Expectation Maximization

- Suppose we knew which mixture component f_j each observation came from
- Then we could construct a latent indicator variable, z_{ij}, which is 1 if point i comes from mixture component j, and 0 otherwise
- The log like then becomes
- Since we're supposing that we know z_{ij}, it's trivial to differentiate this log likelihood with respect to $\hat{\pi}$
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