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# Statistical Model to Determine that a Passenger who is a Foreign National is Carrying Drug/Entering the Country with Bad Intention

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## Problem Statement

How to Determine that a passenger who is a foreign national is carrying drug/Entering the Country with Bad Intention. Appropriate Statistical model can detect this based on answer To questions which should reflect his intension based on below factors

Carrying\_Substance\_provided\_by\_other

Entering\_the\_country\_first\_time

Entering\_the\_country\_second\_time

Carrying\_low\_amount\_cash

Tour\_itinerary\_not\_clear

Reference\_in\_country\_not\_clear

Staying\_place\_in\_country\_not\_clear

Amount\_of\_dryfood\_carried\_high

Amount\_of\_liquid\_jel\_cosmetics\_high

Amount\_of\_dry\_medicine\_high

Amount\_liquid\_medicine\_high

Amount\_dry\_cosmetics\_high

Amount\_of\_jewelellary\_cost\_High

Coming\_as\_single\_passenger

Body\_language\_with\_finger\_abnormal

Carrying\_others\_passport

Derive a appropriate Statistical model which determine he should block for further Investigation

Solution:

The model is:

$$\begin{aligned} \text{Logit}(p) = & -28.4616 + (3.0872 \times 10^{-5})x_1 + (-3.3941 \times 10^{-5})x_2 + (1.1126 \times 10^{-4})x_3 + (-7.9547 \times 10^{-5})x_4 + (1.1126 \times 10^{-4})x_5 \\ & + (-7.9547 \times 10^{-5})x_6 + (-1.9186 \times 10^{-5})x_7 + (4.0573 \times 10^{-5})x_8 + (-6.0233 \times 10^{-5})x_9 + (-1.1153 \times 10^{-4})x_{10} \\ & + (-1.5673 \times 10^{-4})x_{11} + (3.7948 \times 10^{-2})x_{12} + (1.1126 \times 10^{-4})x_{13} + (1.1126 \times 10^{-4})x_{14} + (-7.9547 \times 10^{-5})x_{15} \end{aligned}$$

where:

- p is the probability that the passenger should be blocked,

$$p = \frac{1}{1 + e^{-\text{Logit}(p)}}$$

- x1= Carrying\_Substance\_Provided\_by\_Other,
- x2 = Entering\_the\_country\_first\_time,
- x3 = Carrying\_low\_amount\_cash,
- x4 = Tour\_itinerary\_not\_clear,
- x5 = Reference\_in\_country\_not\_clear,



- $x_6$  = Staying\_place\_in\_country\_not\_clear,
- $x_7$  = Amount\_of\_dryfood\_carried\_high,
- $x_8$  = Amount\_of\_liquid\_jel\_cosmetics\_high,
- $x_9$  = Amount\_of\_dry\_medicine\_high,
- $x_{10}$  = Amount\_liquid\_medicine\_high,
- $x_{11}$  = Amount\_dry\_cosmetics\_high,
- $x_{12}$  = Amount\_of\_jewellery\_cost\_High,
- $x_{13}$  = Coming\_as\_single\_passenger,
- $x_{14}$  = Body\_language\_with\_finger\_abnormal,
- $x_{15}$  = Carrying\_others\_passport.

If The value of  $p$  is  $\geq .5$  The passenger should be blocked for Interrogation





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