```
% single sample perceptron with relaxation proceures for linear classification
% input
% X:: normalised setup of two category linearly seprable class
% theta:: intial weight vectors
% b:: the margin parameter (scalar value)
% output
% weights :: if seprable correct weights
function weights = single_sample_perceptron_relaxation_margin(X,theta,b)

nn= 0.5; % the ita factor

[m,d]=size(X);

limit = 10000 ; % limit in number of loops so if no convergence is found loop stil

for s=1:limit
    flag=1;
    % update step
    for i=1:m
        %temp is the current data point(row vector)
        temp= X(i,:);
        if temp*theta <= b
            theta = theta + nn*(temp')*( b-temp*theta )/(temp*temp') ;
            flag=0;
        end
    end
    %break if no update occours
    if flag
        break;
    end
end

%final_weights
weights=theta;
```

```
        Error using single_sample_perceptron_relaxation_margin (line 12)
        Not enough input arguments.
```

Published with MATLAB® R2013a