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Class : TY-IT-A

Roll No : 54

Batch No : B2

PRN No : 12010610

Lab No : 05

Problem Statement : Single Perceptron Learning

Code:

```
#include <iostream>
using namespace std;

int signum(int net)
{
    if(net < 0)
    {
        return -1;
    }
    else
    {
        return 1;
    }
}

int main()
{
    float des_op[3] = {1, -1, 1};
    float weight[4] = {1, -1, 0, 0.5};
    float c = 1;
    float net = 0;
    int out;
    float x[3][4] = {{1, -2, 1.5, 0}, {1, -0.5, -2, -1.5}, {0, 1, -1, 1.5}};
    cout<<"\nDisplaying weights calculated:\n";
    for(int i=0; i<3; i++)
    {
        net = 0;
        for(int j=0; j<4; j++)
        {
            net = net + x[i][j] * weight[j];
        }
        if(net != 0)
        {
            out = signum(int(net));
        }
        int y = des_op[i] - out;
        cout<<"\nWeights for X"<<i<<"\n";
        for(int j=0; j<4; j++)
        {
```

```
            weight[j] = weight[j] + c * y * x[i][j];
            cout<<weight[j]<<"\t";
        }
        cout<<endl;
    }
    cout<<endl;
    return 0;
}
```

Output:

```
Displaying weights calculated:

Weights for X0
1       -1      0       0.5

Weights for X1
-1      0       4       3.5

Weights for X2
-1      0       4       3.5

PS C:\Users\nupur\Desktop\c++ dsa practise>
```