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Implementing
    Naive Bayes classifier
  Bayes Theorem: P(A)B) = P(B|A). P(A)
  · In our case: P(y|x) = P(x|y).p(y)
    · with feature vector X: X = (x1, x2, x3, ..., xn)
    . Assume that all teatures are mutually independent
    p(y|x) = p(x, |y). p(x2|y)..... p(xn|y).p(y).
     -use the chain rule so we calculate the probability for each
      teature
     - p(y/x) is the postenor probability
      - P(2) is the class conditional probability
      - P(y) is the proor probability of y
      -P(X) is the prior probability of X
· Select class with highest probability
    y = argmaxy P(y|x) = argmaxy - P(x,1y). P(x,1y)..... P(xnly). P(y)
    y = argmaxy P(94/y). P(25/y).... P(xn/y). P(y)
     • since we are only interested on uny we don't need P(x)
   = argmaxy log (P(x,14)) + log (P(x2/4))+000+ log(P(xn/4))+ log(P(y))
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	a los / have noted
0	Class conditional probability P(zzly)
	- we model this with a Gaussian distribution
	D(x-1u)-1
	$P(x_i y) = \frac{1}{2\pi\sigma_y^2} \exp\left(-\frac{(x_i - y_i)^2}{2\sigma_y^2}\right)$
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