

# Term Roulette

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**Source of idea:** *Buckshot Roulette & Russian Roulette*

## Russian Roulette:

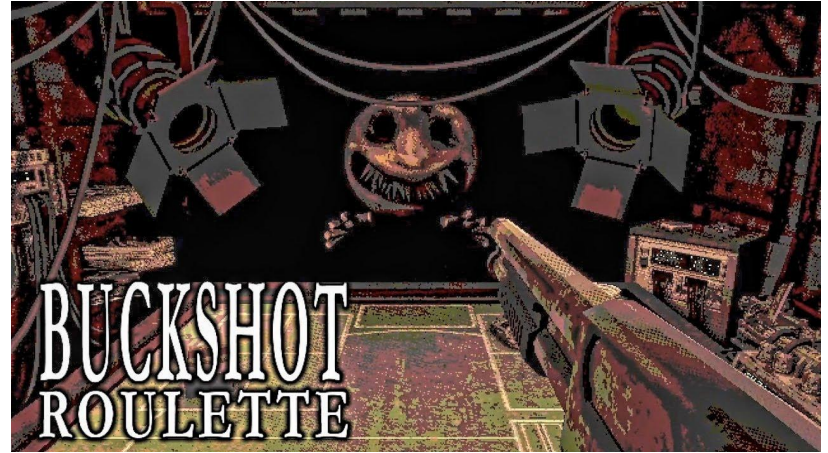
- Two player
- One bullet within the chamber of a revolver.
- Turn based
- One life, lethal game

## Buckshot Roulette:

- Video game
- Single player vs. AI
- Multiple bullets in a shotgun.
- Random powerful items

## Initial goal of the team:

Create an agent that can win at a version of Russian Roulette that is similar to Buckshot Roulette that comprises of different weapons choices, bullet amounts and items



Buckshot Roulette by Mike Klubnika

# Term Roulette - Planning and Design

## Part 1: AI

**Language:** Python

### AI model: Probabilistic model

- Fast and reliable
- Suitable for Game of Chance
- Extendable
- Multiple agents with different play style
- Knows the game state

## Part 2: Display

**Language:** Python

**Major dependency:** Textual

### Game Display I: TUI

- Cross-platform
- Lightweight
- Playable at any time

### Game Display II: Web

- Easy to distribute
- Access from anywhere

# Term Roulette - GUI

Library: *Textual*

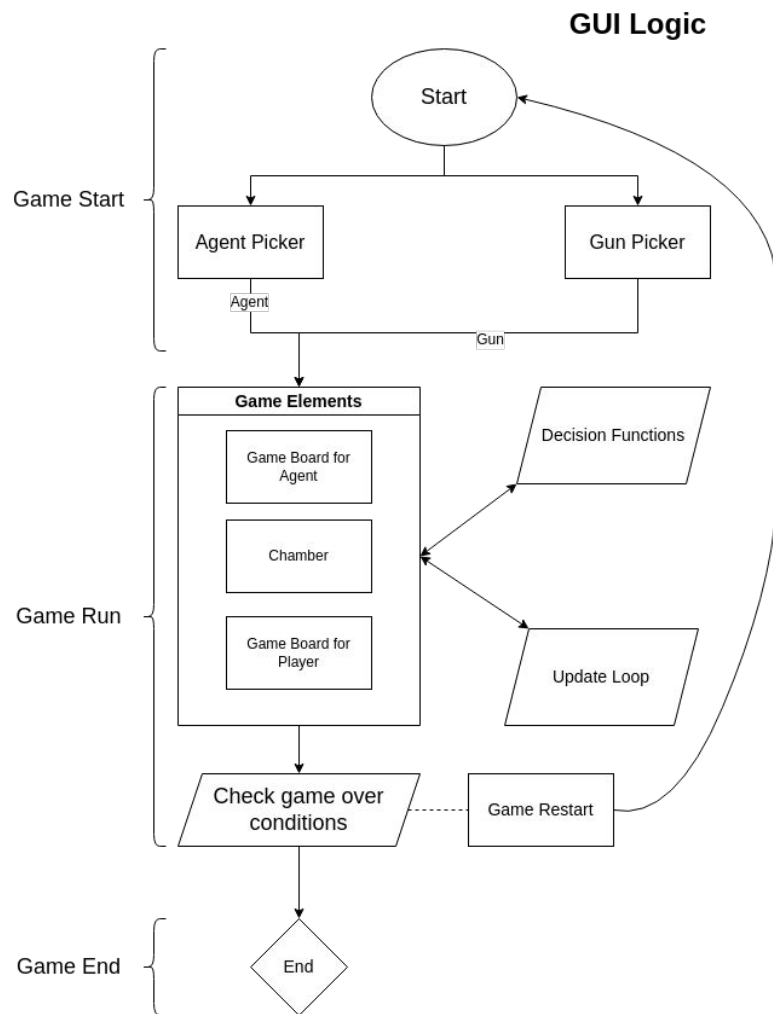
## Platforms:

- Windows, MacOS, Linux with **Terminal**
- Web

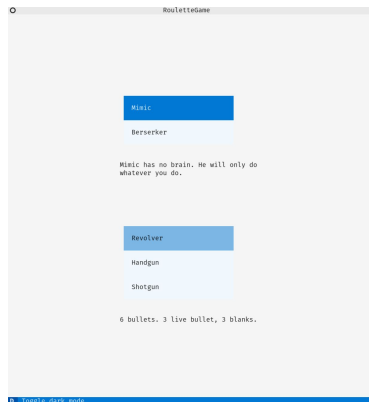
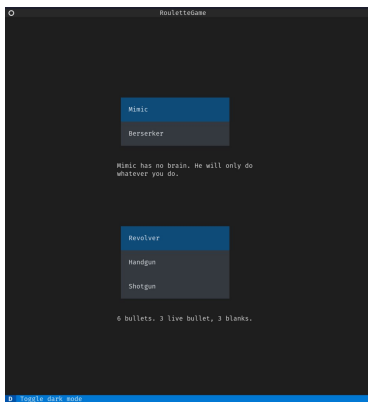
Try it out at <https://textualize-dev.io/yucklys/termroulette>

## Features:

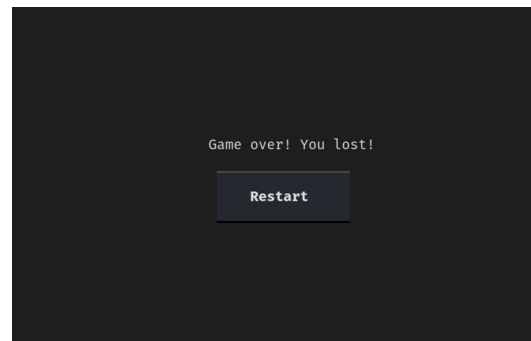
- Mouse and keyboard support
- Fast and lightweight
- Minimum requirements
- Light/Dark mode theme



# Term Roulette - GUI Highlights

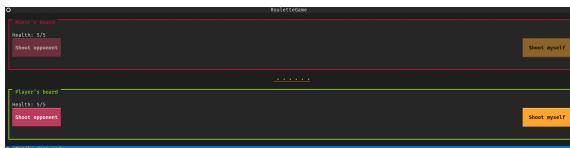


Play with strategy  
And your luck

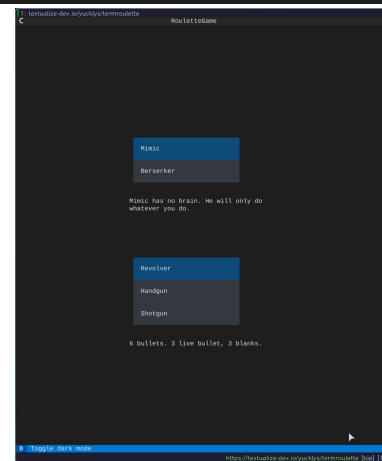


Dark/Light Theme

Responsive layout



Serve on web  
Play at any time



```
[18:50:12] INFO <ganglion> ---  
INFO <ganglion> Serving https://textualize-dev.io/yucklys/termroulette
```

## Term Roulette - Weapon Functionality

There are three separate weapons that the user playing can choose from. Each Weapon has a different magazine size in which the amount of bullets the gun can hold changes.

- Revolver(Maximum of 6 bullet locations)
- Handgun(Maximum of 10 bullet locations)
- Shotgun(Maximum of 2 bullet locations)

The distribution of the bullets in the gun are determined by the rules of the game that was brainstormed together by the group. (Location of bullets placed in the magazine/chamber are chosen at random)

The rules are as follows:

1. Half of the weapon chamber/ Magazine of the selected weapon must have live rounds. Live rounds are bullets that do damage to the opponent.
2. Other Half of the current guns chamber/magazine is filled with blank rounds or power up bullets.
3. Reloading the weapon is only possible if all live rounds are used
4. If opponent is shot with a power up bullet they get the power up unless its a bullet designed to do extra or modified damage



## Term Roulette - Probabilistic Model

When Term Roulette begins, the user is given the option to choose between The Mimic and The Berserker. Choosing The Mimic lets the user control the opponent, and The Berserker is an AI opponent designed to play optimally.

The probability model functions by assessing the player's current health status and the properties of the gun to compute the anticipated rewards associated with two potential actions: shooting oneself or targeting the opponent. Through an analysis of probabilities, including the likelihood of discovering advantageous items like double bullets or healing chambers, the model forecasts the probable outcomes for each action. This data-driven approach empowers players to make informed decisions, suggesting the action with the superior expected reward and enabling them to refine their gameplay strategies for maximum effectiveness and success in the game environment.

