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# PLA\_16

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## Initialization

```
TrainingData = dlmread('hw1_15_train.dat');
W = [0,0,0,0,0];
NumOfError = 0;
Existfault = 1;
```

## PLA updating

```
for times = 1:2000
while(Existfault)
    rng('shuffle');
    list = randperm(400); % make pre-determined cycle
    for i=1:400
        if(misclassified(W,TrainingData(list(i),:)))
            % updating W(t+1) <- W(t) + y(t)x(t)
            W(1,1:4) = W(1,1:4) + ...
                0.5.*TrainingData(list(i),1:4).*TrainingData(list(i),5);
            W(1,5) = W(1,5) + 0.5*TrainingData(list(i),5);
            NumOfError = NumOfError + 1;
        end
    end
    if(E_in(W,TrainingData)==0)
        Existfault = 0;
    end
end
W = [0,0,0,0,0]; % reset for next iteration with new cycle
Existfault = 1;
end
```

## Result

```
fprintf('\n');
fprintf('Average Num of error = %f \n\n',NumOfError/2000);
```

*Average Num of error = 40.158000*

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