

*This is an interactive meeting with an interview panel of four people – the Hiring Manager and three of his/her teammates/stakeholders. **There are 3 parts.** We recommend you put together a PowerPoint presentation.*

- **Who you are:** who are you? How did you get into the world of analytics? Share anything you want about you! (~5 minutes).
- **Portfolio of your work:** showcase 1 of your proudest professional achievements and why; what the objective(s) was of the initiative, what specific role(s) you played, what the outcome(s) of the initiative was, what you learned, and why you selected this achievement(s) to share. We want to hear about your role and how it would relate to being a candidate at Intuit. We want to see your technical/analytical skills – SQL, Fraud/ Payment or other domain related experience, anything you can show off that you're proud to display. (~10 minutes)

3. Craft Demonstration Exercise: This is your opportunity to shine! Please share how you'd address this real-life scenario: Intuit Payments enables Small Businesses to accept payments from their customers through Credit Card or Check/ACH payments. Intuit signs up these small businesses and provides them with a merchant account with which to accept these payments. In the normal course of business, a merchant would run transactions from their customers and have the payment ready in their bank account within 2-3 days.

However, there are instances when fraudsters take advantage of the system and commit fraud. Common examples include **stealing a real identity** and **creating a fake merchant account** unbeknownst to the ID theft victim, using their own identity to commit fraud, or **taking over a real account** without the real merchant's knowledge. Once a fraudster has created or taken control of a merchant account, a stolen credit card or bank account is used in most instances and the stolen card or bank account victim's funds are moved into the fraudster's bank account in the guise of legitimate transactions. Intuit is liable for the losses due to these fraudulent activities.

Our work group is tasked with minimizing fraud losses by identifying fraudulent applications at payments account opening. As a fraud policy lead, part of the job's responsibility is working with external third party data vendors to determine if they can provide us with data that would give us additional insight and information to help identify fraudsters from real merchants, over and above our current internal data sources and other data already procured from third parties.

There are two parts to the craft demo

Part 1:

Background: For this case, we had identified through a trade conference a vendor called "FraudHacq" that provided information regarding phone number ownership and risk factors that could determine fraud behaviors. After discussions with the vendor, a file consisting of 21K merchants that were approved recently, was sent to the vendor to append their flags. Out of the 21K, roughly 7% of them were closed for fraud right after their approval. The file contains an Identifier (ID), 3 internal scores, an Identity Score (IDScore), an Email Score (EAScore), an internal fraud model score (UWScore). Finally a flag called FRAUD to indicate if the account was Fraudulent or not.

The file represents one month of applications for payments.

The vendor, processed the file of 21K merchants and appended the following flags to help

analyze if it can improve detecting fraudulent merchants at payments account opening.

Verified_Components	Phone number verification levels with Name, Address or Email (Appendix)
Phone_1_to_Name_Linkage	Phone number link to Full Name (Appendix)
Phone_1_to_First_Name_Linkage	Phone number link to First Name (Appendix)
Address_to_Phone_1_Linkage	Phone number link to Address (Appendix)
Email_to_Phone_1_Linkage	Phone number link to Email (Appendix)
Prepaid_Phone_Attribute	Phone number is a prepaid line (Y or N) one-hot
Business_Phone_Indicator	Phone number is associated with a Business (B-Business, C- Consumer, D-Dual, U-Unknown) one-hot
Phone_InService_Indicator	The Phone In-Service field indicates whether the phone is active and provides a range indicator for the active/inactive status (Appendix)
Phone_Type_Indicator	Phone Type (W-Wireless, L-Landline, U-Unknown) one-hot
Service_Discontinued_Indicator	This value indicates the most recent disconnect seen for the inputted phone number (Appendix)
Recent_Phone_Usage_Past_2_months	This value provides insights about the level of phone usage over the prior 2 months (Appendix)
Phone_Usage_Past_12_months	This value provides insights about the level of phone usage over the prior 12 month (Appendix)
Phone_Carrier	Name of Phone Carrier
Parent_Phone_Carrier	Name of parent Phone Carrier
Technology_Indicator	Phone technology type (Wireless, Wireline, VOIP Other)
VoIP_Indicator	Indicator if phone is voice over IP (Appendix)
MVNO_Indicator	Flag indicating if the inputted phone number is with a MVNO (Mobile Virtual Network Operator) provider. This is a wireless communications service provider that does not own the wireless network infrastructure over which the MVNO provides services to its customers (Appendix)

The business question is: whether or not we would want to engage with this vendor, and why.

First, design a strategy (a set of rules) to decision an application using the existing internal scores. A decision could be to either approve an application, to straight up decline it or send it for manual review (an agent will thoroughly review and make a decision to approve or decline)

Second, provide insights into the vendor data and evidence if the vendor data can enhance the above strategy

Use the following parameters to build an ROI calculation for the next 12 months to help make your decision

Parameters:

- Revenue per approved merchant is \$40/month
- Loss per fraudulent merchant \$500
- Cost for each manual review \$50
- Cost for each Vendor call is \$0.50
- Approval Rate for Manual Review 30%

Note: Assume same monthly application volume and fraud rate for the rest of the year. Also, assume merchants remain active for more than 24 months on an average.

Assignment: Please prepare a short PowerPoint presentation designed for Senior Leadership of the Risk team to present your work. The presentation should describe your thought process in approaching the problem, how you analyzed the data and generated insights (including graphs and tables as appropriate), your recommendation and concrete next steps, and a discussion of other factors you would want to analyze or get data on if you had 2 more weeks to work on the project.

Part 2:

The second part is a case study is to think through the strategy on how you will manage fraud risk at new seller on-boarding while balancing growth using Intuit using internal / external data/ tools etc.

How would you communicate the intent and build consensus with various stakeholders, such as Product, Marketing, Operations, Finance, Engineering, etc.? Please highlight any similarities or differences in how to get each group on board with your strategy.

(~20-25 minutes craft demo + ~10-15 minutes Q&A)

Appendix:

Verified Components

- 1 - Phone (Any), Address, and Email are linked to Name.
- 2 - Phone (Any) and Address are linked to Name.
- 3 - Phone (Any) and Email are linked to Name.
- 4 - Phone (Any) and Name are linked. Email and Address are linked.
- 5 - Phone (Any) and Name are linked.
- 6 - Email and Name are linked.
- 7 - Address and Name are linked. 8 No verified components

Unverified Components

- 1 - Phone (Any), Address, and Email are not linked to Name
- 2 - Phone (Any) and Address are not linked to Name
- 3 - Phone (Any) and Email are not linked to Name
- 4 - Phone (Any) and Name are not linked. Email and Address are not linked.
- 5 - Phone (Any) and Name are not linked.
- 6 - Email and Name are not linked.
- 7 - Address and Name are not linked.
- 8 - No unverified components.

Phone 1 to Name Linkage

Phone 1 to First Name Linkage

Address to Phone 1 Linkage

Email to Phone 1 Linkage

- 0 - Invalid or missing input
- 1 - No link
- 0 - No data in repository / Unknown

- 1 - Tier 2 or 3 link (lower accuracy linkage)
- 2 - Tier 1 link (high accuracy linkage)

Phone In-Service Indicator

- A1 - Active for 1 month or less
- A2 - Active for 2 months
- A3 - Active for 3 months
- A4 - Active for between 4-6 months
- A5 - Active for between 7-9 months
- A6 - Active for between 10-11 months
- A7 - Active for 12 months or longer I1 Inactive for 1 month or less I2 Inactive for 2 months
- I3 - Inactive for 3 months
- I4 - Inactive for between 4-6 months
- I5 - Inactive for between 7-9 months
- I6 - Inactive for between 10-11 months
- I7 - Inactive for 12 months or longer
- U - Status Unknown

Service Discontinued Indicator

- 0 - None
- 1 - Last 60 days
- 2 - 61 to 90 days ago
- 3 - 91 to 120 days ago
- 4 - 121 to 210 days ago
- 5 - 211 to 300 days ago
- 6 - 301 to 390 days ago
- 7 - More than 390 days ago

Recent Phone Usage 2 Months & Phone Usage: Past 12 months

- 0 - No data available or no usage in the last 2 months.
- 1 - Minimal Usage
- 2 - Light Usage
- 3 - Moderate Usage
- 4 - Heavy Usage
- 5 - Very Heavy Usage

VOIP (Voice over IP) Indicator

- 1 - Over-the-Top VoIP
- 2 - Potential Over-the-Top VoIP
- 3 - Other Landline
- Blank - Phone number is not a wireline number

MVNO (Mobile Virtual Network Operator) Indicator

- Y- MVNO
- N - No data to indicate an MVNO

Blank - Phone number is not a wireless number