Integrated Spam Filter

Bayes Rule:

$$P(A|B) = \frac{(P(A|B)P(A))}{P(B)}$$

This equation is an expression of conditional probabilities which represent the probability of an event, A occurring given some evidence B.

The equation answers the question: what is the probability that an e-mail is spam given our static filter and our time series filter?

Therefore, in the equation, the components are as follows:
$P(A|B)$ -> given the outputs of the static spam filter and time series filter, predicting the probability that an e-mail is spam

$P(B|A)$ -> given that an email is spam, predicting the probability that the output of the static spam filter and time series filter will be spam

$P(A)$ -> the probability that the e-mail is spam

$P(B)$ -> the probability that the outputs of the static spam filter and time series filter is spam