

% Function that calculates the negative log-likelihood of data input

```
function negLogLikelihood = Q(Y,X,b)

    N = length(X);
    K = length(b);

    YHat = zeros(length(X),1);
    for k = 1:K
        YHat = YHat + X.^(k - 1) * b(k);
    end

    negLogLikelihood = - sum( ...
        Y.*log(normcdf(YHat)) + (1-Y).*log((1 - normcdf(YHat))));

end
```