**DSO 562 Fraud Analytics Final Exam**

**Design an Anti-Money Laundering Solution Approach**

Due Friday May 8 at midnight

I am Bank of America. I am required by law to have systems in place to try to prevent money laundering. These Anti-Money Laundering (AML) systems look at the transactions going through my customer accounts, flagging suspicious transactions that should be investigated. Please write me a proposal describing how you would build me a new AML solution.

For a few years now we have had in place a system of expert rules that do a reasonable job in flagging suspicious transactions, but we would like to enhance or replace our expert rule system with a statistical model. We are particularly interested in improving our AML system that watches over our business and consumer customers’ DDA accounts (checking and savings accounts). The main fraud schemes that we would like to watch for are *Fronting* and *Structuring*. We have some limited examples of businesses executing ML schemes with these two methods. It is believed that money laundering events are rare. We are in particular looking to improve our US AML system, but we are also interested in applying your solution process internationally if possible.

*Fronting* occurs when a seemingly legitimate, sometimes shell (front) business is used to process money transactions, where “dirty” money is transacted into the business and laundered into legitimate $’s. For example, a front business supplier of goods or services can receive money that came from illegal operations (drugs, crime…) in exchange for fictitious goods or services that are never delivered.

*Structuring* (aka *Smurfing*) occurs when “dirty” money is broken into small parcels and deposited via many smaller transactions into one or several accounts. If several, then frequently these intermediate accounts later transfer the laundered funds to a common downstream account. Note that we are already required by law to report to the US government all individual transactions above $10,000, so many of these transactions are below this limit.

We have in place what we consider to be adequate Know-Your-Customer (KYC) processes, so we are not seeking solutions to this aspect of AML. What we would like is a set of statistical algorithms and processes to examine all the in/out/transfer transactions in our business and consumer DDA accounts. We do not need a case management system, only a set of algorithms (please describe) that will operate on whatever data sets that are needed (please describe) and will produce an AML fraud score. Please also describe how we should make use of your produced AML fraud score.

You will have access to all our internal account information (balances, payments, transfers) for our customer’s DDA accounts as well as all transactions on any linked credit cards they may have associated with their DDA accounts. All of these accounts will have limited identifying information, such as customer/business name, SSN/TIN, address and contact information.

Please answer the following questions so we can evaluate your suggested approach:

Outline the major solution process steps (step 1, step 2…)

Describe what additional information you would like from us.

Describe how you would link, clean, and process the data that we provide for analysis. What entity levels would you be looking at, and what would you look for at the different entity levels. How will you link accounts based on business or consumer name, locations, contact information, industry, etc.

What algorithmic approach(es) would you pursue? Please describe the overall structure of your proposed algorithms including

* Supervised vs unsupervised
* If supervised, describe how to get labels and minimum number of labeled records needed
* What data goes into the algorithms
* Statistical modeling approach, including data encoding/usage
* How frequently the algorithms run (batch daily, batch weekly, real time…)
* What does the algorithm produce
* How do we use what the algorithm produces

Template for your submission follows. I expect your submission will be a few pages.

**Student Name:**

**Problem Description**

[Describe the problem for which you are being asked to design a solution approach. About a half to one page]

**Solution Approach**

Step 1 [describe]

Step 2 [describe]

….

[Here lay out logical steps with a few sentences/a paragraph describing each step. Make sure in your descriptions you address the questions I asked above]