

```
In [4]: 'C:/Users/ujjwa/OneDrive - Centennial College/Documents/Semester_3/
Artificial_Intelligence/Assignments/Neural_Network/Assignment#5_Ujjwal/Exercise#1_Ujjwal/
Ujjwal#Ex1.py' = 'C:/Users/ujjwa/OneDrive - Centennial College/Documents/Semester_3/
Artificial_Intelligence/Assignments/Neural_Network/Assignment#5_Ujjwal/Exercise#1_Ujjwal '
```

```
Epoch: 15; Error: 0.05504985044608453;
Epoch: 30; Error: 0.02459366461928936;
Epoch: 45; Error: 0.006163642909379176;
Epoch: 60; Error: 0.0032412571807674787;
Epoch: 75; Error: 0.001868578300121664;
Epoch: 90; Error: 0.0017156740696474245;
Epoch: 105; Error: 0.0016110178975384736;
Epoch: 120; Error: 0.0015441792320397944;
Epoch: 135; Error: 0.0015034566232988154;
Epoch: 150; Error: 0.0014809588093948785;
Epoch: 165; Error: 0.0014638087310227751;
Epoch: 180; Error: 0.0014522863629449862;
Epoch: 195; Error: 0.0014430313744104675;
Epoch: 210; Error: 0.0014359297520802727;
Epoch: 225; Error: 0.0014289235332432388;
Epoch: 240; Error: 0.00142372640725318;
Epoch: 255; Error: 0.0014190792303657223;
Epoch: 270; Error: 0.0014156573939232164;
Epoch: 285; Error: 0.0014131038174272574;
Epoch: 300; Error: 0.0014113533458953531;
Epoch: 315; Error: 0.001409843306193824;
Epoch: 330; Error: 0.001408491998601416;
Epoch: 345; Error: 0.0014072408052989305;
Epoch: 360; Error: 0.0014062850518774847;
Epoch: 375; Error: 0.0014054042010134481;
Epoch: 390; Error: 0.0014046418417884904;
Epoch: 405; Error: 0.00140390947004059;
Epoch: 420; Error: 0.0014032553786383225;
Epoch: 435; Error: 0.001402595996500435;
Epoch: 450; Error: 0.0014020534904563957;
Epoch: 465; Error: 0.0014015212315318327;
Epoch: 480; Error: 0.0014011431073354351;
Epoch: 495; Error: 0.0014007848328517311;
Epoch: 510; Error: 0.0014004338773034714;
Epoch: 525; Error: 0.00140016493008776;
Epoch: 540; Error: 0.0013999037717544209;
Epoch: 555; Error: 0.0013996529193850355;
Epoch: 570; Error: 0.001399451377316713;
Epoch: 585; Error: 0.0013992437880473423;
Epoch: 600; Error: 0.0013990702244150114;
Epoch: 615; Error: 0.0013989063360933796;
Epoch: 630; Error: 0.001398764348582256;
Epoch: 645; Error: 0.001398625415868699;
Epoch: 660; Error: 0.001398514939287011;
Epoch: 675; Error: 0.001398405895755039;
Epoch: 690; Error: 0.0013983215752101953;
Epoch: 705; Error: 0.0013982239157246;
Epoch: 720; Error: 0.0013981584484014874;
Epoch: 735; Error: 0.0013981030575059405;
```

Epoch: 750; Error: 0.0013980358558683536;
Epoch: 765; Error: 0.0013979792946293825;
Epoch: 780; Error: 0.0013979222842967196;

Trained Neural Network Weights and Biases:

Weights: [[0.52822462 0.54604801]

[18.91579205 -8.00151204]

[4.50569876 0.93121747]

[-8.0020944 -4.37280869]

[-8.77084625 5.38155914]

[-13.38243726 -1.40189591]]

Biases: [3.84763837 -64.46612253 22.65569844 -15.8778973 -14.66157037
-22.02513957]

Training Error: 0.0013979222842967196

Test Result #1:

Input: [[0.1 0.2]]

Output: [[0.2354452]]

In [5]: