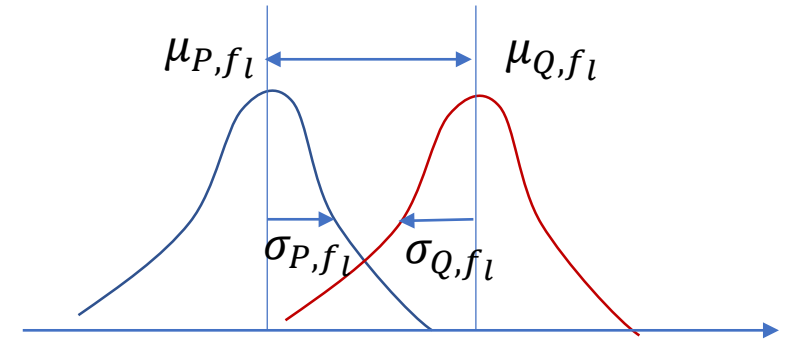


Fisher Criterion

- Qualified features: **maximizing** the distance between the means of the two classes while **minimizing** the variance within each class [7]

$$J_{f_l}(P, Q) = \frac{|\mu_{P,f_l} - \mu_{Q,f_l}|^2}{\sigma_{P,f_l}^2 + \sigma_{Q,f_l}^2}$$



- P and Q are two classes: normal and faulty
 - f_l is the l^{th} feature
 - μ and σ are mean and variance of the feature samples
-
- Selection steps:
 - Compute fisher discriminant score for each variable
 - Select the variables with high scores