Let \( P(A) \) denote the probability that a randomly selected United States resident is a terrorist and let \( P(B) \) denote the probability that the US government’s data mining technique flags a randomly selected US resident as a possible terrorist. In that case, the probability that a randomly selected US resident is not a terrorist will be \( P(A^c) = 1 - P(A) \). Using the rules of conditional probability, the probability that an individual is both a genuine terrorist and flagged as such by the US government’s data mining technique \( P(A \cup B) \) is

\[
P(A \cup B) = P(A|B)P(B), \tag{1}
\]

\[
= P(B|A)P(A). \tag{2}
\]

Here \( P(A|B) \) is the probability that an individual flagged as a possible terrorist is indeed a genuine terrorist and \( P(B|A) \) is the probability that a genuine terrorist is flagged as a possible terrorist. Therefore

\[
P(A|B) = \frac{P(B|A)P(A)}{P(B)}, \tag{3}
\]

\[
= \frac{P(B|A)P(A)}{P(B|A)P(A) + P(B|A^c)P(A^c)}. \tag{4}
\]

If there are 30 terrorists active in the United States at any time, then the probability that a randomly selected US resident is a terrorist is \( P(A) = \frac{30}{300,000,000} = 0.0000001 \). In that case, the probability that a randomly selected US resident is not a terrorist is \( P(A^c) = 1 - P(A) = 0.9999999 \). Assume generously that whatever data mining mechanism the US government uses can identify a true terrorist 99% of the time and that only 1% of the time does the data mining mechanism produce a false positive terrorist identification. In that case, \( P(B|A) = 0.99 \) and \( P(B|A^c) = 0.01 \).

It follows then that the probability that an individual identified as a possible terrorist by the US government’s data mining technique is

\[
P(A|B) = \frac{0.99 \times 0.0000001}{0.99 \times 0.0000001 + 0.01 \times 0.9999999} \tag{5}
\]

\[
= 0.0000099 \tag{6}
\]

In words, given the generous assumptions above, the probability that an individual identified as a possible terrorist is indeed a genuine terrorist is literally one in a million!