

# Building a responsible Gambling Platform

## Problem Statement

To work towards BetTube's mission of proving a responsible and enjoyable wagering experience, the report would be discussing identifying the **"Double Wager Patter"** betting strategy. Double Wagering is an irresponsible gambling behavior where the gambler would increment his successive bet by two folds after each failed bet. This method eventually ensures a profit for the gambler.

### Double Wager pattern

Betting Amount	\$1	\$2	\$4	\$8	\$16	\$32	\$64	\$128	\$256
Outcome	Lost	Lost	Lost	Lost	Lost	Lost	Lost	Lost	Won

Total Amount spent =  $\$1 + \$2 + \$4 + \$8 + \$16 + \$32 + \$64 + \$128 + \$256 = \$511$

Total Amount won =  $\$256 \times 2 = \$512$

Profit Made =  $\$1$

Therefore, in a fair game where each outcome has a likely outcome, the gambler is guaranteed to recover his initial anticipated profit of  $\$1$ .

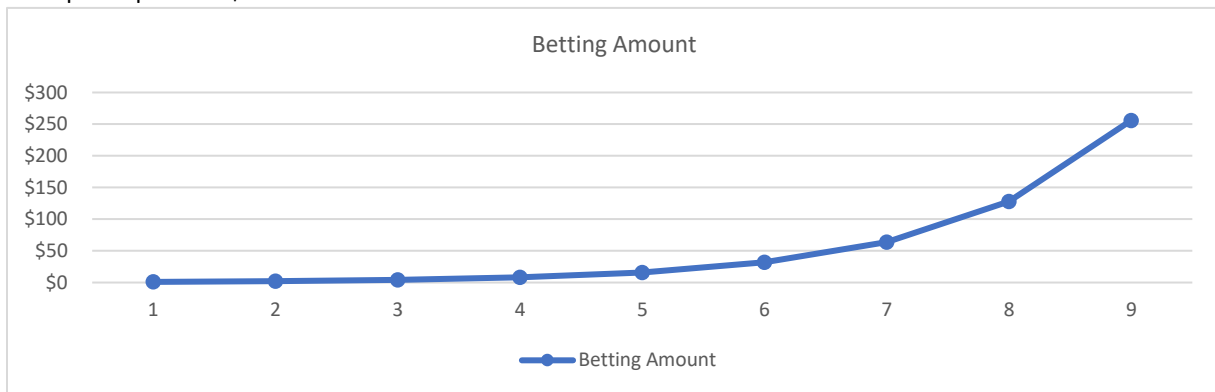


Figure 1 - Double Wagering Betting Pattern

## Double Wager Pattern Detection

Outlier detection with a pattern matching methods using the chronological betting information can be a suitable method that could help automatically flag a double wager behavior. The positive outcome for our problem is a double wager pattern.

### Intuition

The intuition behind the approach is that gamblers who exhibit double wager behavior would display similar patterns in betting. They would follow similar strategy, therefore if we could model these patterns and identify a new betting behavior that complies to this pattern, the betting behavior could be flagged as a double wager pattern.

The contrary – modelling normal betting behavior and using it to detect the double wager pattern as outliers (those that do not conform to the underlying pattern) may not be efficient, since the normal betting behavior could

be highly volatile across different gamblers and there might not be a set pattern that can confirm to a responsible behavior.

### Data Collection

The following historic data for each gambler would likely help identify Double Wagers using some detection algorithm:

Feature	Description	Comments
Date and time	Date and time the bet was placed	Date and time would help sequentially order the data to get the trends in the betting pattern.
Amount	The amount the gambler has bet	
Odds	The gambler's odds	
Game Profile Type	can be from a set of defined ordered categories. The game can be profiled into 10 different categories. For instance, a finals AFL match would have the highest value; a region club league match can have a low value.	A high-profile game would be risky to predict outcome. While a lower profile game could be easy to ensure a win.
Game Category	The type of sport. Categories involving the list of sports (like cricket, AFL, soccer, tennis, etc.) that the betting platform operates on.	Certain sports would invite a lesser frequency of gamblers and this could be a pattern worth inspecting.

### Training Data

Positive samples: A collection of chronological betting information from a gambler who had been identified as double wagerer.

### Training and classification

The model has to be trained using only positive samples to capture the underlying trends that are exhibited by double wager and perform a one-class classification model (identify new data as positive if it follows similar trends else classify as outlier – not a double wager pattern).

As shown in this figure below, the Trained Pattern trained on data that capture trends from Double Wagers as shown in Figure 1 - Double Wagering Betting Pattern. The "Sample 1" follows similar trends and therefore could be classified as complying to Double Wager Pattern, while "Sample 2", deviates from this trend and can be rejected as Not a Double Wager Pattern.

