FinTech (Sponsored by Goldman Sachs)

# Background

Finance is an industry with a long history. It exists in every part of our lives. Consumer banks provide services to individuals including cash management, credit cards, personal loans and mortgages. Investment banking is related to capital raising for corporations and merger & acquisition advisory.

Founded in 1869, Goldman Sachs has been leading innovation in the industry. Creativity and innovation have become hallmarks of Goldman Sachs – from creating the first price-to-earnings ratio, to initiating the investment banking business, to the technological reinvention of the modern IPO and beyond.

1993 marked a significant milestone in Goldman Sachs’ technological history, with the development of a proprietary software system called Securities DataBase (“SecDB”), a platform to price trades and assess risk for trading positions. More recently in 2016, Goldman Sachs launched Marcus by Goldman Sachs, an online platform offering personal loans and savings accounts to retail clients. In 2019 Goldman Sachs and Apple launched a groundbreaking new credit card, designed to help consumers lead a healthier financial life.

The FinTech track aims to help foster new ideas to disrupt the industry which can further increase productivity, efficiency, and accuracy.

# Resources

[GS Developer](https://developer.gs.com/discover/home): Digital solutions offered by Goldman Sachs to access our Data, Analytics, and Banking platforms.

[Goldman Sachs Design](https://design.gs.com/home): Customized for institutional finance, the Goldman Sachs design system allows teams to create digital products that put clients first.

[Legend](https://legend.finos.org/): Originally developed internally by Goldman Sachs and contributed to FINOS in October 2020, Legend is an open source flexible platform that offers solutions to explore, define, connect, and integrate data into your business processes.

[Marquee](https://marquee.gs.com/welcome/?r=1): Marquee is the digital storefront for institutional client services, delivering Goldman Sachs' market insights, analytical tools, execution services, and developer and data services directly to clients via an integrated digital platform.

# Deliverables

Please add the **GitHub link** to your project's repository in your submission and ensure that its visibility is set to 'public' so that the judges can access it.

**Demonstration Video** - Prepare a (maximum) 4 minutes demonstration video/pitch of your hack for the Judges to view. The video should be uploaded to YouTube (unlisted) and the link should be submitted on Devpost with the project as a deliverable.

# Guiding Questions

Scam Prevention: Online scams are on the rise and are causing significant financial damage to victims globally. How can technology be leveraged to mitigate this threat?

1. What scams are there
   1. QR Code scam → How do we filter such QR codes?
   2. SMS scam → Bank
   3. Suspicious website → URL Link Scam

URL Scam

<https://www.straitstimes.com/singapore/courts-crime/scam-alert-posb-customers-receive-survey-claiming-to-reward-500-customers-with-cash-air-miles>

QR Code Scam

<https://mothership.sg/2022/02/grab-qr-code-scam/>

SMS Scam

<https://www.straitstimes.com/singapore/courts-crime/ocbc-bank-customer-lost-120k-in-fake-text-message-scam-another-had-250k-stolen>

1. How does it happen?
   1. Identify common traits leading to this
2. Leverage tech
   1. IP Addressing? → When we do online shopping is our IP tracked?
      1. Doesn’t make sense to buy in ukraine when i live in SG
   2. Review Team → Consumer spot suss web/link (ONLY FOR WEBSITES)
      1. Dedicated team to verify if legit
      2. If deemed legit, IP Address (URL), Layout
         1. Add into list of maintained database of all “scam” sites that look similar
   3. DBS News list/forum(QR code) <https://www.csa.gov.sg/gosafeonline/Resources/Password-Checker>
      1. “If see something SUSS, report and compile”
   4. Educating → Media Platforms, constant reminders
3. <https://www.police.gov.sg/Media-Room/News/20200703_police_advisory_on_phishing_scams_cad>

Further consideration → Educating youths (<https://www.youtube.com/watch?v=oPwLaDwGTSk>)

What can governments/entities do to intervene?

Shouldn’t we be able to flag out such scams easily and have it taken down?

Algorithms and AI Working Together

The earliest automated fraud detection systems relied on algorithms to identify potential problems. For instance, unusual transactions or spending behavior can trigger an alert requiring a customer to verify the account activity.

However, an algorithm alone can't adjust itself. If a customer visits a foreign country every month and confirms that every purchase made there is legitimate, the algorithm will continue to flag those transactions until it has been modified to account for this customer behavior. That's where artificial intelligence, or machine learning, comes into play.

Rather than waiting for a person to adjust an algorithm, AI can tweak the model as new data are gathered. Over time, the system can start making predictions based on past purchases. For instance, a large purchase overseas can pass through the system unchecked if it fits with a customer's previous purchasing behavior.

"We have not begun to scratch the surface of the capabilities of machine learning and artificial intelligence to combat security threats," Tcherchian says.

<https://www.miteksystems.com/blog/how-does-machine-learning-help-with-fraud-detection-in-banks>

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## WHAT GOLDMAN SACHS ALR HAS

<https://www.goldmansachs.com/security/>

Website text which tells us what to avoid

<https://www.retailbankerinternational.com/news/goldman-sachs-backs-complyadvantage/>

ComplyAdvantage acquired but not yet utilized, can be part of further consideration

<https://venturebeat.com/2020/12/24/goldman-sachs-leads-acquisition-of-bot-mitigation-company-white-ops/>

Fraud detection platform → External company acquired → Further consideration

* [Application Integrity](https://cts.businesswire.com/ct/CT?id=smartlink&url=https%3A%2F%2Fwww.whiteops.com%2Fproducts%2Fapplication-integrity&esheet=52353252&newsitemid=20201223005385&lan=en-US&anchor=Application+Integrity&index=8&md5=921adbcbf435aabf2915bcf5a1d694c6) - Protects sites and applications from digital fraud and abuse including account takeover attacks, new account fraud, fraudulent transactions and sensitive content scraping, preventing costly fraud losses while preserving user privacy and frictionless digital experiences.
* [Marketing Integrity](https://cts.businesswire.com/ct/CT?id=smartlink&url=https%3A%2F%2Fwww.whiteops.com%2Fproducts%2Fmarketing-integrity&esheet=52353252&newsitemid=20201223005385&lan=en-US&anchor=Marketing+Integrity&index=9&md5=96a811f3dbe489df9e6631b128fb73d6) - Protects digital marketing investments from fraud and abuse including paid media, lead generation, and retargeting, preventing fraudulent traffic from entering marketing platforms to ensure efficiency and boost ROI.
* [Advertising Integrity](https://cts.businesswire.com/ct/CT?id=smartlink&url=https%3A%2F%2Fwww.whiteops.com%2Fproducts%2Fadvertising-integrity&esheet=52353252&newsitemid=20201223005385&lan=en-US&anchor=Advertising+Integrity&index=10&md5=4b3c13ec966b326e220209c378c9a1de) - Protects digital media and advertising from fraud and abuse within desktop, mobile, and CTV environments for trusted inventory and human-only impressions for more effective advertising.

REFERENCES

<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.649565/full>

Variance inflation factor measures how much the behavior (variance) of an independent variable is influenced, or inflated, by its interaction/correlation with the other independent variables. Variance inflation factors allow a quick measure of how much a variable is contributing to the standard error in the regression.

<https://www.americanbanker.com/news/ip-address-analysis-becoming-a-bigger-fraud-detection-tool-ab249349>

Data Used:

<https://www.straitstimes.com/singapore/courts-crime/record-number-of-scams-in-2020-pushed-overall-crime-rate-in-spore-to-highest>

<https://www.police.gov.sg/-/media/64A8EB6D3C8F45A2A762690BFA5B1400.ashx#:~:text=Excluding%20scams%2C%20the%20total%20number,the%20same%20period%20in%202020>.

<https://www.statista.com/statistics/981340/leading-types-of-scams-singapore/#:~:text=In%202020%2C%20e%2Dcommerce%20scams,to%20three%20thousand%20in%202020>.

<https://www.scamalert.sg/>

## Script for Voice-over

Customer data or consumer data refers to all personal, behavioural, and demographic data that is collected by marketing companies and departments from their customer base. To some extent, data collection from customers intrudes into customer privacy, the exact limits to the type and amount of data collected need to be regulated.The data collected is processed in customer analytics. The data collection is thus aimed at insights into customer behaviour (buying decisions, etc.) and, eventually, profit maximization by consolidation and expansion of the customer base.

In the internet age, a prominent method for collecting customer data is through explicit online surveys, but also through concealed methods like measurement of click-through and abandonment rates.

Customer data is gathered for customer research, especially customer satisfaction research and purportedly serves to increase overall customer satisfaction.[5]