Major Project Proposal 2022

# Defining the problem

Within the game Counter-Strike: Global Offensive (CS:GO) there exists a “lootbox” system where players pay real money for a case and a key to roll for a random item contained within, with the potential of receiving a rare item worth lots of money on the in-game marketplace called the “Steam Market” or external sites such as “Skinport” or “Skinbaron” which allow for users to cash out their items for real money by selling them to other players or the marketplace itself. This system presents the curiosity, if one were to have a large sum of money, how profitable would gambling it on CS:GO be? Which choice of case is most profitable long term? However, there is no capability within the game to simulate such an experience without the risk of spending copious amounts of your own money. My solution was to create a price accurate simulation of the case opening system within CS:GO, allowing users to purchase cases and sell items much alike to the game, without the aspect of spending actual money.

The idea comprises a website that simulates the case opening and item system in the game Counter-Strike: Global Offensive (CS:GO). The simulation would provide the user with a choice for their starting amount of money and allow them to purchase cases much like within the game. A case has a range of potential items contained within with varying value attached to each item, when a case is rolled a single item from within its contents is received. The odds of receiving each item in the case will be provided to the user, higher rarity items such as “Souvenir Weapons”, “Knives” or “Gloves” will have much higher value than other items. The simulation will allow the user to sell the items they receive to increase their balance and open more cases. Each case will have a different price depending on the rarity of the items within and the age of the case itself, as well as an accurate average market price for each item which will be scraped from an active source each time the site is loaded. The system will track the users wins and losses on case openings and allow them to look at their statistics once they either choose to end the simulation or run themselves completely out of money.

# Objectives and design specifications

## Objectives

* To create a game accurate case opening system
* Having price accurate items are updated automatically
* Progress storage of inventory items and balance
* Gain/loss statistics tracking for evaluation post simulation

## Design Specifications

The main feature objective of the software is to provide a price accurate simulation, with the value of cases and items pegged to the current average prices for the item from online marketplaces. The aim is to utilise an API from the site “CS:GO Backpack” which provides average price data as JSON objects for all market items from the last 24 hours, week, and all time, updated every 8 hours. The software will fetch the price list upon start-up and store within the local storage of the browser, a feature will exist to refresh the stored price list after it is considered out of date.

The software will include many features, the most prominent being a price accurate simulation of the case opening system in CS:GO. This requires a method to retrieve current price data, matching the case opening odds to the odds within the game and tracking of case costs and value of winnings to calculate statistics post simulation.

* Price Fetch System
  + Function to retrieve price list from “CS:GO Backpack” API
  + Ability to store and update price list in browser storage
  + Display current price of won items
  + Function to indicate once the price list has become out of date and requires refreshing
* Case Opening System
  + Match the odds of receiving items to CS:GO case odds
  + Create a visually appealing interface that simulates the animation of opening a case in CS:GO
  + Dynamic selection screen for the assortment of cases the user is able to open
* Statistic Logging
* Inventory System

### Cases to be included in the Simulation:

Note:

* During gameplay CS:GO will occasionally reward or “drop” cases or packages to players at the end of a game. This is a major source of rare cases and specifically one of the only sources of “Souvenir Packages” which will “drop” during CS:GO eSports Majors. Due to the nature of this system older “Souvenir Packages” are in limited supply as they physically cannot “drop” anymore. As a result, the supply of many Package types has been completely extinguished, therefore it was decided to not include the “souvenir packages” within the simulation, limiting it to just weapon cases.

Base game Cases:

* Dreams & Nightmares Case
* Snakebite Case
* Fracture Case
* Prisma 2 Case
* CS20 Case
* Prisma Case
* Danger Zone
* Horizon Case
* Clutch Case
* Spectrum 2 Case
* Spectrum Case
* Glove Case
* Gamma 2 Case
* Gamma Case
* Chroma 3 Case
* Revolver Case
* Shadow Case
* Chroma 2 Case
* Chroma Case
* Huntsman Weapon Case
* CS:GO Weapon Case 3
* Winter Offensive Weapon Case
* CS:GO Weapon Case 2
* CS:GO Weapon Case

Operation Cases:

* Operation Bravo Case
* Operation Phoenix Weapon Case
* Operation Vanguard Weapon Case
* Falchion Case
* Operation Wildfire Case
* Operation Hydra Case
* Shattered Web Case
* Operation Broken Fang Case
* Operation Riptide Case

Esports Cases:

* eSports 2014 Summer Case
* eSports 2013 Winter Case
* eSports 2013 Case

# Needs of the client and Issues relevant to the solution

# General discussion of interface design and interaction with user

# Social and Ethical factors

## Ease of use

To best accommodate both players of “CS:GO” and new users who may have never interacted with a “case opening” system the simulation will have to be intuitive, have a simple UI and offer informative tooltips to the user. These goals can be easily achieved within the system by designing a simple UI from the beginning, integrating a tooltip system within each section of the software and accommodate a design that is akin to the case opening system within “CS:GO”

## Ergonomics

As the system is designed to be a simulation with sessions that may end up lasting an extended period of time, depending on the user’s luck, the user-experience must be comfortable and easy to use for long sessions and provide the ability to close the browser window and pick up where you left off. This can be achieved through simplicity in the site’s design, taking parallels from “CS:GO” for familiarity, and an integration of a save function within the browser local-storage. The user should not be required to be jumping from page to page, preferably the simulation would operate within a single HTML page and utilise DIVs when altering what is on screen. Important information to the user such as balance should be displayed along a top bar which is visible at all times.

## Inclusivity

## Availability

## Security and Privacy

## Copyright Issues

# Gantt Chart

**Complete Interactive Gantt Chart included as an excel file with the project proposal ZIP file (entire Gantt Chart in screenshot form shown below)**

# Bibliography

Scott-Jones, R. (2017). Here are CS:GO’s loot box odds. Retrieved 21 February 2022, from <https://www.pcgamesn.com/counter-strike-global-offensive/csgo-case-odds>

CSGO Database. (2022). Retrieved 21 February 2022, from <https://www.csgodatabase.com/>

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