

**CS 4774/4784**  
**HCI Design Experience**  
**Final Report**

Group 7  
Spoofies

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# Assignment I: Initial Ideas

## Project Analysis

### Background

#### **Context**

The primary context is technological, dealing mainly with how users best improve online practices to protect oneself from privacy-compromising cyber attacks. The secondary context is societal, being connections between people, specifically cyber-attackers and victims.

#### **Privacy Problem**

The primary privacy problem we seek to address is that college students do not know how to correctly identify potential privacy threats and dangers. With that, sensitive information is easily compromised.

For the purposes of this project, we will focus on two major privacy threats:

- **Social Media Account Hacks**
  - Hackers will often create a string of attacks. It begins with the takeover of one person's account, then messaging that person's close friends and family impersonating them. The hacker will ask the user's close friends and family members for "help" or any other question that would incentivize them to click an external link. Upon clicking the internal link, the victim's account information is compromised, leading to a chain of hacked accounts.
- **Phishing**
  - Phishing involves emails that look as if they are from legitimate businesses that ask users to update, verify, or provide sensitive information. Upon clicking a link, the user will often be taken to a spoof website where they are asked to provide bank account information, passwords, etc. They can also be pop-ups.

#### **Significance**

- Phishing attacks account for 36% of all US data breaches [3]
- 37% of Americans have suffered from social media hacking [2]
- 1.4 billion accounts are hacked per month on social media platforms [2]

New data from the National Cybersecurity Alliance shows that younger people (18-40) are more likely to fall victim to all types of cybercrime [1]. They are less likely to report, but more likely victimized. Vilnius Kardelis, PR manager at Atlas VPN, had this to say regarding the study: "Younger generations are more tech-savvy, but they are also used to doing everything online,

from interacting with friends to shopping and managing financial activities from a young age. Such daily usage of the internet has made them more accustomed to disclosing their personal information online, which ultimately leads them to be less wary when engaging on the web.”

Additionally, Atlas VPN posits that while digital literacy levels among Baby Boomers are generally lower than that of Gen Z or Millennials, they care more about their personal information.

Regarding college students, the Virginia Tech Police Department has sent out multiple emails this semester alone regarding scams, the most alarming of which being a rampant sextortion scam in which a perpetrator creates a fake account on a social media platform, befriends a typically male student, and convinces them to send nude photographs of themselves. The scammer then uses those photographs to blackmail the student, threatening to release said photographs unless the student sends them some amount of money.

## **Motivation**

We chose this particular topic because college students fall victim to phishing, scams, and other forms of cybercrime easier than other age groups.

For example, the Virginia Tech Police Department has sent out multiple emails this semester alone regarding scams, the most alarming of which being a rampant sextortion scam, but also smaller scale scams such as buying fake football tickets off of third party sellers.

Excerpt from the email in question:

*“The Virginia Tech Police Department is aware of a continuing trend of scams in our community. One in particular is a sextortion scam, in which VTPD has received multiple reports. This scam has reportedly involved male students that are contacted randomly on Instagram by a “follow” request from an unknown female. Once the request is approved, a conversation begins that quickly turns intimate with the female sending nude photographs, and then requesting photos or videos in return. Private photographs or videos are shared and/or recorded, sometimes without the consent or awareness of the person who is being recorded. The scammer then blackmails the person by threatening to release the intimate material online to their followers unless they receive payment. In some cases, the payment only delays the release of this material, as the scammer will likely request additional payments to withhold the material.”*

## **Contribution**

Through the successful completion of this project, we aim to educate users on how to recognize the signs and patterns of phishing, spoofing, and account hacking. Our users are already the most tech savvy age group, so we want the deliverable to be something digital, interactive, entertaining, and can accurately simulate potential privacy-compromising situations online.

# Project Requirements

## Team

- **Project Goal**
  - Raise awareness of signs of potential privacy breaches via online phishing and other scamming methods.
- **Project Lifespan**
  - semester long (17 weeks)
- **Personnel and Responsibilities**
  - **Ethan and Haochen:** design and implementation of product
  - **Bradon:** design, document writeup, user analysis

*\*every team member will work on every part, these are simply main responsibilities*

## Project Timeline

Week /Phase	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Design														
Implement														
User Evls														
Present														

*\*Above is a Gantt chart showing project timeline by week and phase. Specific durations are subject to change.*

## User

- **Who are the Users?**
  - College students who regularly browse the internet or use messaging/social media apps. We want to target users that do not have a sophisticated technical background or have limited knowledge on technology and devices they use regularly.
- **User Characteristics**
  - College Students (Age 18-24)
  - Regular usage of internet / email / social media / messaging applications
  - Lower digital fluency
    - not "computer/tech savvy"
    - limited understanding of how their devices function
  - Low awareness of digital privacy:
    - Not conscious of how their (user's) actions online expose information.

- Not informed on what they consent to via accepting EULAs / Privacy Policies.
  - Not able to quickly identify Phishing / Spoofing messages or sites and refrain from interacting with them.
- **User Needs, Pain Points, Priority**
  - Reduce the chance of falling for scams while using technological media in the future.
  - Gain the habit to identify phishing/spoofing attempts.
  - Development awareness on how to protect private information and reduce chance of it being leaked due to user error.

## Design

- **Design Overview**
  - Simulation game featuring a Desktop/Smartphone interface. Users will be presented with real and spoofed websites, emails, texts, dms, etc. It will be the user's challenge to identify and correctly navigate these scenarios.
- **Design Goals**
  - Intuitive and familiar UI design
  - Simple and straightforward user - game interaction
    - Emulating a browser/app experience similar to what we use daily.
- **Initial Design Feedback**
  - SME (Dr. Yao) and in-class peers for ideation critique.
  - Sample of college students (target users) to gather feature and design considerations

## Functional (Minimal requirement)

- Operational UI for users to play the game
- Functional "health bar" represented as personal information
- Correct reporting of scam/phish/spoof elements
- Reference handbook that records reported scam tactics

## Non-Functional (Nice to have)

- Dynamic profile/tactic switching based on user input (not very scalable)
- Multiplayer (attacker vs device user)

## Engineering

- **Framework Options**
  - Gamemaker
  - Unity
- **Required Components**
  - Computer/phone that can run the game
  - A center hub with:

- Notifications
  - Separate tabs for emails, texts, etc.
  - User's information
- Predetermined profile and accompanying set of targeted phishing/scamming tactics
- Record/Encyclopedia system that users can reference to see tactics they have encountered
- **Programming Language**
  - GML (Gamemaker's language)
  - C# (if using Unity)
- **Version Control Management**
  - Github/Gitlab
- **Other impacting factors in this project**
  - Never used proposed engine
    - Will have to learn on the go
  - Limited experience with game development

# References

*\* Sources cited in IEEE*

- [1] E. editorial staff, “Younger people more likely to fall victim to cyber crime, survey finds,” RSS, <https://eandt.theiet.org/content/articles/2021/11/younger-people-more-likely-to-fall-victim-to-cybercrime-survey-finds/#:~:text=Younger%20people%20more%20likely%20to%20fall%20victim%20to%20cyber%20crime%2C%20survey%20finds,-By%20E%26T%20editorial&text=Younger%20individuals%20aged%2018%20to,a%20study%20by%20Atlas%20VPN>. (accessed Sep. 8, 2023).
- [2] “9 key social media hacking statistics in 2023,” IncrediTools, <https://increditools.com/social-media-hacking-statistics/> (accessed Sep. 8, 2023).
- [3] J. Rushton, “50+ phishing statistics you need to know – where, who & what is targeted,” Techopedia, <https://www.techopedia.com/phishing-statistics#:~:text=Phishing%20Statistics%20Highlights.to%20the%20FBI%20in%202022> (accessed Sep. 8, 2023).





# Assignment III: Final Design

## Design

- **Design Overview**
  - Simulation game featuring a Desktop/Smartphone interface. Users will be presented with real and spoofed websites, emails, texts, dms, etc. It will be the user's challenge to identify and correctly navigate these scenarios.
- **Design Goals**
  - Intuitive and familiar UI design
  - Simple and straightforward user - game interaction
    - Emulating a browser/app experience similar to what we use daily.

## Functional (Minimal implementation)

- Operational UI for users to play the game
  - UI taking inspiration from MacOS design
  - Top bar showcases health, mana, current game state
  - Bottom application bar contains apps for players to interact with
    - Email
    - Direct Messaging
    - Social Media Posts
    - Detection
    - Scam Dex
    - Settings
- Game flow
  - Game will be divided into 15 segments, with each segment representing a week worth of content (can think of this as 15 levels)
  - This emulates a semester of college
  - In each segment, players will get a selection of communications to go through
- Health bar to track player mistakes
  - Each time a player falls for a scam, health is decreased by a set amount
  - at 0 health, a player will lose and get a game over
- A "Mana" system to track player detection usage
  - Each time a player use the detection mode to check for clues
  - at 0 "Mana", a player will not be able to use the detection feature
  - Resets per game-week
- A Progression bar to track player progress within each week
  - Each time a player interacts with a piece of communication, they gain progression
  - Once a minimum progression is reached, player can move to the next week
- A Detection mode that allows users to identify clues within apps (Magnifying glass)
  - correct detection will add undiscovered scamming clues to a reference handbook (Scam Dex)

- incorrect detection will trigger a negative feedback to users (they did not find any clues there)
- Each detection attempt will use a certain amount of the detection bar ("Mana" system)
- On each detection attempt , A bubble will pop up above the scam dex to provide the feedback to users.
- Per attempt, a one-second cooldown will prevent the player from spamming detection.
- A pop-up window that indicates user have been scammed when they click on compromising content.
  - The pop-up window will link to the Scam Dex entry that corresponds to this scam.
- A tutorial will be implemented to guide users through basic game features.
- - Scam Dex will have 2 tabs
    - Scam clue entries: shows scams that a player has encountered / detected, will contain a description, example, and record number of time this specific tactic worked / was marked by the player
    - Statistics: shows the number of times specific information was compromised by the player falling for scam tactics.

## Non-Functional (Nice to have)

- More complex social media implementations
  - User profiles
  - E-commerce site with profiles (Facebook marketplace, Ebay, etc.)
- Interlinked scamming tactics between different forms of communication
  - Example: An interaction with a social media post that is seemingly legitimate may result in scam attempts in DMs and Emails

## Engineering

- **Framework Options**
  - Godot game engine
- **Required Components**
  - Computer/phone that can run the game
  - A center hub with:
    - Notifications
    - Separate tabs for emails, texts, etc.
    - User's information
  - Backend database storing email, text, and social media post sets
    - Legitimate ("real") communications
    - Scam communications
  - Predetermined profile and accompanying set of targeted phishing/scamming tactics

- To contain the scope of a semester long project, we will focus on implementing 1 full profile
  - Record/Encyclopedia system that users can reference to see tactics they have encountered
- **Programming Language**
  - GDScript (Godot native language)
  - C# (Godot supported language)
  - C++ (Godot supported language)
- **Version Control Management**
  - Github/Gitlab

## Updated Prototype

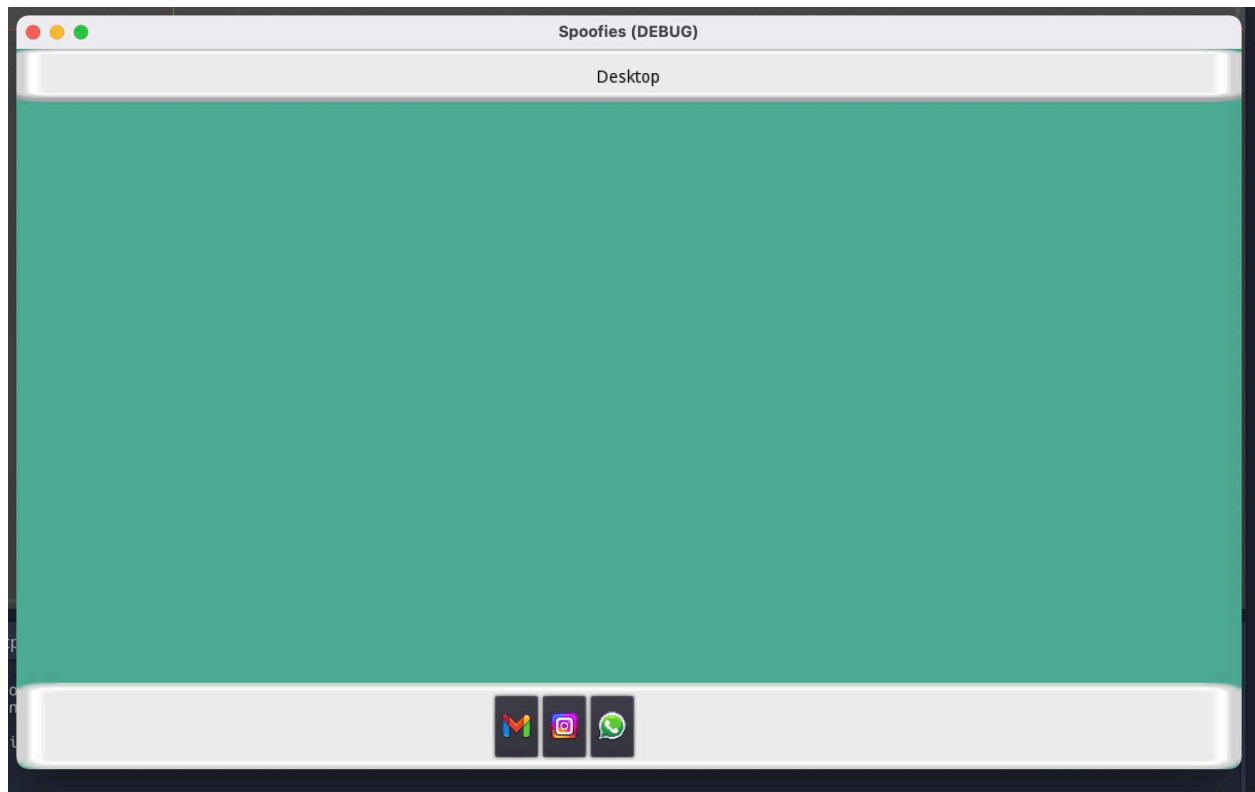
[Prototype Link](#)

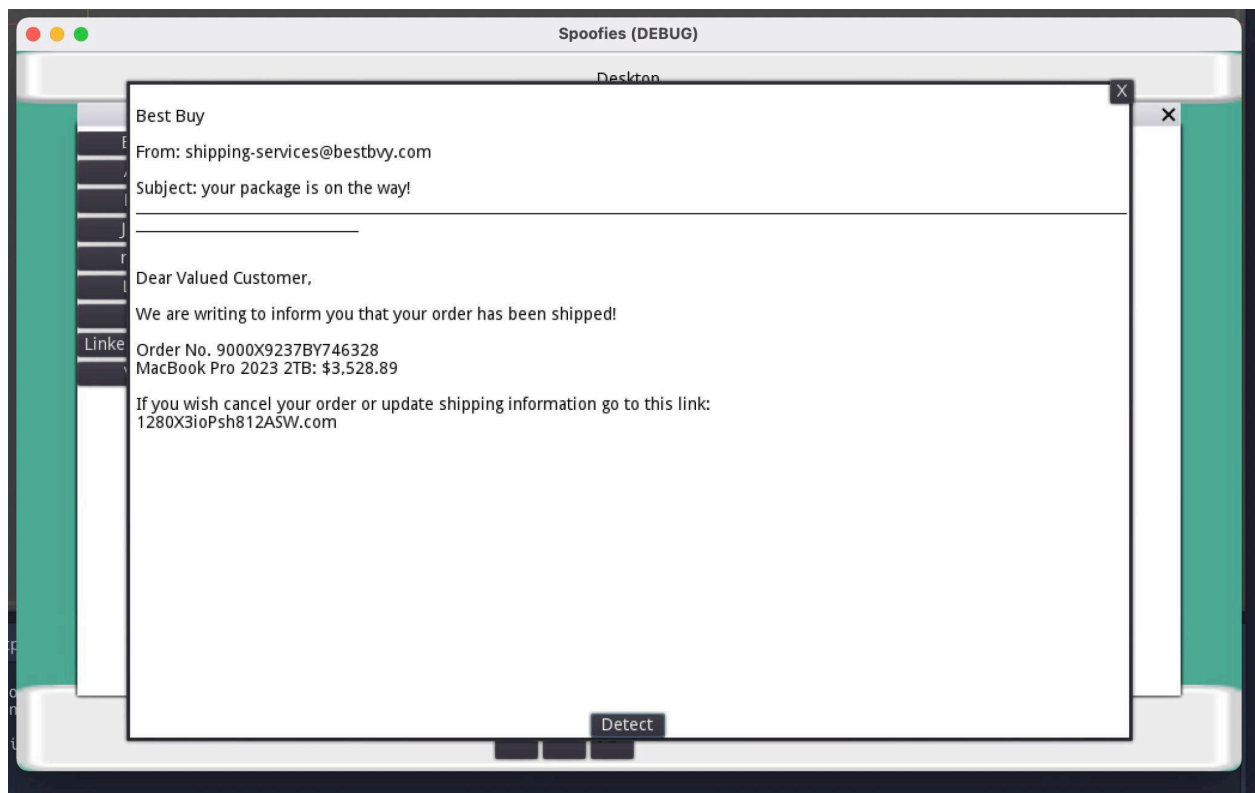
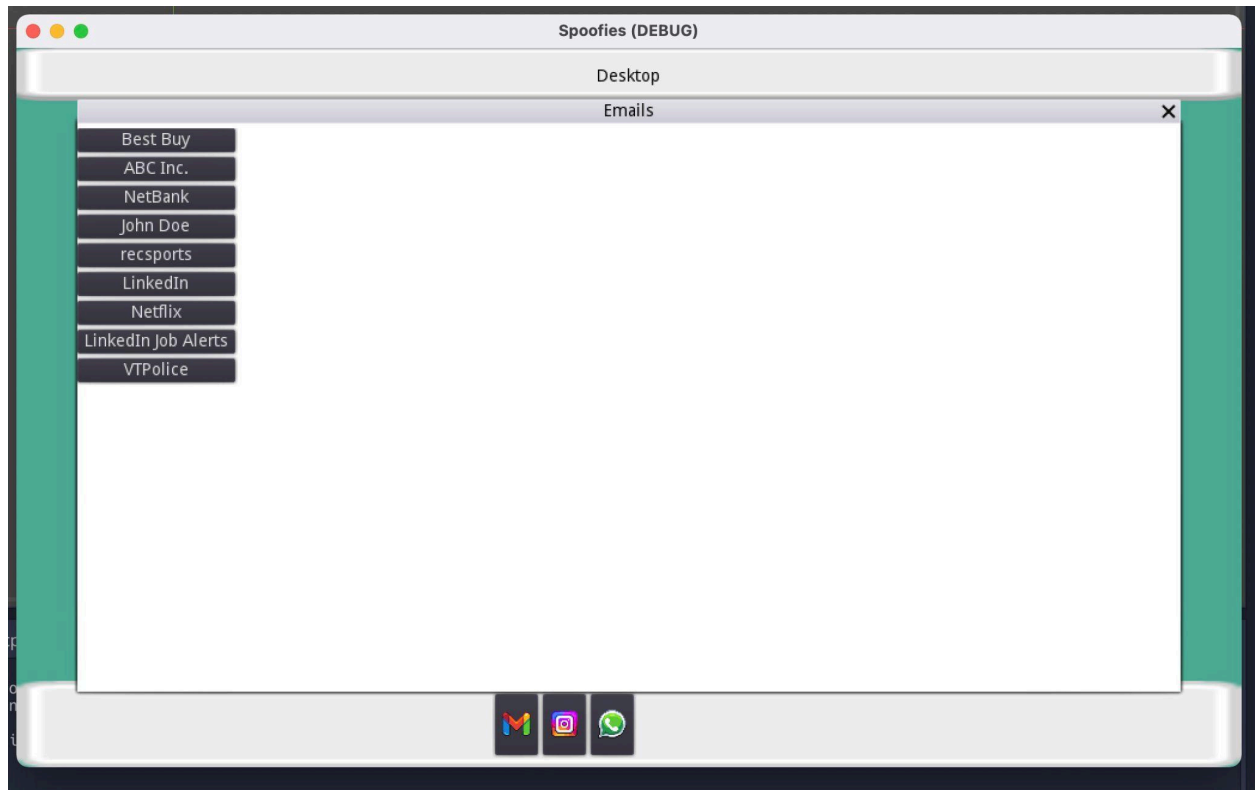
Updated Figma prototype with limited interactions. Some design elements may differ in implementation depending on Godot's capabilities.

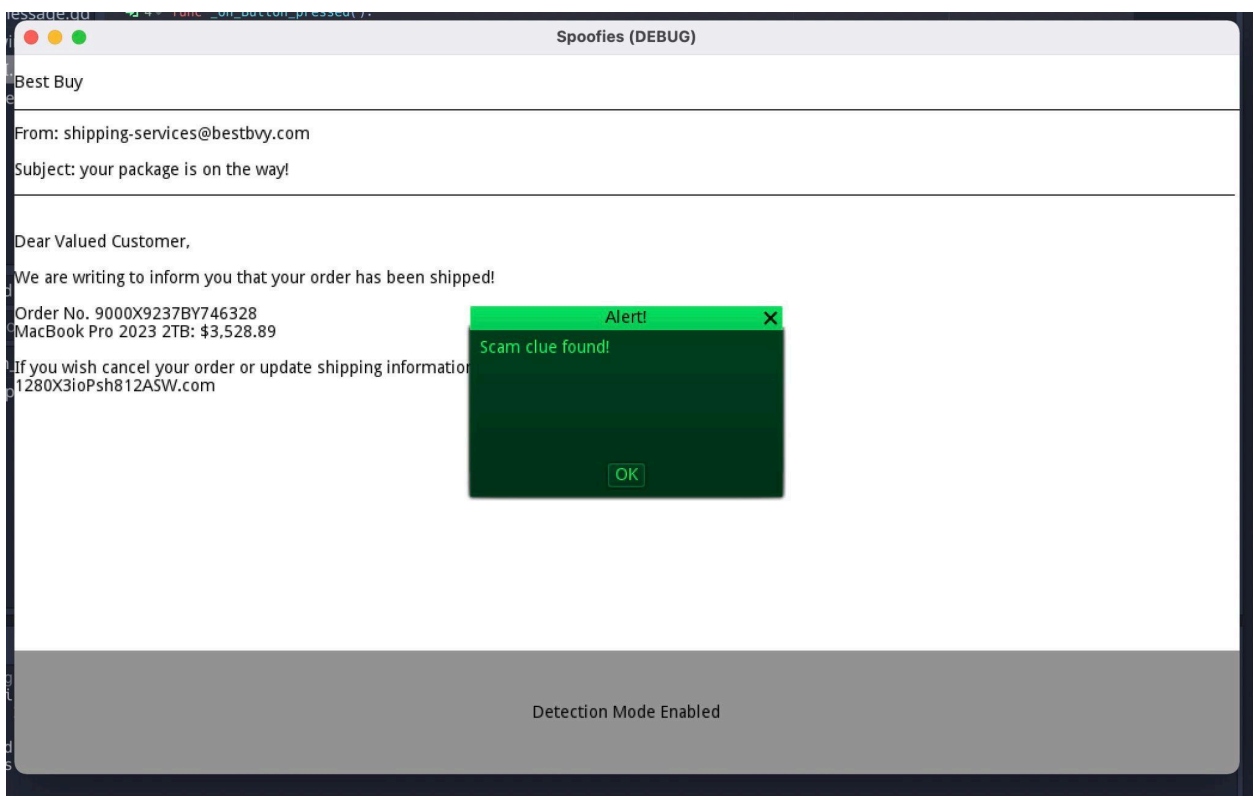
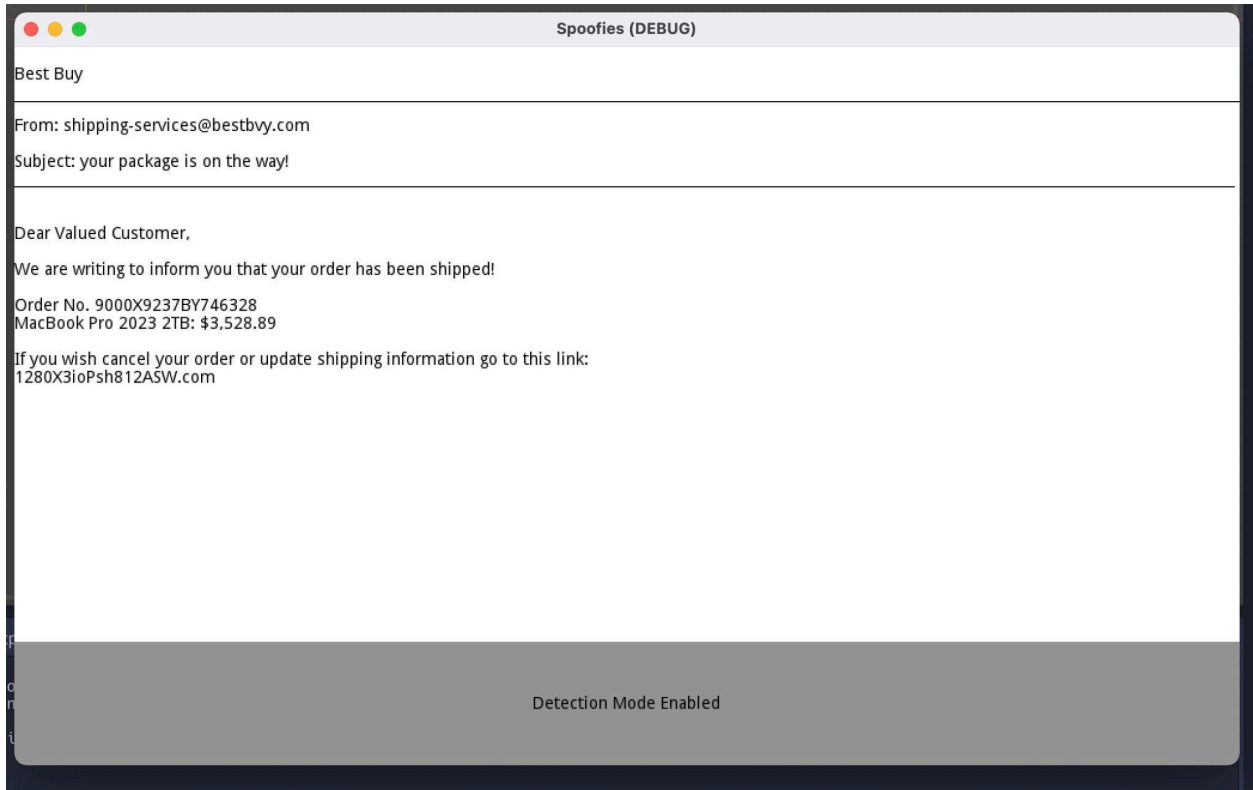
# Assignment IV: Initial Implementation

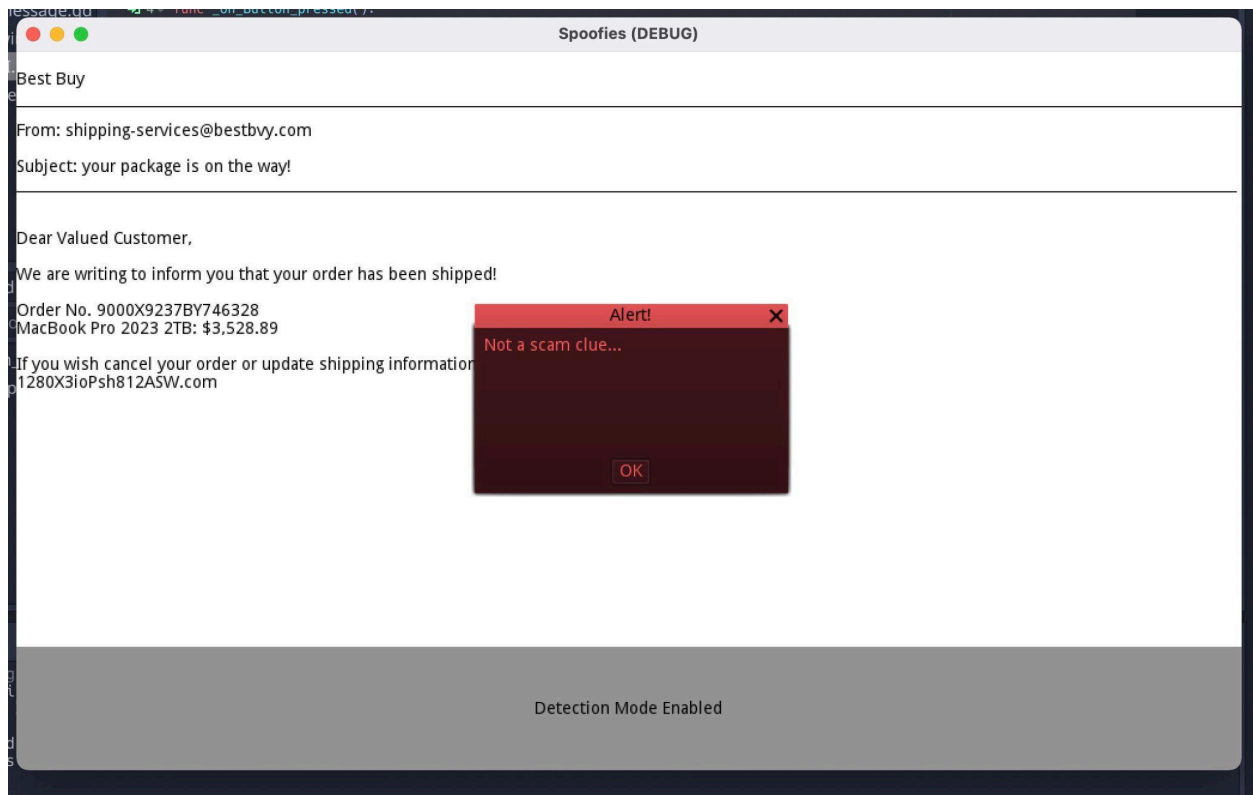
## Initial Implementation Progress

At this point in our implementation, we have designed a rudimentary interface along with a few examples. Below are some screenshots of the startup page, email list, and responses to user inputs like clicking links or scam clues.









We've also compiled a list of spoof emails which should be enough for the initial implementation, but if more diversity is needed, more will be added. They range from easy to identify to very difficult to identify.

## Spoof Emails

### Best Buy

From: [shipping-services@bestbvy.com](mailto:shipping-services@bestbvy.com)

Subject: your package is on the way!

Dear Valued Customer,

We are writing to inform you that your order has been shipped!

*Order No. 9000X9237BY746328*

*MacBook Pro 2023 2TB: \$3,528.89*

If you wish cancel your order or update shipping information go to this link:

[1280X3ioPsh812ASW.com](https://1280X3ioPsh812ASW.com)

## NetBank

From: [netbank-official@gmail.com](mailto:netbank-official@gmail.com)

Subject: save your online data!

NetBank Customer,

We have recently update our internet banking system. You will need to log in and confirm your online data. If you wish to continue receiving online service, click [this link](#) and log in using the same information you used to log in the last time you accessed your online data.

Thank you,

NetBank

## NatBank <statement@natbank.com>

From: [statementbank@usoisk.com](mailto:statementbank@usoisk.com)

Subject: Your Monthly Account Statement

Hi NatBank Customer,

Your monthly account statement is now available. [Log in](#) to view your statement.

Thank you,

Natbank

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## Healthy Living Insights

From: [subscription@healthyliv.com](mailto:subscription@healthyliv.com)

Subject: Thank you for subscribing to our newsletter!

Dear John Doe,

We are delighted to have you as our new subscriber to our newsletter for a charge of \$19.99 a month. You'll now receive regular updates on our latest articles, promotions, and news. Thank you for joining our community!

[Cancel your subscription](#)

Best regards,  
Healthy Living Insights



**Derek Carlson**

From: [beautifulphotos@pholomag.co](mailto:beautifulphotos@pholomag.co)

Subject: Check out the latest family photos

Hi,

I've just uploaded the latest family photos to your [album](#). Take a look and relive the memories.

Regards,  
PhotoMag

**DineDash**

From: [support@dinedash.io](mailto:support@dinedash.io)

Subject: Refunded order

Dear Jdoe02,

We are attempting to refund your recent order but have encountered a payment issue. Please update your payment details [here](#) so we can refund your order.

Thank you.  
DineDash Customer Service

**Nerd Squad Client Portal**

From: [invoicing@techsupport-corp.com](mailto:invoicing@techsupport-corp.com)

Subject: Nerd Squad Notice - Payment Processed

Payment processed to Nerd Squad

Dear John Doe,

Thank you for your continued business!

Your Nerd Squad subscription plan for Anti-Virus Software has been successfully renewed and updated today!

The below amount has been debited from your card and will reflect in your statement within 24 hours.

Product: Nerd Squad @ Anti-Virus Software - 3 year subscription  
InvoiceNo: #SEF-64798  
Total Amount: \$342.92 USD  
Payment Method: Stored Credit Card

Note:

For account questions or to cancel your subscription or to request a refund, fill out a [contact form](#)

Sincerely,  
Nerd Squad, All Rights Reserved.

### **USPS Delivery**

From: [usps@account-maintenance.com](mailto:usps@account-maintenance.com)  
Subject: Delivery Notification

Your parcel has arrived on October 19, 2024

Courier was unable to deliver the parcel to you.

[Click here](#) to confirm the delivery address and check shipping process.

Copyright USPS, All Rights Reserved.

### **Online Survey Invitation**

From: [mst++connect12498y@oceania.com](mailto:mst++connect12498y@oceania.com)  
Subject: Share your feedback and win a prize!

Hi,

We'd love to hear your thoughts. Please take a few minutes to complete our online survey. As a token of our appreciation, you'll be entered into a prize draw to win a new 2023 iPad Pro!

[Begin Survey](#)

### **Office 720**

From: [office720@msvu.ca](mailto:office720@msvu.ca)  
Subject: We received request from you

Our record indicates that you have submitted a request to cancel your Office 720 email and this process has begun. If you did not submit this request or was done accidentally, please [verify your account](#). Failure to verify your email will result in the termination of your email.

Regards,  
720 support team

## Real Emails

### John Self

From: [jself75@industrial.org](mailto:jself75@industrial.org)

Subject: Schedule your interview with Industrial Inc.

Dear John Doe,

We are pleased to invite you for an interview with ABC Inc. Please select a convenient time from the options provided in the attached calendar, and we look forward to meeting you soon.

[Book interview](#)

Regards,

John Self

Hiring Manager at Industrial Inc.

(821) 429-9021

### UniVPN Client Services

From: [client-services@univpn.com](mailto:client-services@univpn.com)

Subject: Your password has been reset

Hello John Doe,

This is to confirm that your password for your account with UniVPN has been successfully reset. If you did not initiate this change, please [contact our support team](#) immediately.

This is an automated message, please do not reply to this email.

Copyright UniVPN, All Rights Reserved

### Tweeter

From: [account-updates@tweeter.com](mailto:account-updates@tweeter.com)

Subject: You have a new follower on Tweeter!

Hi John Doe,

You have a new follower on Tweeter! Stay connected with your audience and keep sharing great content!

[View account updates](#)

## Guitar Hub

From: [service@guitarhub.com](mailto:service@guitarhub.com)

Subject: Receipt for your recent purchase

Dear John Doe,

Thank you for your recent purchase from Guitar Hub! The details of your purchase are below.

Transaction ID: 35DH211X0

Date: [fill in whatever date works here]

Type: Guitar

Model: Gibson Les Paul

Color: Red Sunburst

Amount: \$2,223.68

If you have any questions, feel free to [contact us](#).

Sincerely,  
Guitar Hub

## Piedmont Credit Union

From: [msnoreply@pcunion.com](mailto:msnoreply@pcunion.com)

Subject: Your monthly statement is ready

Dear John Doe,

Your monthly statement for account number 225389YD is now available. You can view and download it by logging into your online banking account.

[Log in](#)

If you need any assistance, please don't hesitate to contact us.

Regards,  
Pacific Credit Union

## Bill Watson

From: [billwats@gmail.com](mailto:billwats@gmail.com)

Subject: Join us for a backyard BBQ this weekend!

Hey John Doe,

We're hosting a backyard BBQ this weekend, and you're invited! Join us on [Date] at 197 West Moon Ave. for some delicious food and good company. Please let us know if you can make it.

[RSVP](#)

See you there!  
Bill

## **Economental**

From: [economental@blogspot.com](mailto:economental@blogspot.com)  
Subject: Weekly updates from Economental

Hello John Doe

We at the Economental blog, where the environment and economics meet, would like to formally thank you for signing up for our newsletter.

Get ready for a dose of inspiration! Our weekly newsletter is packed with the latest articles, tips, and updates from Economental. We hope you enjoy reading!

[Unsubscribe](#)

Best regards,  
Emily Lofton, Editor, Economental  
(823) 373-2188

## **Epsilon Airlines**

From: [donotreply@epsilonairlines.com](mailto:donotreply@epsilonairlines.com)  
Subject: Your flight to Denver is confirmed

Hello [Your Name],

Your flight booking to Denver International Airport with Epsilon Airlines on [Date] has been successfully confirmed. Here are your flight details:

Flight Number: 489  
Departure: Roanoke Airport  
Arrival: Denver International Airport  
Departure Time: 8:30 A.M.

If you wish to change or cancel your flight, please contact us [here](#).

Safe travels!

Epsilon Airlines

**The XYZ Shop:**

From: [xyz-customers@xyzshop.com](mailto:xyz-customers@xyzshop.com)

Subject: Exclusive offers from XYZ Shop

Hi John Doe,

We're excited to share our latest offers and promotions with you.

[Check out the exclusive deals available at XYZ Store this week.](#)

[Sign up](#) for our Newsletter for more updates.

Happy shopping!

XYZ Shop

**Kinabalu Customer Feedback**

From: [noreply@kinabalu.com](mailto:noreply@kinabalu.com)

Subject: How did we do?

Hi John Doe

Thank you for shopping Kinabalu! We love hearing back from customers to further improve our site and shopping experience. If you would like, please fill out the following survey. Doing so will make you eligible for future store credit.

Thank you!

[Begin Survey](#)

Kinabalu Customer Support

This is an automated email

[Contact support](#)

**Blue Ridge Apartments**

From: [blueridge-residential@apartments.com](mailto:blueridge-residential@apartments.com)

Subject: Your electricity bill is due soon

Hello John Doe,

This is a friendly reminder that your electricity bill for the month of [Month] is due on [Due Date]. You can view and pay your bill [online](#) or at your nearest payment center.

Thank you for your prompt payment.

Blue Ridge Apartments

**Camille Johnson**

From: [crjohnson@alltext.org](mailto:crjohnson@alltext.org)

Subject: Update on the Smith Project

Hi Team,

I wanted to provide you with an update on the Smith Project. Please find attached the latest project report, and let's schedule a meeting to discuss the next steps.

[Smith Project Report \[insert a date here\]](#)

Thanks,  
Camille

**Screenflix**

From: [screenflix@screenflixmail.com](mailto:screenflix@screenflixmail.com)

Subject: Your Netflix subscription is renewing

Hello John Doe,

We're renewing your Screenflix subscription for the next month in 7 days. You'll continue to enjoy unlimited streaming of your favorite shows and movies!

[Cancel or change subscription plan](#)

Screenflix Team  
Copyright Screenflix, All Rights Reserved

**Minisoft Security Alert**

From: [security@minisoft.com](mailto:security@minisoft.com)

Subject: unknown device logged in

Dear John Doe,

We've detected a login to your Minisoft account from an unknown device near Blacksburg, VA.

If this isn't you, please [contact us immediately](#).

Regards,

Minisoft Security Team  
This is an automated message.

**Dave Wilkins**

From: [dswilkins@alltext.org](mailto:dswilkins@alltext.org)  
Subject: Join our upcoming webinar on marketing

Hi all,

We invite you to our upcoming webinar on effective marketing strategies. Register now to secure your spot and gain valuable insights.

[Register for Webinar](#)

See you then,  
Dave

**Virginia Tech Alumni Association**

From: [alumniservices@vt.edu](mailto:alumniservices@vt.edu)  
Subject: Stay connected with your alma mater

Hello John Doe,

Keep the alumni spirit alive! Our newsletter brings you updates from your alma mater, alumni success stories, and upcoming events

[Sign up for newsletter.](#)

Warm regards,  
Virginia Tech Alumni Association

**FlourPower**

From: [fpllc@flourpower.com](mailto:fpllc@flourpower.com)  
Subject: Welcome to "Art of Cooking" course

Hi John,

We're excited to welcome you to the "Art of Cooking" online course. Get ready to embark on a culinary journey.



The “Art of Cooking” is a 5-week course taught by professional chefs that will teach you to turn your home kitchen into a Michelin Star restaurant.

If you have any questions or wish to drop the course, please contact the course instructor, Rordon Gamsey ([rgamsey@gmail.com](mailto:rgamsey@gmail.com))

Enjoy the course!

[Course Provider]

### **Food Bank of Western VA**

Subject: Support our cause with a donation

Message: Hello,

We rely on the generosity of supporters like you to make a difference. Please consider making a donation to help us continue our mission.

Donate Now

[Nonprofit Organization]

# Assignment V: User Evaluations

## User Evaluation I (Bill - Senior, HRM)

### Pre-evaluation

**On average, how many emails do you read a day?**

"I read about 10 a day on my school email, not as much on personal, maybe a couple."

**Have you ever seen or noticed scam emails in your mailbox?**

"Oh man, all the time. I don't see much in the school mailbox, maybe because the filtering is really good? I get about 1 a week. My personal though, I can see one maybe everyday in the spam folder, kind of why I don't read emails."

**Have you experienced falling for scam emails?**

"I am usually pretty careful so I don't think I have. I have gotten hacked in things like video games and stuff but never got any emails compromised."

### Demo Comments & Observation

- "The UI is pretty clean, I like the aesthetics."
- "I think the desktop simulation is pretty nice with the apps on the bottom."
- User thought the tutorial part was the entire demo and the end of that was it.
- "I think it would be nice to give more info to why something is a scam-clue, especially when I found the clue."
- User was lost and couldn't find a clue in a scam email.
- "I want some sort of hint feature to highlight stuff when I get lost after a while."
- "I think having an extra way to back out of scam detection would be nice."
- User was confused in certain detect sections for scam emails, there were some inconsistencies in terms of potential clues.
- "I want to go back and read some of the already read emails again but the buttons are grayed out after I went through it."

## **Post-evaluation**

### **Any thoughts on the gameplay and flow?**

"I got confused at the beginning because I thought the tutorial was it. I guess I didn't read the prompts in detail so I got confused. I think the game would be very solid with some more consistency and more on-time descriptions of scam-clues when they come up. Overall, not bad."

### **Do you think this can help people who aren't as familiar with scam emails identify them?**

"Yea, honestly this is pretty close to something I have done for an internship training. I think the whole detect mode bit lets people figure it out and it's cool."

### **Any comments on how we can improve the game?**

"Yea, pretty much the things we talked about while I ran the demo. I think having hints and explanations popup with the found cue would be really helpful for people that get stuck like me. I definitely would want to see being able to go back to old emails, it's kind of weird for a mailbox to lock access to already read messages."

# User Evaluation II (Alex, Senior, Computer Science)

## Pre-evaluation

**On average, how many emails do you read a day?**

"All of the ones that arrive in my inbox, probably 20-25%"

**Have you ever seen or noticed scam emails in your mailbox?**

"Yeah very often. Password changes, job offers. There's a bunch. Some are very obvious, some not so."

**Have you experienced falling for scam emails?**

"Yeah actually, I got a password reset email from my previous school, I visited the link and input my information. Got an email from the school a few days later that there was suspicious activity from my account."

## Demo Comments & Observation

- "The tutorial is great but I think there should be a better system for teaching what to look out for. It would be helpful to have the tutorial go over it or at least tell me what to look for"
- "The helpful tips tab should be a part of the tutorial. I didn't know it told me what to look for at first"
- "The scam clues seem a little subjective and hard to really determine if something is a clue or not. I think they would benefit from a bit more objectivity"

## **Post-evaluation**

### **Any thoughts on the gameplay and flow?**

"I thought it was pretty easy to use. I'll be honest, if I wasn't asked to play and review it, I don't know if I'd be super engaged, but being required to do it, I think it could be a really useful tool for some kind of web safety curriculum."

### **Do you think this can help people who aren't as familiar with scam emails identify them?**

"Yeah I think so. I definitely learned new things about what signifies an email could be a scam. For the average person I think it could be super helpful."

### **Any comments on how we can improve the game?**

"Just about what to look out for. I think the helpful tips could be a part of the tutorial or a bigger part of the game."

# User Evaluation III (Ben - Senior, ACCT)

## Pre-evaluation

**On average, how many emails do you read a day?**

"I do about 15 to 20 a day at work. I get a lot of mail from my classes and school but I don't really read them."

**Have you ever seen or noticed scam emails in your mailbox?**

"I get a lot of spam on my personal email but I don't read those at all. I did get one recently in my mailbox about, like, some bank statement thing that links to Google Drive? It was pretty obvious so I didn't click it."

**Have you experienced falling for scam emails?**

"Honestly I think I am pretty good at seeing them. I haven't fell for any and nowadays my emails does a pretty good job at getting things filtered"

## Demo Comments & Observation

- "I like the desktop interface."
- "Not sure where I was supposed to click in the tutorial, the popups are kind of confusing me."
- "Email app looks bland, doesn't look like my mailbox."
- The user was confused by made-up company names, he thought those emails were scams.
- "I think it would be nice to see what the clue I clicked was in the popup. It's kind of confusing because I see something that is a clue in another one (scam email) but here it's not."
- User got stuck in a detect mode because he couldn't find all the clues and there was no functionality to back out.
- "Hints would help, getting stuck here feels pretty frustrating."

## **Post-evaluation**

### **Any thoughts on the gameplay and flow?**

"I think overall it's good, but it sucks to get stuck and not know what to do. I like that list popup but I think having built in hints will help with the game a lot."

### **Do you think this can help people who aren't as familiar with scam emails identify them?**

"I like the idea here, I think this will help people think about it and figure it out. The detect mode is cool and with some more polish I think this will really work out."

### **Any comments on how we can improve the game?**

"I think hints and consistency will really help here. I definitely got frustrated when I got stuck in some of the detection screens. I think if you want to do a sim that's like real life you can use real company names, it was kind of weird to see off-brand names in emails but are told they are real? Since I was already in that looking for a scam mindset, that set me back a bit. Also, visually it can use some polish, the email screen was kind of bland and I can't really get back into read emails with the grayed out buttons."