

# Classification

December 14, 2016

## Abstract

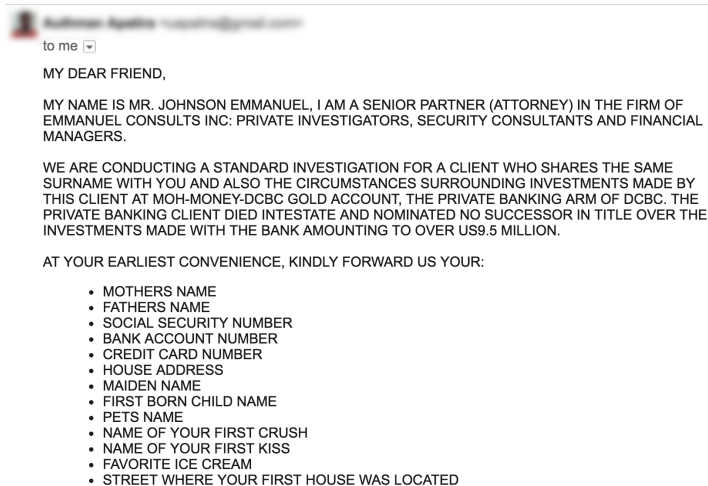
This document introduces some fundamental notions of Classification.

## 0.1 Classification (Supervised)

The goal of classification is to find what class a sample belongs to.

A class could be something like Windows 10 Mobile, and a sample could be something like phone. To get classification working, you have to feed the machine learning algorithm a decent amount phone examples, some of them labeled Windows 10 Mobile, and others labeled, well... non-Windows 10 Mobile. With enough training samples, a classifier will eventually be able to generalize what similarities constitute a Windows 10 Mobile phone and voil, you've trained a computer to figure out phone types!

### LEGAL APPOINT AS NEXT OF KIN



to me ▾

MY DEAR FRIEND,

MY NAME IS MR. JOHNSON EMMANUEL, I AM A SENIOR PARTNER (ATTORNEY) IN THE FIRM OF EMMANUEL CONSULTS INC: PRIVATE INVESTIGATORS, SECURITY CONSULTANTS AND FINANCIAL MANAGERS.

WE ARE CONDUCTING A STANDARD INVESTIGATION FOR A CLIENT WHO SHARES THE SAME SURNAME WITH YOU AND ALSO THE CIRCUMSTANCES SURROUNDING INVESTMENTS MADE BY THIS CLIENT AT MOH-MONEY-DCBC GOLD ACCOUNT, THE PRIVATE BANKING ARM OF DCBC. THE PRIVATE BANKING CLIENT DIED INTESATE AND NOMINATED NO SUCCESSOR IN TITLE OVER THE INVESTMENTS MADE WITH THE BANK AMOUNTING TO OVER US9.5 MILLION.

AT YOUR EARLIEST CONVENIENCE, KINDLY FORWARD US YOUR:

- MOTHERS NAME
- FATHERS NAME
- SOCIAL SECURITY NUMBER
- BANK ACCOUNT NUMBER
- CREDIT CARD NUMBER
- HOUSE ADDRESS
- MAIDEN NAME
- FIRST BORN CHILD NAME
- PETS NAME
- NAME OF YOUR FIRST CRUSH
- NAME OF YOUR FIRST KISS
- FAVORITE ICE CREAM
- STREET WHERE YOUR FIRST HOUSE WAS LOCATED

Figure 1: Example of classification.

More examples

- Given a list of emails marked spam and not-spam, figure out if a newly received message is actually spam or not.
- Given many images of your friends, perform facial recognition on a brand-new, never-before seen image of one of your friends.
- After being trained with a few books, decide which of the before seen authors wrote an article.
- Given a list of physical symptoms, determine what ailment a person has.

Classification falls into the realm of supervised learning because in order for it to work, you have to guide the computer by proving it with examples of correctly labeled records. Once you're done training the computer, you can test it by seeing how accurately it scores those records.

source: [course.edx.org](https://course.edx.org)