Bluff & Blade

Final Project for Intro to Game Development | Engine: GameMaker | Solo Dev

🔗 **Link for Play**

A two-player psychological card duel where bluffling and insight decide victory. Read your opponent, bluff with precision, and strike at the perfect moment.

Background

This project started as a simple Rock-Paper-Scissors assignment for my Game Development class. I was drawn to the psychological mind games behind RPS, but it lacked real strategy. While taking a cryptography course, I learned about information entropy and decided to add partial information control. The result is a two-player card duel built on bluffing, resource management, and reading your opponent.

Card and Resource System

Each player begins the game with a fixed hand of six cards and two action buttons (Insight and Skip). All actions—playing cards or using the Insight button—consume a shared resource called Will. Players start the game with 3 Will, and at the beginning of each turn, they gain +2 Will, up to a maximum of 5.

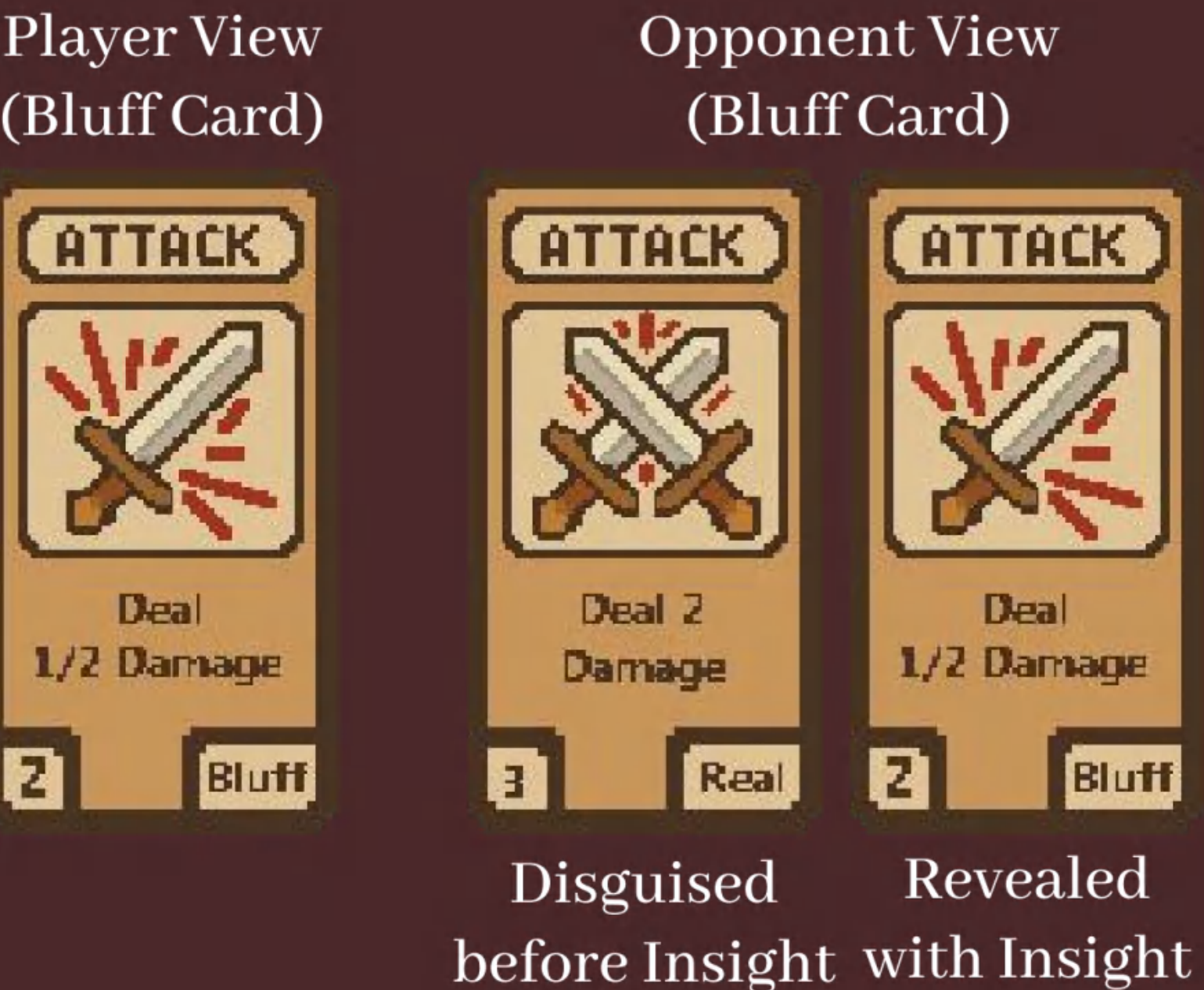| Card Type	Effect	Cost (/will)
Attack	Deals 2 damage	3
Bluff Attack	Unexposed: acts as a normal Attack (2 damage) Exposed by button: 1 damage Exposed by a card: attacker takes 2 reflected damage, defender takes none	2
Defend	Blocks 2 damage	2
Bluff Defend	Unexposed: blocks 2 damage Exposed by button: blocks only 1 damage	1
Weak Defend	Blocks 1 damage	0
Insight (card)	Can only be used when defending If the opponent plays Bluff Attack: reflects 2 damage and blocks all damage	2
Insight (Button)	Challenges the opponent's card authenticity and weakens exposed bluff cards Cannot be used with Insight card in same turn	1

Bluff cards cost less Will, letting players appear threatening while conserving resources. Insight, on the other hand, provides information at a cost.
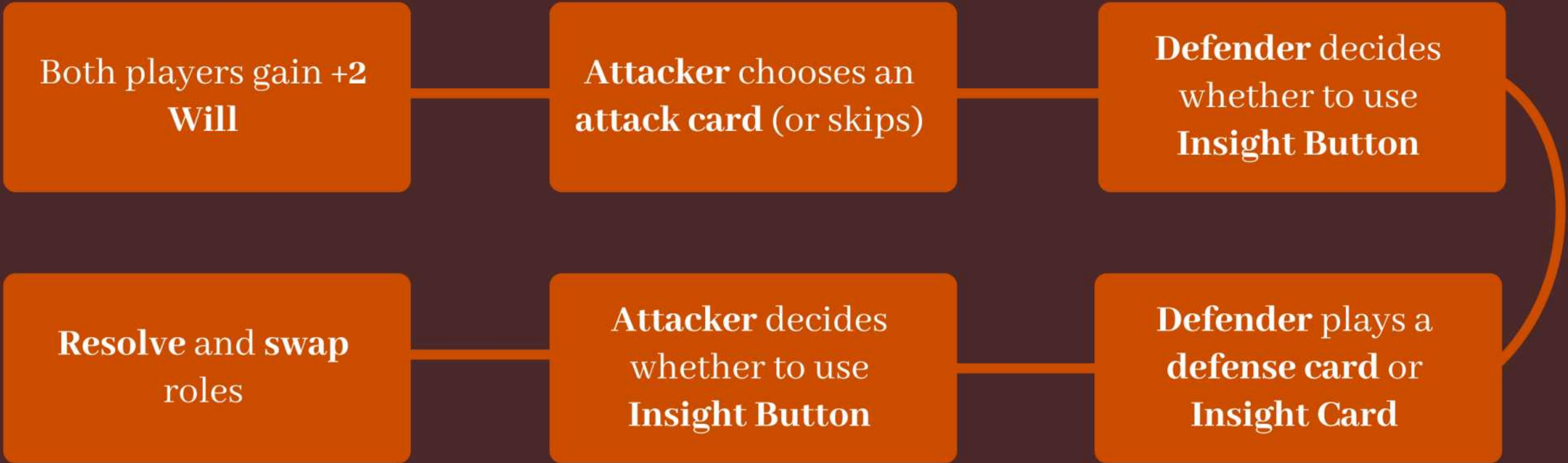
Visual Design

Will Cost

Main Description

Card Type

Component:
- Will Cost: The resource required to play the card.
- Main Description: Shows the card's primary effect. When hovering, a detailed illustration appear.
- Card Type: Displays whether the card is real or bluff.
  - If the player plays a real card, both players see the same card.
  - If it's a bluff, the opponent sees the disguised version.

Player View (Bluff Card)

Opponent View (Bluff Card)

Disguised before Insight

Revealed with Insight

Game Flow

Both players gain +2 **Will**	→	**Attacker** chooses an **attack card** (or skips)	→	**Defender** decides whether to use **Insight Button**
Resolve and **swap** roles	←	**Attacker** decides whether to use **Insight Button**	←	**Defender** plays a **defense card** or **Insight Card**

- Each round follows a structured turn loop where both the attacker and defender can choose to bluff their actions.
- The defender can use Insight after the attack is declared, and the attacker can use Insight after the defense is played.
- Players may skip their action to save Will.
- The game ends when a player's HP reaches 0, at which point the other player wins.

Information and Bluffing

Information control is key.
Throughout the match, players constantly estimate the opponent's Will. Accurate calculation can eliminate certain plays (e.g., knowing they can't afford a real attack). Insight makes that estimate more accurate, while bluffing keeps it uncertain.

Insight provides information.
It reveals the opponent's real card and the actual Will cost. This makes their resource state more predictable and narrows the range of possible actions in future turns.
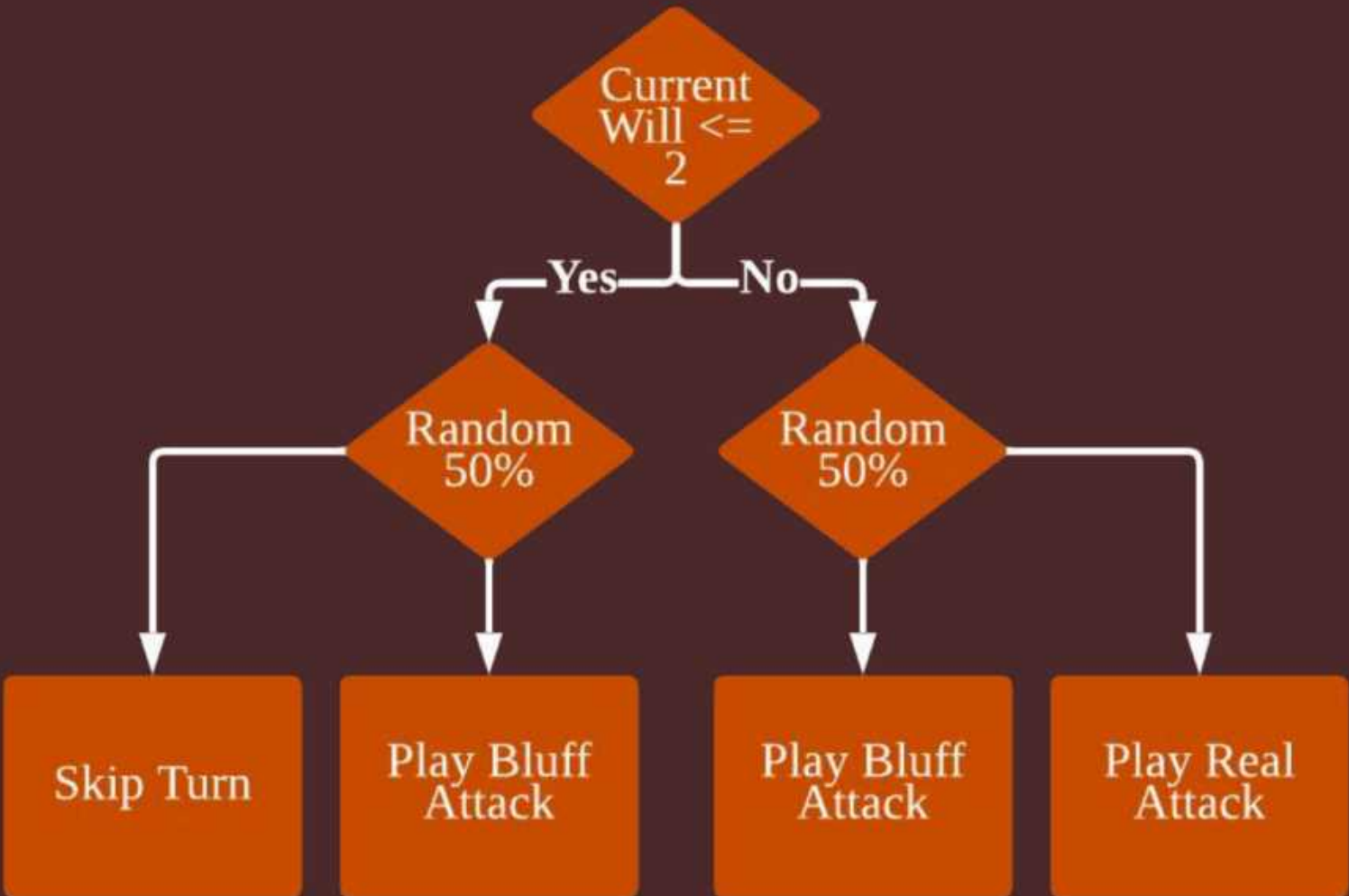
Bluff creates uncertainty.
Bluff cards look like real cards from the opponent's perspective but cost less Will. This makes it harder to infer their remaining resources accurately and keeps their future options ambiguous.

AI Logic

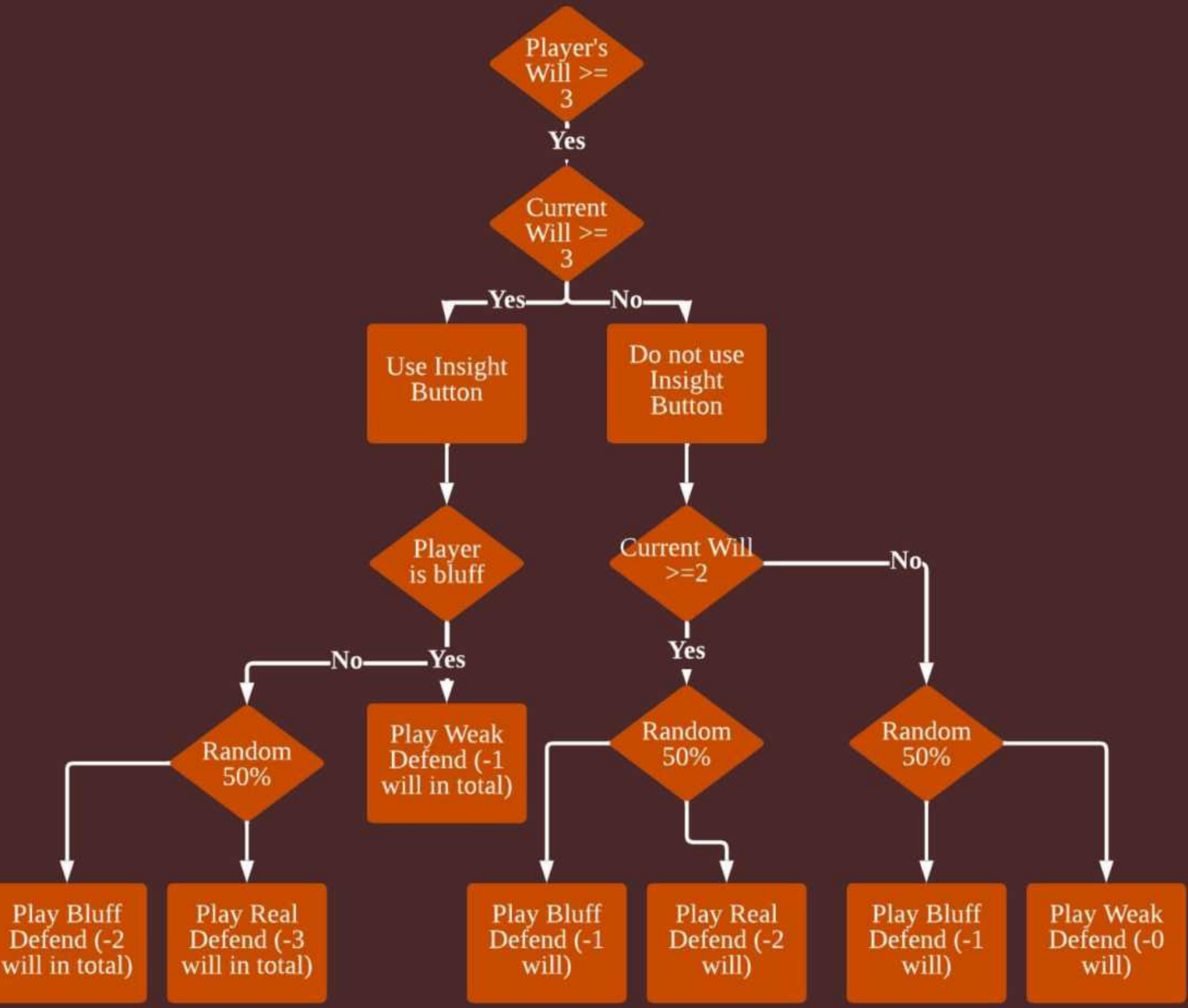This game includes a simple but functional AI opponent.

As Attacker

As the attacker, the AI evaluates its current Will and uses randomization to decide between skipping, bluffing, or playing a real attack.

As Defender

- The AI continuously maintains a list of possible player Will values throughout the match.
- At the start of each decision, it calculates the expected player Will based on this list.
- If the expected Will is high enough (e.g., ≥ 3), the AI assumes the player may perform a strong attack and is more likely to use Insight or play a real defend.
- If its current Will is low, the AI may bluff or save its own resources.
- Randomized choices (50%) are introduced in several branches to make the AI less predictable and to mimic human uncertainty.

Outcome