$class\ 1\ and\ class\ 0\ are\ equally\ likely \rightarrow \gamma = \frac{1}{2}$

$P(y = 1|x)$

$$= \frac{\gamma \prod_{j=1}^{d} \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{\left(x_j - \mu_j^1\right)^2}{2\sigma_j^2}}}{(1-\gamma) \prod_{j=1}^{d} \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{\left(x_j - \mu_j^0\right)^2}{2\sigma_j^2}} + \gamma \prod_{j=1}^{d} \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{\left(x_j - \mu_j^1\right)^2}{2\sigma_j^2}}}$$

$$= \frac{\prod_{j=1}^{d} \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{\left(x_j - \mu_j^1\right)^2}{2\sigma_j^2}}}{\prod_{j=1}^{d} \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{\left(x_j - \mu_j^0\right)^2}{2\sigma_j^2}} + \prod_{j=1}^{d} \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{\left(x_j - \mu_j^1\right)^2}{2\sigma_j^2}}}$$

$$= \frac{\frac{1}{\left(\sqrt{2\pi\sigma_j}\right)^d} e^{\sum_{j=1}^{d} -\frac{\left(x_j - \mu_j^1\right)^2}{2\sigma_j^2}}}{\frac{1}{\left(\sqrt{2\pi\sigma_j}\right)^d} e^{\sum_{j=1}^{d} -\frac{\left(x_j - \mu_j^0\right)^2}{2\sigma_j^2}} + \frac{1}{\left(\sqrt{2\pi\sigma_j}\right)^d} e^{\sum_{j=1}^{d} -\frac{\left(x_j - \mu_j^1\right)^2}{2\sigma_j^2}}}$$

$$= \frac{1}{e^{\sum_{j=1}^{d} \frac{\left(x_j - \mu_j^1\right)^2}{2\sigma_j^2} - \sum_{j=1}^{d} \frac{\left(x_j - \mu_j^0\right)^2}{2\sigma_j^2}} + 1}$$

$$= \frac{1}{1 + e^{\sum_{j=1}^{d} \frac{{\mu_j^1}^2 - {\mu_j^0}^2}{2\sigma_j^2} + \sum_{j=1}^{d} \frac{\mu_j^0 - \mu_j^1}{\sigma_j^2} x_j}}$$

$P(y = 1|x)\ for\ logistic\ regression:$

$P(y = 1|x)$

$$= \frac{1}{1 + e^{-\theta^T x}}$$

$$= \frac{1}{1 + e^{-\theta_0 - \sum_{j=1}^{d} \theta_j x_j}}$$

$$let\ \theta_0 = \sum_{j=1}^{d} \frac{{\mu_j^0}^2 - {\mu_j^1}^2}{2\sigma_j^2}, \theta_j = \frac{\mu_j^0 - \mu_j^1}{\sigma_j^2}\ (j = 1,2 \ldots, d)$$

$$\rightarrow P(y = 1|x) = \frac{1}{1 + e^{\sum_{j=1}^{d} \frac{{\mu_j^1}^2 - {\mu_j^0}^2}{2\sigma_j^2} + \sum_{j=1}^{d} \frac{\mu_j^0 - \mu_j^1}{\sigma_j^2} x_j}}$$

$$Thus, with\ \theta_0 = \sum_{j=1}^{d} \frac{{\mu_j^1}^2 - {\mu_j^0}^2}{2\sigma_j^2}, \theta_j = \frac{\mu_j^0 - \mu_j^1}{\sigma_j^2} (j = 1,2 \ldots, d), P(y = 1|x)\ for\ Gaussian$$

$$Naive\ Bayes\ with\ uniform\ priors\ is\ equivalent\ to\ P(y = 1|x)\ for\ logistic\ regression.$$