MSE

.

\[X=\left( \begin{align}

& 1\text{ }{{x}\_{11}}\text{ }....\text{ }{{x}\_{1d}} \\

& 1\text{ }....... \\

& ................... \\

& 1\text{ }{{x}\_{l1}}\text{ }....\text{ }{{x}\_{ld}} \\

\end{align} \right)\]

\[y=\left( {{y}\_{1}}\text{ }...\text{ }{{y}\_{l}} \right)\]

\[w=\left( \begin{align}

& {{w}\_{0}} \\

& {{w}\_{1}} \\

& ... \\

& {{w}\_{d}} \\

\end{align} \right)\]

\[Q=\frac{1}{2l}||a-y|{{|}^{2}}+\frac{\lambda }{2}||w|{{|}^{2}}\to \min \]

\[\frac{\partial Q}{\partial w}=\frac{1}{l}\left( a-y \right)\cdot \frac{\partial a}{\partial w}+\lambda w=\frac{1}{l}\left( a-y \right)X+\lambda w\]

\[w:=w-\alpha \frac{\partial Q}{\partial w}\]

\[{{\mu }\_{j}}=\frac{1}{l}\sum\limits\_{i=1}^{l}{x\_{i}^{j}}\]

\[{{\sigma }\_{j}}=\sqrt{\frac{1}{l}\sum\limits\_{i=1}^{l}{{{\left( x\_{i}^{j}-{{\mu }\_{j}} \right)}^{2}}}}\]