Playable Ad Fraud Backend Development Project

Project Summary: Build a playable ad fraud backend built in Node Express that determines if a user is a real human or a click bot.

Project Description: Online users click on playable ads in browsers to interact with an advertiser's ad placement. This backend determines if the user clicking on the ad is a real person or a fraudulent bot from an ad farm.

Design Requirements:

- Build backend in JS, Node Express
- Deployable on Google Cloud Platform or Amazon Web Service

Design Details:

Clicks from an advertisement are sent to the server. The clicks are sent as one single event to the server. Each event contains multiple clicks that each have a unique timestamp of when the click took place. Using the timestamps of the clicks, determine if the user is a bot or a real user. To determine if the user is real, use the series of clicks to see if they fall within a custom algorithm you build (see info under "Custom Algorithm" below). There are numerous advertisements and each ad will have it's own fitted model based on the custom model set for determining if the user is real or a bot. To differentiate between advertisements, each advertisement will have it's own ID in the click event sent to the server.

Custom Algorithm:
Build a custom fitted algorithm for determining if a user interacting with a playable ad is real or a bot. This algorithm service must be capable of building a N-amount of playable ad models.

Each playable ad has its own independent fitted model to detect fraudulent user clicks. This detection can be spotted through (1) amounts of clicks on the playable, (2) time between clicks and (3) time from first to last click.

It's important to note that playable ads are different from one another, which means that some ads could have 5 clicks while others could have 30 clicks. The custom algorithm must be able to build a model for each.

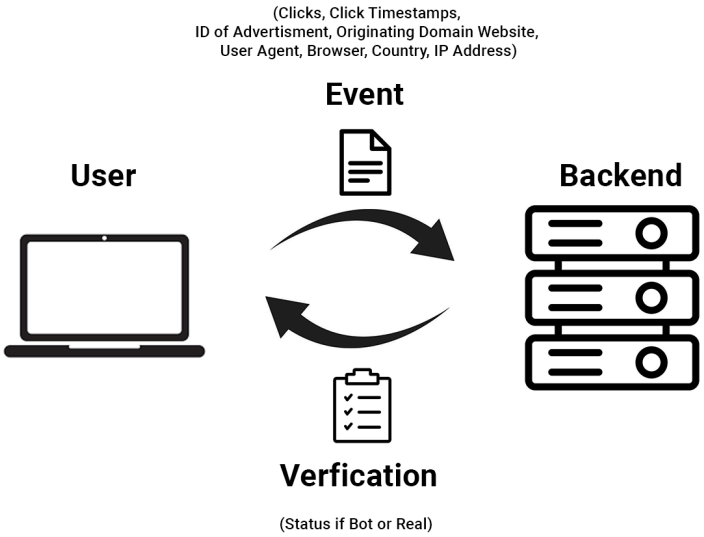
Event Structure Requirements:
You can design how the event is formed, but it must a least have the following items:

1. Series of Clicks
2. Timestamp of clicks within the event
3. Unique ID of Advertisement
4. Originating Domain Website that sent the event
5. User Agent
6. Browser

7. Country
8. IP Address

Cookies:
If the user is determined to be a real person, then set a cookie in their browser to remember that the user is real. The system should check if a cookie already exists in the browser for a user to mark them as real.

System Diagram:
See below for a simplified visual depiction of the backend system.



Project Deliverables:

- Fully Developed Backend as described in each section above
- Project Map: Diagram of how the system functions.
- Project Description Document: Complete description and definitions of the system, functionality, algorithm, etc. in a document.