoch 830/1000
8/8 [=====] - 0s 902us/step - loss: 591272.9375
Epoch 831/1000
8/8 [=====] - 0s 859us/step - loss: 591262.1250
Epoch 832/1000
8/8 [=====] - 0s 824us/step - loss: 591251.1250
Epoch 833/1000
8/8 [=====] - 0s 864us/step - loss: 591240.0625
Epoch 834/1000
8/8 [=====] - 0s 714us/step - loss: 591229.2500
Epoch 835/1000
8/8 [=====] - 0s 859us/step - loss: 591218.0625
Epoch 836/1000
8/8 [=====] - 0s 881us/step - loss: 591207.0625

```

Epoch 837/1000
8/8 [=====] - 0s 859us/step - loss: 591196.1875
Epoch 838/1000
8/8 [=====] - 0s 838us/step - loss: 591185.0625
Epoch 839/1000
8/8 [=====] - 0s 859us/step - loss: 591174.0000
Epoch 840/1000
8/8 [=====] - 0s 746us/step - loss: 591162.8750
Epoch 841/1000
8/8 [=====] - 0s 898us/step - loss: 591151.8750
Epoch 842/1000
8/8 [=====] - 0s 848us/step - loss: 591140.8125
Epoch 843/1000
8/8 [=====] - 0s 941us/step - loss: 591129.8750
Epoch 844/1000
8/8 [=====] - 0s 1000us/step - loss: 591118.8125
Epoch 845/1000
8/8 [=====] - 0s 798us/step - loss: 591107.8125
Epoch 846/1000
8/8 [=====] - 0s 879us/step - loss: 591096.6875
Epoch 847/1000
8/8 [=====] - 0s 899us/step - loss: 591085.8125
Epoch 848/1000
8/8 [=====] - 0s 859us/step - loss: 591074.6875
Epoch 849/1000
8/8 [=====] - 0s 938us/step - loss: 591063.8750
Epoch 850/1000
8/8 [=====] - 0s 858us/step - loss: 591052.5625
Epoch 851/1000
8/8 [=====] - 0s 952us/step - loss: 591041.7500
Epoch 852/1000
8/8 [=====] - 0s 864us/step - loss: 591030.4375
Epoch 853/1000
8/8 [=====] - 0s 899us/step - loss: 591019.6875
Epoch 854/1000
8/8 [=====] - 0s 871us/step - loss: 591008.6250
Epoch 855/1000
8/8 [=====] - 0s 830us/step - loss: 590997.7500
Epoch 856/1000
8/8 [=====] - 0s 1ms/step - loss: 590986.6875
Epoch 857/1000
8/8 [=====] - 0s 861us/step - loss: 590975.6250
Epoch 858/1000
8/8 [=====] - 0s 905us/step - loss: 590964.8750
Epoch 859/1000
8/8 [=====] - 0s 887us/step - loss: 590953.8750
Epoch 860/1000
8/8 [=====] - 0s 864us/step - loss: 590942.9375
Epoch 861/1000
8/8 [=====] - 0s 854us/step - loss: 590932.1250
Epoch 862/1000
8/8 [=====] - 0s 858us/step - loss: 590921.1875
Epoch 863/1000
8/8 [=====] - 0s 1ms/step - loss: 590910.1250
Epoch 864/1000
8/8 [=====] - 0s 928us/step - loss: 590899.2500
Epoch 865/1000
8/8 [=====] - 0s 853us/step - loss: 590888.3750
Epoch 866/1000

8/8 [=====] - 0s 717us/step - loss: 590877.1875
Epoch 867/1000
8/8 [=====] - 0s 1ms/step - loss: 590866.4375
Epoch 868/1000
8/8 [=====] - 0s 967us/step - loss: 590855.2500
Epoch 869/1000
8/8 [=====] - 0s 904us/step - loss: 590844.3750
Epoch 870/1000
8/8 [=====] - 0s 934us/step - loss: 590833.3125
Epoch 871/1000
8/8 [=====] - 0s 901us/step - loss: 590822.3125
Epoch 872/1000
8/8 [=====] - 0s 904us/step - loss: 590811.4375
Epoch 873/1000
8/8 [=====] - 0s 857us/step - loss: 590800.3125
Epoch 874/1000
8/8 [=====] - 0s 906us/step - loss: 590789.3125
Epoch 875/1000
8/8 [=====] - 0s 1ms/step - loss: 590778.4375
Epoch 876/1000
8/8 [=====] - 0s 830us/step - loss: 590767.1875
Epoch 877/1000
8/8 [=====] - 0s 755us/step - loss: 590756.1250
Epoch 878/1000
8/8 [=====] - 0s 776us/step - loss: 590745.0000
Epoch 879/1000
8/8 [=====] - 0s 858us/step - loss: 590734.0625
Epoch 880/1000
8/8 [=====] - 0s 970us/step - loss: 590722.8750
Epoch 881/1000
8/8 [=====] - 0s 731us/step - loss: 590712.1250
Epoch 882/1000
8/8 [=====] - 0s 880us/step - loss: 590701.1875
Epoch 883/1000
8/8 [=====] - 0s 859us/step - loss: 590690.1875
Epoch 884/1000
8/8 [=====] - 0s 798us/step - loss: 590679.2500
Epoch 885/1000
8/8 [=====] - 0s 764us/step - loss: 590668.2500
Epoch 886/1000
8/8 [=====] - 0s 787us/step - loss: 590657.1875
Epoch 887/1000
8/8 [=====] - 0s 724us/step - loss: 590646.1875
Epoch 888/1000
8/8 [=====] - 0s 887us/step - loss: 590635.3125
Epoch 889/1000
8/8 [=====] - 0s 893us/step - loss: 590624.3125
Epoch 890/1000
8/8 [=====] - 0s 1ms/step - loss: 590613.2500
Epoch 891/1000
8/8 [=====] - 0s 895us/step - loss: 590602.1875
Epoch 892/1000
8/8 [=====] - 0s 877us/step - loss: 590591.3750
Epoch 893/1000
8/8 [=====] - 0s 988us/step - loss: 590580.3125
Epoch 894/1000
8/8 [=====] - 0s 751us/step - loss: 590569.3125
Epoch 895/1000
8/8 [=====] - 0s 901us/step - loss: 590558.2500

Epoch 896/1000
8/8 [=====] - 0s 787us/step - loss: 590547.3750
Epoch 897/1000
8/8 [=====] - 0s 728us/step - loss: 590536.3750
Epoch 898/1000
8/8 [=====] - 0s 936us/step - loss: 590525.4375
Epoch 899/1000
8/8 [=====] - 0s 719us/step - loss: 590514.6875
Epoch 900/1000
8/8 [=====] - 0s 723us/step - loss: 590503.5625
Epoch 901/1000
8/8 [=====] - 0s 861us/step - loss: 590492.6875
Epoch 902/1000
8/8 [=====] - 0s 871us/step - loss: 590481.8125
Epoch 903/1000
8/8 [=====] - 0s 734us/step - loss: 590470.6875
Epoch 904/1000
8/8 [=====] - 0s 983us/step - loss: 590459.8125
Epoch 905/1000
8/8 [=====] - 0s 872us/step - loss: 590449.0625
Epoch 906/1000
8/8 [=====] - 0s 851us/step - loss: 590438.0000
Epoch 907/1000
8/8 [=====] - 0s 894us/step - loss: 590427.0000
Epoch 908/1000
8/8 [=====] - 0s 1ms/step - loss: 590416.0625
Epoch 909/1000
8/8 [=====] - 0s 1ms/step - loss: 590405.0000
Epoch 910/1000
8/8 [=====] - 0s 855us/step - loss: 590393.8750
Epoch 911/1000
8/8 [=====] - 0s 877us/step - loss: 590383.0000
Epoch 912/1000
8/8 [=====] - 0s 865us/step - loss: 590372.1250
Epoch 913/1000
8/8 [=====] - 0s 859us/step - loss: 590360.9375
Epoch 914/1000
8/8 [=====] - 0s 871us/step - loss: 590350.0000
Epoch 915/1000
8/8 [=====] - 0s 1ms/step - loss: 590338.9375
Epoch 916/1000
8/8 [=====] - 0s 814us/step - loss: 590327.9375
Epoch 917/1000
8/8 [=====] - 0s 1ms/step - loss: 590317.1250
Epoch 918/1000
8/8 [=====] - 0s 937us/step - loss: 590306.1250
Epoch 919/1000
8/8 [=====] - 0s 873us/step - loss: 590294.9375
Epoch 920/1000
8/8 [=====] - 0s 925us/step - loss: 590284.0625
Epoch 921/1000
8/8 [=====] - 0s 1ms/step - loss: 590273.0625
Epoch 922/1000
8/8 [=====] - 0s 1ms/step - loss: 590262.2500
Epoch 923/1000
8/8 [=====] - 0s 864us/step - loss: 590251.0625
Epoch 924/1000
8/8 [=====] - 0s 814us/step - loss: 590240.1250
Epoch 925/1000

```

8/8 [=====] - 0s 864us/step - loss: 590229.1875
Epoch 926/1000
8/8 [=====] - 0s 797us/step - loss: 590218.0625
Epoch 927/1000
8/8 [=====] - 0s 1ms/step - loss: 590207.3125
Epoch 928/1000
8/8 [=====] - 0s 860us/step - loss: 590196.2500
Epoch 929/1000
8/8 [=====] - 0s 862us/step - loss: 590185.3125
Epoch 930/1000
8/8 [=====] - 0s 750us/step - loss: 590174.4375
Epoch 931/1000
8/8 [=====] - 0s 866us/step - loss: 590163.3750
Epoch 932/1000
8/8 [=====] - 0s 811us/step - loss: 590152.3750
Epoch 933/1000
8/8 [=====] - 0s 724us/step - loss: 590141.6250
Epoch 934/1000
8/8 [=====] - 0s 812us/step - loss: 590130.6250
Epoch 935/1000
8/8 [=====] - 0s 920us/step - loss: 590119.6875
Epoch 936/1000
8/8 [=====] - 0s 893us/step - loss: 590108.5625
Epoch 937/1000
8/8 [=====] - 0s 859us/step - loss: 590097.4375
Epoch 938/1000
8/8 [=====] - 0s 987us/step - loss: 590086.6250
Epoch 939/1000
8/8 [=====] - 0s 897us/step - loss: 590075.6250
Epoch 940/1000
8/8 [=====] - 0s 921us/step - loss: 590064.6875
Epoch 941/1000
8/8 [=====] - 0s 857us/step - loss: 590053.6875
Epoch 942/1000
8/8 [=====] - 0s 787us/step - loss: 590042.6250
Epoch 943/1000
8/8 [=====] - 0s 784us/step - loss: 590031.8125
Epoch 944/1000
8/8 [=====] - 0s 920us/step - loss: 590020.8750
Epoch 945/1000
8/8 [=====] - 0s 848us/step - loss: 590009.8125
Epoch 946/1000
8/8 [=====] - 0s 935us/step - loss: 589998.8125
Epoch 947/1000
8/8 [=====] - 0s 935us/step - loss: 589987.8125
Epoch 948/1000
8/8 [=====] - 0s 952us/step - loss: 589976.8750
Epoch 949/1000
8/8 [=====] - 0s 857us/step - loss: 589966.0000
Epoch 950/1000
8/8 [=====] - 0s 894us/step - loss: 589954.8750
Epoch 951/1000
8/8 [=====] - 0s 857us/step - loss: 589943.8750
Epoch 952/1000
8/8 [=====] - 0s 791us/step - loss: 589933.1250
Epoch 953/1000
8/8 [=====] - 0s 849us/step - loss: 589922.1250
Epoch 954/1000
8/8 [=====] - 0s 831us/step - loss: 589911.1250

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Epoch 955/1000
8/8 [=====] - 0s 857us/step - loss: 589900.3125
Epoch 956/1000
8/8 [=====] - 0s 946us/step - loss: 589889.1875
Epoch 957/1000
8/8 [=====] - 0s 947us/step - loss: 589878.3125
Epoch 958/1000
8/8 [=====] - 0s 867us/step - loss: 589867.3750
Epoch 959/1000
8/8 [=====] - 0s 1ms/step - loss: 589856.6250
Epoch 960/1000
8/8 [=====] - 0s 861us/step - loss: 589845.6875
Epoch 961/1000
8/8 [=====] - 0s 874us/step - loss: 589834.6250
Epoch 962/1000
8/8 [=====] - 0s 864us/step - loss: 589823.6875
Epoch 963/1000
8/8 [=====] - 0s 1ms/step - loss: 589812.6875
Epoch 964/1000
8/8 [=====] - 0s 938us/step - loss: 589801.8750
Epoch 965/1000
8/8 [=====] - 0s 1ms/step - loss: 589790.8125
Epoch 966/1000
8/8 [=====] - 0s 978us/step - loss: 589779.7500
Epoch 967/1000
8/8 [=====] - 0s 857us/step - loss: 589768.9375
Epoch 968/1000
8/8 [=====] - 0s 909us/step - loss: 589757.8750
Epoch 969/1000
8/8 [=====] - 0s 859us/step - loss: 589747.0000
Epoch 970/1000
8/8 [=====] - 0s 1ms/step - loss: 589735.8125
Epoch 971/1000
8/8 [=====] - 0s 915us/step - loss: 589725.0000
Epoch 972/1000
8/8 [=====] - 0s 919us/step - loss: 589713.9375
Epoch 973/1000
8/8 [=====] - 0s 875us/step - loss: 589703.0000
Epoch 974/1000
8/8 [=====] - 0s 1ms/step - loss: 589692.0625
Epoch 975/1000
8/8 [=====] - 0s 1ms/step - loss: 589680.9375
Epoch 976/1000
8/8 [=====] - 0s 1000us/step - loss: 589670.1875
Epoch 977/1000
8/8 [=====] - 0s 817us/step - loss: 589659.1250
Epoch 978/1000
8/8 [=====] - 0s 857us/step - loss: 589648.3750
Epoch 979/1000
8/8 [=====] - 0s 936us/step - loss: 589637.2500
Epoch 980/1000
8/8 [=====] - 0s 858us/step - loss: 589626.1250
Epoch 981/1000
8/8 [=====] - 0s 1ms/step - loss: 589615.3125
Epoch 982/1000
8/8 [=====] - 0s 867us/step - loss: 589604.3125
Epoch 983/1000
8/8 [=====] - 0s 1ms/step - loss: 589593.3750
Epoch 984/1000

```

8/8 [=====] - 0s 857us/step - loss: 589582.5625
Epoch 985/1000
8/8 [=====] - 0s 861us/step - loss: 589571.5625
Epoch 986/1000
8/8 [=====] - 0s 803us/step - loss: 589560.6250
Epoch 987/1000
8/8 [=====] - 0s 1ms/step - loss: 589549.5625
Epoch 988/1000
8/8 [=====] - 0s 989us/step - loss: 589538.6250
Epoch 989/1000
8/8 [=====] - 0s 882us/step - loss: 589527.5625
Epoch 990/1000
8/8 [=====] - 0s 958us/step - loss: 589516.6250
Epoch 991/1000
8/8 [=====] - 0s 838us/step - loss: 589505.7500
Epoch 992/1000
8/8 [=====] - 0s 1ms/step - loss: 589494.6875
Epoch 993/1000
8/8 [=====] - 0s 863us/step - loss: 589483.7500
Epoch 994/1000
8/8 [=====] - 0s 891us/step - loss: 589472.8750
Epoch 995/1000
8/8 [=====] - 0s 1ms/step - loss: 589461.7500
Epoch 996/1000
8/8 [=====] - 0s 857us/step - loss: 589450.9375
Epoch 997/1000
8/8 [=====] - 0s 871us/step - loss: 589440.0625
Epoch 998/1000
8/8 [=====] - 0s 918us/step - loss: 589429.0000
Epoch 999/1000
8/8 [=====] - 0s 842us/step - loss: 589418.0000
Epoch 1000/1000
8/8 [=====] - 0s 935us/step - loss: 589407.1250

```

***** ANN training complete *****

***** WEIGHTS OF ANN *****

```

Weights W0:
[[-0.52824426  0.68509895 -0.08621093]
 [ 0.13471311  0.6377712   0.3657564 ]
 [-0.5969446   0.55641073  0.12073731]
 [-0.8632307  -0.03334276  0.49040645]
 [ 0.72155935  0.10625731  0.3740154 ]]
Bias b0:
[ 0.          -0.10978232 -0.33273506]
Weights W1:
[[ 0.41994047  0.7494314   0.96866465]
 [-0.18792614 -0.06451124 -0.89637506]
 [ 0.47636852  0.23578976  0.8984957 ]]
Bias b1:
[-0.44876897 -0.36151892 -0.0445501 ]
Weights W2:
[[ 0.52001613 -0.39193463 -0.2328151 ]
 [-0.01854909 -0.8856895   0.33235872]
 [-0.71289986  0.653157    0.7598868 ]]

```



```

Bias b2:
[-0.614098  0.          -0.4548754]
Weights W3:
[[-0.34119806]
 [-0.8007426 ]
 [-0.9819896 ]]
Bias b3:
[7.9393835]

```

***** Press ENTER to start using the ANN *****

1/1 [=====] - 0s 38ms/step

```

ANN Predicted number of electric scooters used: 7
*****

```

***** ANN MODEL SUCCESSFULLY SAVED AS Super.h5 *****

```

C:\Users\hskay\OneDrive\Documents\Master\Semester I\Artificial Intelligence for Engineering
Applications\Projects\myproject\pro_5_ann\pro_5_ann_nyc_scooter\pro_5_ann_nyc_scooter.py:
173: DeprecationWarning: Conversion of an array with ndim > 0 to a scalar is deprecated, and
will error in future. Ensure you extract a single element from your array before performing
this operation. (Deprecated NumPy 1.25.)
    print('ANN Predicted number of electric scooters used: ', int (prediction))
C:\Users\hskay\anaconda3\lib\site-packages\keras\src\engine\training.py:3000: UserWarning:
You are saving your model as an HDF5 file via `model.save()`. This file format is considered
legacy. We recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')`.
    saving_api.save_model(

```

In [5]: