**Code Documentation**

**Purpose**

This script is designed to track user interactions with a website and analyze events such as product views, chatbot usage, cart modifications, and checkout behavior. The goal is to integrate chatbot interactions for enhanced customer support and increased sales.

**Features**

1. **Product Data Handling**:
   * Scrapes and organizes product data from the website.
   * Associates each product with a unique identifier and title for easier reference.
2. **Event Tracking**:
   * Tracks various user events such as product views, chatbot interactions, cart actions, and checkout stages.
   * Captures the timestamp, customer ID, source URL, current page URL, and page title for each event.
3. **Chatbot Integration**:
   * Uses a pre-trained language model (gpt2) for generating chatbot responses.
   * Supports message exchanges between users and the chatbot.
4. **Behavior Analysis**:
   * Analyzes the sequence of events performed by users to identify patterns and improve user experience.

**Event Descriptions**

* **product\_viewed**: Triggered when a user views a product page.
* **chatbot:open**: Triggered when the chatbot is opened by the user.
* **product\_added\_to\_cart**: Triggered when a product is added to the cart.
* **product\_removed\_from\_cart**: Triggered when a product is removed from the cart.
* **message\_sent**: Triggered when the user sends a message to the chatbot.
* **message\_received**: Triggered when the chatbot responds to the user.
* **checkout\_started**: Triggered when the user begins the checkout process.
* **checkout\_completed**: Triggered when the user completes a purchase.

**Code Overview**

**1. Importing Libraries**

The script uses essential libraries such as:

* **pandas**: For managing and organizing product and event data.
* **datetime**: To handle timestamps for event tracking.
* **transformers**: To integrate a language model for chatbot functionality.

**2. Product Data Initialization**

* A list of product URLs is stored.
* Each product is assigned a unique product\_id and its title is extracted for reference.

**3. Event Data Structure**

* Sample event data is represented as a list of dictionaries.
* Each dictionary contains:
  + **Event type** (event)
  + **Timestamp** (time)
  + **User information** (customer\_id)
  + **Source URL** (href)
  + **Current page URL** (url)
  + **Page title** (title)
  + Optional: User and chatbot messages (message).

**4. Chatbot Implementation**

* The chatbot uses the gpt2 model to generate responses.
* Simulates user-chatbot interactions within the event data.

**5. Key Functionalities**

* **Event Tracking**: Allows logging and monitoring of user behavior.
* **Chatbot Interaction**: Generates intelligent responses to user queries.
* **Data Analysis**: Prepares event data for future analysis and optimization of user experience.

**How to Use**

1. **Configure Product URLs**: Replace the product\_urls list with actual product URLs from your website.
2. **Run the Script**: Execute the script to simulate or log user events and chatbot interactions.
3. **Analyze Data**: Use the logged event data for further analysis or optimization of the chatbot and user experience.