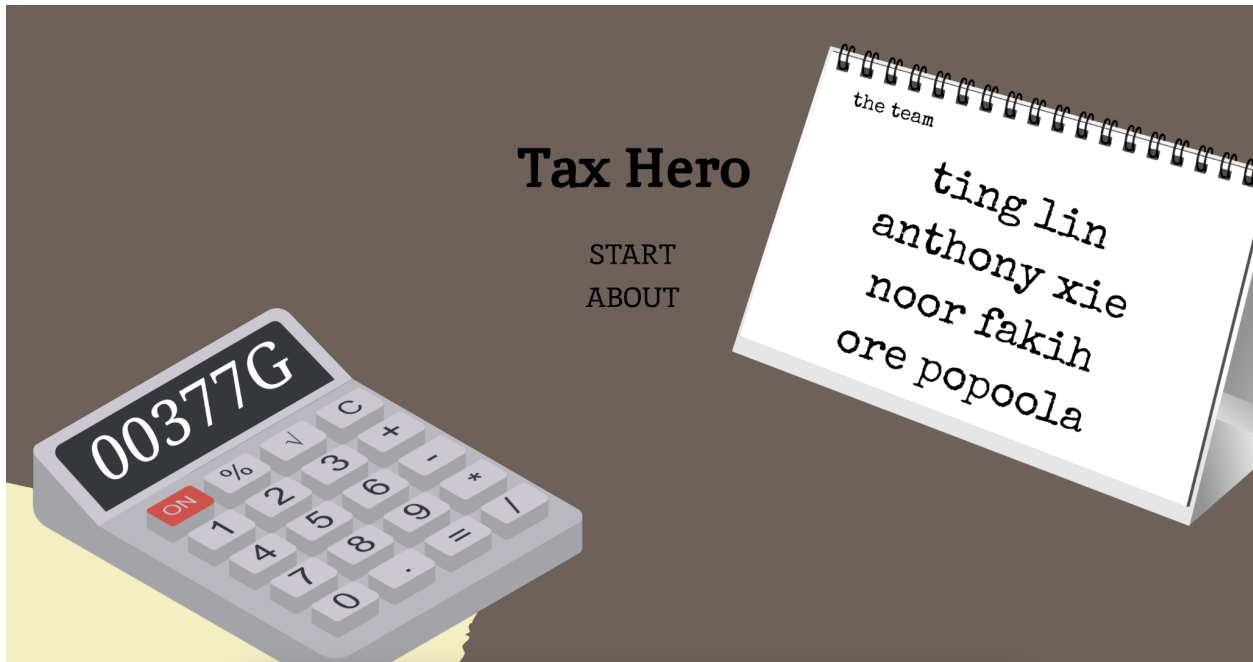# Tax Hero:

A game about how the rich pay less taxes than you

Game Link

by Anthony Xie, Ting Lin, Noor Fakih, & Ore Popoola
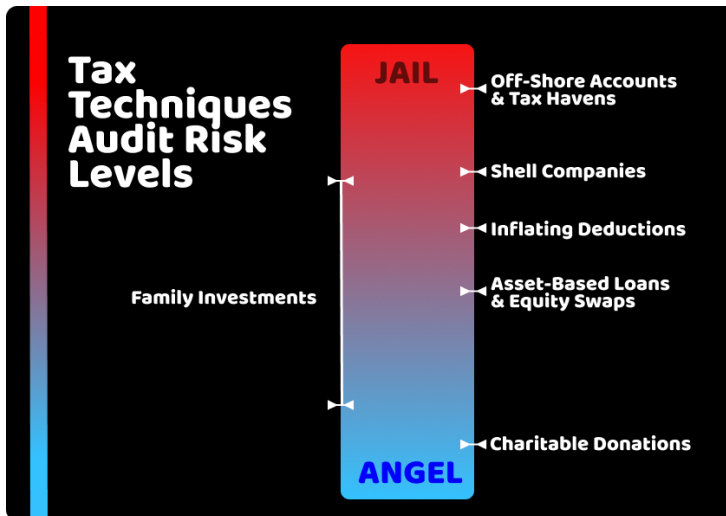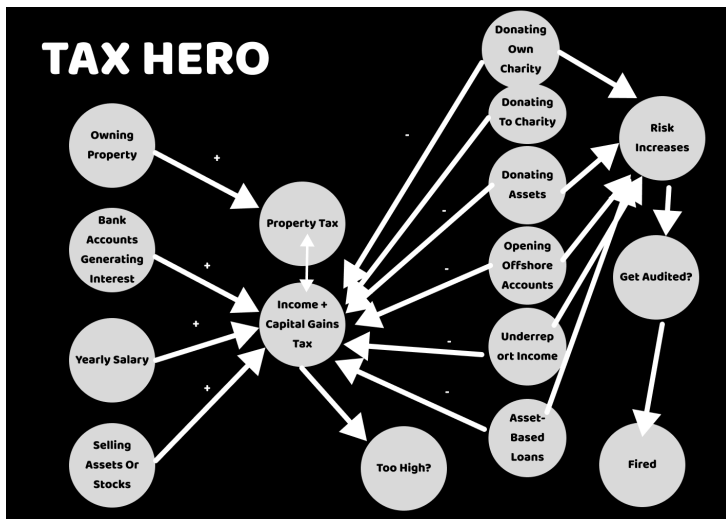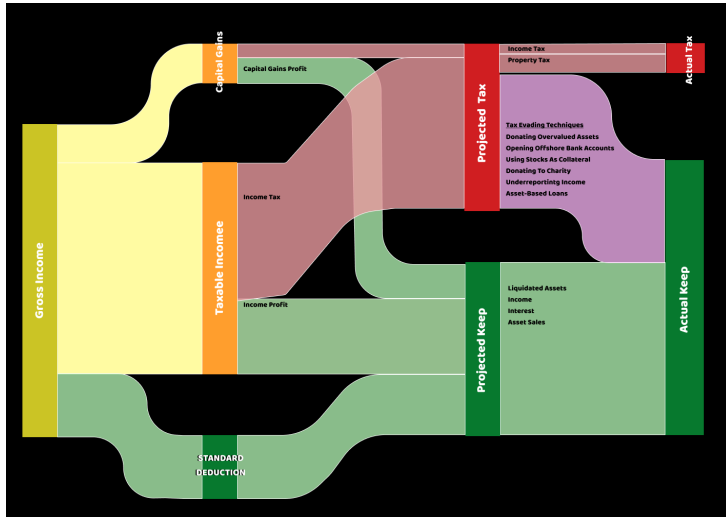
Artist's Statement

Our game seeks to represent the American tax system & how the wealthy interact with it. We wanted to show how the ultra-rich evade taxes in America through a variety of means, some of which are legal (i.e. charitable donation deductions, asset-based loans) & some of which are technically illegal but often undiscovered (i.e. off-shore bank accounts and shell companies). The overarching goal is to educate players on federal tax laws, bring player attention to the economic injustice present, and expose specific strategies often undertaken by the wealthy in the real world to exploit loopholes within the U.S. taxation system.

To do so, we designed Tax Hero, a single-player digital game where the player assumes the role of an accountant to a Silicon Valley nouveau riche, tasked by their client to help them evade taxes. The game is divided into four rounds, each representing one fiscal year. Within each round, the player surveys the client's portfolio and makes actionable decisions. In between each round, there is narrative informing the player of how their client has utilized the evaded tax money and how their portfolio and net worth have changed as a result. If the player missteps, they are either audited or fired. The game is designed to induce feelings of complicity, guilt but also bitterness as the player observes the client character grow richer and richer as a result of the player's actions.

Some of our inspirations were *Papers, Please*, *Cookie Clicker, Universal Paperclips* and *You Are Jeff Bezos.*

System Map

Sankey Diagram

Gross Income

Capital Gains
Capital Gains Profit

Taxable Incomee
Income Tax
Income Profit

Projected Tax

Income Tax
Property Tax

Tax Evading Techniques
Donating Overvalued Assets
Opening Offshore Bank Accounts
Using Stocks As Collateral
Donating To Charity
Underreporting Income
Asset-Based Loans

Actual Tax

Projected Keep

Liquidated Assets
Income
Interest
Asset Sales

Actual Keep

STANDARD DEDUCTION

TAX HERO

Owning Property +

Bank Accounts Generating Interest +

Yearly Salary +

Selling Assets Or Stocks +

Property Tax

Income + Capital Gains Tax

Too High?

Donating Own Charity

Donating To Charity

Donating Assets

Opening Offshore Accounts

Underreport Income

Asset-Based Loans

Risk Increases

Get Audited?

Fired

Tax Techniques Audit Risk Levels

JAIL

Off-Shore Accounts & Tax Havens

Shell Companies

Inflating Deductions

Asset-Based Loans & Equity Swaps

Family Investments

Charitable Donations

ANGEL

History, Playtests and Iterations

Our Initial Ideation Session where we came up with Kannibal Kitchen.
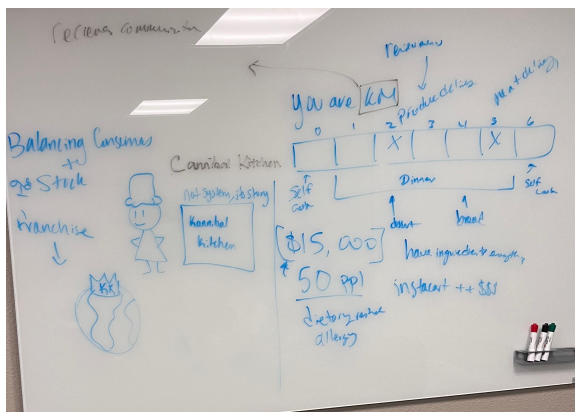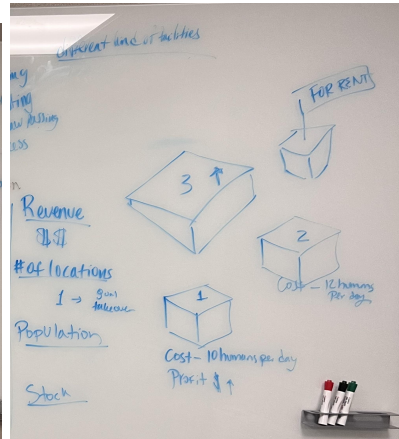
Version -1: Kannibal Kitchen

Concept

Our initial concept of the game was a Cannibal kitchen stimulator, where the player would run the kitchen of a restaurant serving cannibals and aim to generate as much profit as possible. Most importantly, the player would have to handle the buying of raw materials (human organs), and the price and costs of human organs would increase and decrease as a result of global public health events. The system we wanted to represent was global health policies, and we wanted to represent its repercussions through the price changes of specific organs - for example, a blanket smoking ban would lead to an increase in lung prices, as their quality would become better.

Our [first prototype](#) was created using Google Slides.

Playtesting Version -1

Playtest 1 (In class, Playtesters: 1 male, 3 female CS377G students) [Video Link](#)
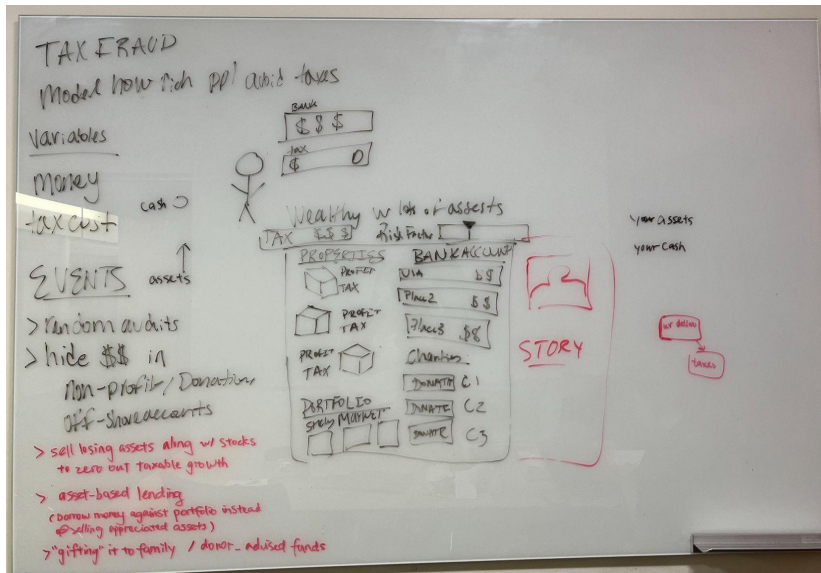
Insights

- Players very engaged with concept despite initial confusion about buying, cooking and selling mechanics
- Strategizing over how much rent to save depending on how many days it takes to complete the recipe + sell
- There seemed like an obvious optimal strategy; didn't require much thinking, would like more diversified features
- Win & Lose state is unclear, scaling is unknown from the beginning
- Connection to the proposed system (global health) seems too far of a stretch, doesn't seem to factor into gameplay
- The narrative was confusing (the connection between natural disaster & costs decreasing was unclear)
- Confusion over proposed system: one playtester thought it was about human trafficking, another thought it was about just a restaurant simulation (just themed with cannibalism), and another thought it was metaphor about global health policies

Design Changes

We realized from the playtest feedback that our game did a poor job of reflecting the system it aimed to capture. Several parts of the game contributed to player confusion: the absurdity of the narrative, the high-level abstraction of the complex system of global health, and the divorcing of the actual gameplay (i.e. buying stock, making recipes) from the system dynamics. After some reflection, we ultimately decided to return to the ideation phase and start over again.

Back to the drawing board! This ideation session resulted in Tax Hero.

Image on the left is the list of topics we regenerated.

On the right was the idea we almost went with - modeling the phenomenon of animals evolving towards crabs!

Version 0: Tax Hero - Crappy Excel Prototype

Concept

After returning to ideation, we waffled between several ideas including the evolution of crabs and eventually came up with a new system we wanted to model: the American tax system. Specifically, we wanted to capture how the rich often exploit the system to pay less than their fair share of taxes. The player would play as a billionaire hoping to grow their wealth further - and to do so, they would apply various tax evasion techniques to their portfolio of stocks, assets, properties, cash holdings and more. We envisioned a relatively simplistic 2D digital layout, and we wanted the portfolio to become increasingly complex as time went on. Player actions would be associated with a certain amount of risk of auditing.

News

Recently super ultra mega-billionaire Ore has been arrested on 17 counts of tax evasion and excessive gaming.

Best to lay low for a while...

Stats

Total Net Worth	$25.00	Projected Tax	$10.00
Your $$$	$4.00		

YOUR PORTFOLIO

Properties

#1 Fraud Fortress | $$$ |

Accounts

--unlock offshore banking and tax havens when you become a billionaire--

Stocks

	Current Price	Qty Own	Market Value		
AAVL	12	0	0	Buy 1	Sell 1
CHIA	36	0	0	Buy 1	Sell 1
DROO	4	1	4	Buy 1	Sell 1
FAER	9	0	0	Buy 1	Sell 1
KBAT	73	0	0	Buy 1	Sell 1
NAKR	20	0	0	Buy 1	Sell 1
TPP	66	0	0	Buy 1	Sell 1
UNIB	16	1	16	Buy 1	Sell 1

We modeled the prototype as a clicker game using an Excel spreadsheet, with inspiration taken from games such as Cookie Clicker and Universal Paper Clips.

Playtesting Version 0

Playtest 2 (In class, Male CS377G student)

Insights

- Our <u>new premise and setup was overall very promising</u>, however there needed to be far more depth to the mechanics
- The similarities to Universal Paperclips and Cookie Clicker actually did not serve our purpose well. By having the player be the billionaire and act on their portfolio, <u>the setup seems to posit wealth accumulation as the goal</u> (which is the same as Universal Paperclips and Cookie Clicker) instead of tax evasion.
- With players focused too heavily on mechanics that allow them to accumulate wealth, such as buying and selling stock and playing the stock market, they overlooked all of tax evasion mechanics, and <u>ended up not paying attention to the taxes at all</u>
- An idea was proposed that tax evasion advice should be provided between rounds that source from real life tax evasion examples, to tie the game to the real-life system

Design Changes

To address this, we switched the player role from being the rich person to being the accountant. Before the change, the player can just pay the taxes and still be rich through other means. By being the accountant responsible for the tax, however, the player's job security can be threatened. We also thought this could introduce feelings of complicity but also resentment, which is more in line with our stated goal of highlighting economic injustice.
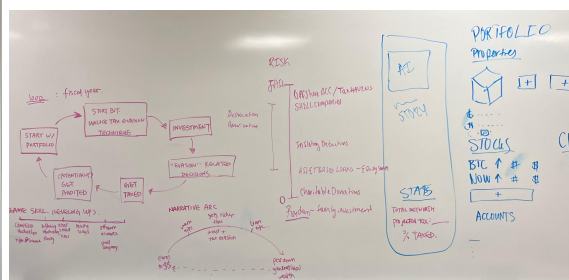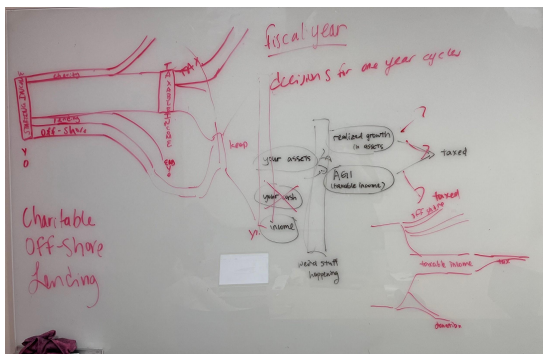
Version 1: Tax Hero - Crappy Figma Prototype / Narrative Doc

Yo Portfolio

Yearly income: $100,000

Risk Factor	
Income	Tax

Properties	est. value $10,000 ∨

Assets	est. value $10,000 ∨

US Bank Accounts	$10,000 ∨

Stocks	$10,000 ∨

Charitable Donations	$ 500.00 ∨

drop down menu of charities ∨ $ ✓

Charity	Donation
x Terra House of Gays	$100
x The Rabbit Haven	$200
x ArmTheGirls!	$200

- You are 27 years old. In the five years since you graduated, you've been an accountant for your city government. You earn 60k a year, enough to get by, but not enough to help your aging parents retire.
  But today, your luck is about to change.
- Y, your old college roommate, just recently sold his startup MindQuantum, a quantum computing & AI powered holistic experiential ecosystem personalized life coaching app, to M*ta for one hundred million dollars. As part of the deal, he also receives a salary at M*ta with a non-compete clause. Now flush with wealth, he has hired you as their personal accountant and doubled your salary. His one ask: evade as many taxes as possible.
- He explained it's because as a libertarian, he believes in minimal government interference & the efficacy of market solutions for public good. (You personally think there's a more obvious explanation for why, but whatever, you need the job.)
- It's November, one month till tax season. With full access to Y's portfolio, you must now try and manipulate his income, assets, and donations to help him pay as little in taxes as possible.

Concept:

In this version, we wanted to visually plot out the different components of our game and create the interface. We set up an overview stats section, with the client's income, the current projected taxes, and the current risk level. We also have five tabbed sections, which include property, assets, banks, stocks, and donations.

Figma [Prototype](#).

We also created a narrative, complete with portfolios for each round, where the player takes on the character of the accountant. We had a "playtest"/readthrough with the narrative document.

This is the link to our original [Narrative Doc](#).

Playtesting Version 1

Playtest 3 - Female, 17, High school senior
Playtest 4 - Male, 22, non-CS377G student

Playtest Insights

- <u>Many of the narrative elements resonated well</u> – found the premise to be amusing, especially the use of nonsense buzzwords and the satirical look at big tech
- There were still <u>questions about what exactly they could do</u> – through the Figma it wasn't clear what they could do on the menu, especially since they couldn't interact with the elements directly
    - When asked to manipulate income, assets, and donations, they asked "manipulate how?" (P4)
- Overall, <u>a lack of clarity</u> – from the menus it wasn't clear which things in the portfolio were contributing to the taxes
- Playtesters also expressed a lot of interest in having the game bring up specific cases

Design Changes

From our feedback we decided that it would be best to adopt a tabbed menu layout and a one page responsive design instead of having one long scrolling page. The tabs simulate the feel of looking through a collection of tabbed office files about your client and help the user step into the magic circle with less resistance. We also opted for a layout that was more personable and included a fun picture of the client to increase the absurdity and create a constant visual reminder of who you are working for. We added as many buttons and functionality as possible so we could further test layout and the UI.

Version 2: Tax Zero - Playable React Prototype

Yo Portfolio

Jane Client Doe

Net worth:	0
Yearly income:	100000
Projected Taxes:	40000
Taxed Income:	

Income | Tax

Risk:

Properties	Donable Assets	Bank Holdings	Stocks	Charity Donations

Art

Nepo Child Artwork   **60000**   Donate Art

Narry Stight by Paclo Pibasso   Appraise Art

Picture Of A Dog   Appraise Art

Concept:

In this version, we decided to implement our game in React, as it allowed for easier use of premade React component libraries to make our menus / UI elements. We initially tried to implement it in Unity, however we found it to be feasible within our time limit. In this version, the actions that the player can take were to choose to donate money to charity, donate art to charities, underreport their income, or sell stocks to generate funds. At the time we were considering interactions involving assets and properties, which would influence the portfolio's net worth, however it was not implemented.

Playtesting Version 2

Playtest 5 - College graduate, male, outside of CS 377G

Playtest Insights

- The player wanted more information about what the taxes were and their breakdown
- Wanted to see more changes visibly happening in the risk bar as he took actions and overall more visual feedback
- The player was interested in seeing how the other techniques play out and was bored by not having all of it ready to play with
- Enjoyed the concept of each portfolio being a puzzle

Design Changes

We renamed and redesigned certain sections to add more clarity. We also changed the income/tax bar to also include a pie chart breakdown of taxes with respect to income tax, capital gains tax and property taxes. We also refined our math and decided to emphasize realism in both the portfolios provided and the tax calculations. Finally, we chose to implement a few new mechanics to increase the complexity of the system, as while many options were given, the overall strategy was not very diverse. We decided to add in a few more actions that would generate and use liquid funds – the player could now choose to sell their artworks in addition to donating them, and the player could also choose to take out asset-based loans. These loans would allow players to gain liquid funds while circumventing the need to pay capital gains taxes, mimicking the real life systems.

Version 2.5: Tax Zero - Playable React Prototype

Concept:

In this updated version of the game we chose to implement a number of refinements to our UI and system. It has a carousel view that allows you to gain more insight about each art piece. You can also choose between three different evaluators who have different levels of riskiness due to how much they decide to inflate the art's value. These mechanics serve as a lowkey commentary on how the value of art is decided and abused by the wealthy. The asset-based loan functionality and previously described design changes are also implemented.

Playtesting Version 2.5

Playtest 6 - College student, Male, non-CS377G

Playtest Insights
- The player was overwhelmed/confused at first. Wished they had more instruction on how to do things or a tooltip/cheat sheet to refer to.
- Player didn't know if there was risk for auditing or the purpose of liquid funds. Players also didn't realize selling stocks increased capital gains taxes.
- Player wanted more explicit goals for each round.
- Needed more visual feedback from the system.
- Some terms were confusing for someone with no financial background.

Design Changes
We added the *About* section at the beginning of the game to introduce its overall objective and setup. We added an instruction guide to walk players through each section and module of the game, stating the effects on risk and tax, introducing the more technical terms, and made that guide available to players at all times. The instruction guide also explicitly states the goals for the players as well as how they can win/lose.

Playtest 7-9: 3 Boys ages 16, 20, and 22
Playtest 10: female, 24, college student, non-CS377G affiliated

We briefly experimented with a more nontraditional 📄 Tentative Narrative before it was changed. It followed a dystopian sci-fi narrative full of brain mechanics, philosophy and clones.

Feedback:

- Initial portion of the narrative was confusing in how it led with the tax evasion concept.
- By the end the playtesters were amused and laughing at the ridiculousness of the concept. Enjoyed being on the side of planet Earth to lower taxes.
- Although players appreciated how different the narrative was, they were thrown off by the introduction of many concepts that were then not used again such as the Chinese thought experiment and constantly referring to brain quantum mechanics or research.
- Players felt that the game's tax concepts were dense enough and wish the narrative was simpler to allow them to focus more on mechanics
- Players were confused by their motivation to help this very evil appearing person. They were especially confused by the ending which seemed to suggest that lowering taxes was good as that was the only way to "save the world."
- Wanted more clear motivation for the player such as taking care of parents

Design Changes:

We opted for a simpler narrative where you are an accountant for your former college roommate because you need a job and want to retire your parents. We also removed terms that were complicated and unrelated to understanding how to play the games and taxes.

Version 3: Tax Zero - Final React Prototype
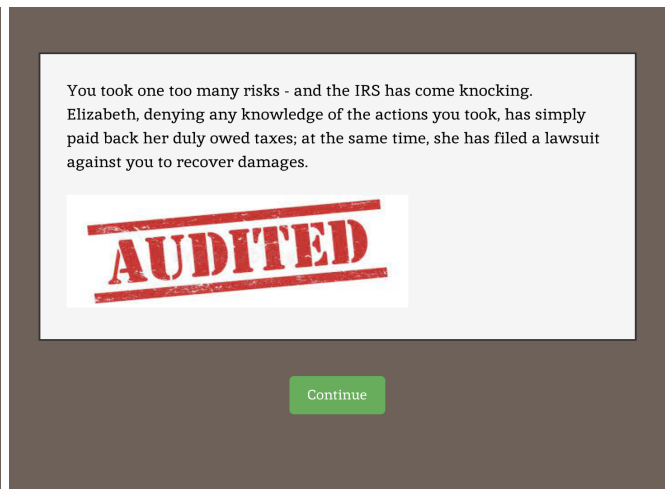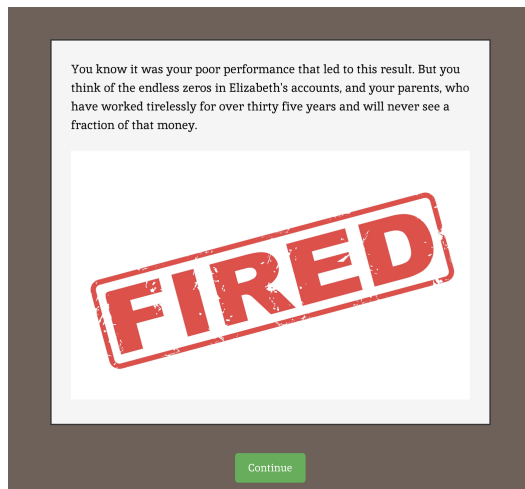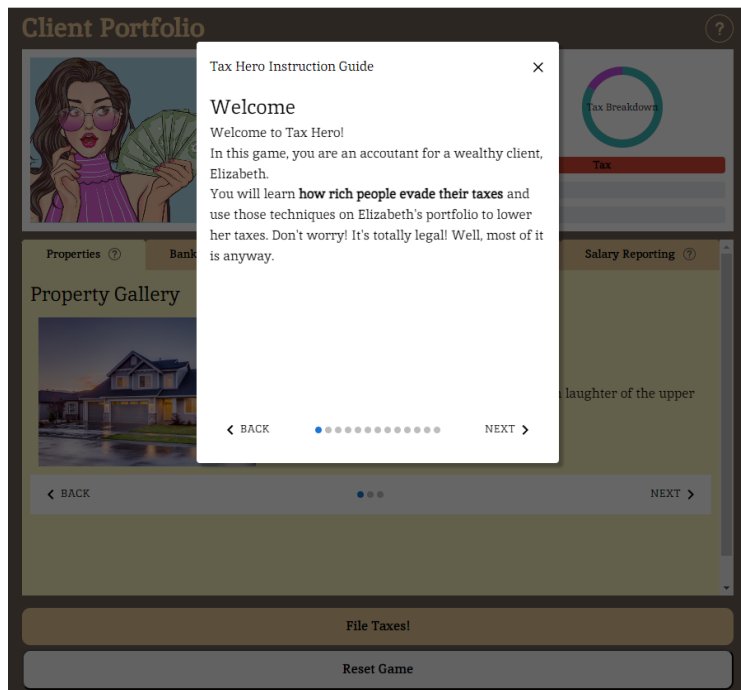
This version continued to reduce the burden on user memory and refine the interactions and styling of the game. We included an instructions tab alongside help tooltips for each tab in the menu explaining the different elements to make it more clear what to do in the game. To further reduce complexity and make the experience smoother, we changed the earlier portfolios to only have certain mechanics active, to slowly onboard the player rather than bombarding them with all mechanics at the same time. Finally, we implemented a cohesive narrative with multiple different endings.

Playtesting Version 3

Playtest 11 - Male Coterm Student, CS377G Student
Playtest 12 - Female Coterm Student, CS377G TA

Playtest Insights

- The <u>layout design generated confusion</u> as to which elements were important and which were not – the property menu in particular attracted a lot of attention but was not actionable
    - "I wish I could buy and sell properties...especially because it's the first thing that shows up" (P6)
- As a result of donating in small quantities, there was <u>not enough feedback from the game as to the impact of actions on the tax amount</u>
- <u>Players really wanted an undo button</u> – especially in the later rounds of the game where more complex features were added
- Due to a bug in the auditing section, it was <u>never clear what exactly the risk entailed</u>. One assumed the risk was cumulative, and one thought that there was only a problem if the risk bar maxed out.
- Beginning of the game still felt quite overwhelming. Players would have preferred if there was a walkthrough demonstrating what actions could be taken.
- Felt as though the ending was too abrupt.

Design Changes

In response to the feedback from our playtests, we made a few UI changes to make the impact of user actions more clear – the liquid funds bar would always display the amount of funds available to the player, and we also added a notification system which would inform the player as to the impact of any particular action. We also edited the instruction guide to 1) be more direct in informing players what actions they could take, 2) only contain information relevant to the round, and 3) pop ups at the beginning of the round by default. Finally, we extended the ending to include more narrative that reinforced the goal of the game.

Version 4: Tax Hero

Client Portfolio

Elizabeth

Yearly income:	$1000000
Total Reported Income:	$1000000
Projected Taxes:	$491000

Art Sold
You received 30000 in liquid funds for the sale, but were also taxed $3000 in capital gains tax. ✕

Art Sold
You received 40000 in liquid funds for the sale, but were also taxed $4000 in capital gains tax. ✕

Art Sold
You received 50000 in liquid funds for the sale, but were also taxed $5000 in capital gains tax. ✕

Income

Risk

Liquid Funds: $120000

Properties ?	Stocks ?	Charity Donations ?	Salary Reporting ?

Stocks

Ticker	Amount Owned	Value	
dogcoin 400		$1000	Sell 100
anthonycoin 500		$200	Sell 100
coincoin 500		$300	Sell 100
FOUR 400		$400	Sell 100
FIVE 400		$500	Sell 100

File Taxes!

Reset Game

Client Portfolio

Tax Hero Instruction Guide ✕

Round 4

At this round, there is one more tab on the page, which allows you to make loans.

You might have noticed that selling assets and stocks also increases your capital gains taxes. To avoid this, you can choose to take out a loan with those assets as collateral. You can leverage this by:
1. Entering an amount you would like to loan.
2. Selecting assets you want to place as collateral.

‹ BACK   •   NEXT ›

Yearly incom...
Total Reporte...
Projected Tax...   00000
                                 00000
                                 44534

Tax Breakdown

Risk

Liquid Funds: $

Properties ?	Donable Assets ?	Ba...	...es ?	Salary Reporting ?	Loans ?

Donable Assets Gallery

by Anthony, 2023
purchased for $10   valued at $10

Evaluators

Risky McRiskPants
This is gonna be good for you, good for me, good for the artist -- we are all gonna eat!

Choose Me as to Appraise!

‹ BACK   • ● ●   NEXT ›

File Taxes!

Reset Game

Sometimes before you sleep at night, you imagine all the taxes you've ever helped keep from the government as a mountain of gold coins. A peak too high to climb. It could probably help end homelessness, or subsidize all university tuition, or fund universal free healthcare.

Continue

Our final version of the game implements the design changes described previously. We implemented a new notifications system that would pop up on major player actions, informing the user of the impact on their liquid funds and on their taxes to improve clarity, and improved the UI and styling to make the amounts and information more clear. We made changes to the instruction guide so that the instructions would be tailored for each individual portfolio as new mechanics were introduced, and set it to be open by default so the player comes into the game informed. Finally, we further fleshed out the narrative elements and added more to our ending to make it feel less abrupt overall.

Reflection

The process of creating Tax Hero was quite a journey. Initially, we had a hard time finding a compelling concept which led to a late start. We went from a multiplayer kitchen game about the health system and cannibals to a single player game about how the rich commit tax evasion. We were able to catch up but then we had to part ways for Thanksgiving Break. During the break we realized we were unsure about being able to finish the game in Unity and switched to React. Since then it has been a race to the finish but we got there!