**Documentation: Shopping Assistant**

**1. Introduction**

The Shopping Assistant is a chatbot application designed to interact with users, enabling them to search for products, manage their shopping cart, proceed to checkout, and track orders. The assistant utilizes several core features, such as adding/removing products from the cart, checking out, processing payments, and providing order status updates. The chatbot interacts via a Command Line Interface (CLI).

**2. System Overview**

The Shopping Assistant consists of:

* **Tools for product searching and cart management:** This includes searching for products, adding/removing them from the cart, viewing the cart, checking out, and making payments.
* **Order tracking and delivery times:** It provides the user with updates on their order status and estimated delivery times based on their location.
* **Payment options:** The assistant allows users to choose from various payment methods like Credit/Debit cards, PayPal, and Bank Transfer.

**3. Components**

The system is divided into three main components:

* **main.py:** Handles the chatbot's main logic and state management, processing user input, and returning responses using defined tools.
* **tools.py:** Contains the core functionalities of the assistant, such as searching for products, managing the cart, and handling checkout.
* **utils.py:** Provides utility functions for error handling, event printing, and interaction management.

**4. Key Functionalities**

**Product Search:** Users can search for products based on descriptions, price range, and available stock.

**Cart Management:** Items can be added to or removed from the cart, and users can view the cart contents.

**Checkout Process:** The assistant allows users to proceed with a checkout and handle payment confirmation.

**Order Tracking:** Users can inquire about the status of their orders, which go through various stages like processing and shipping.

**Payment Options:** Displays available payment methods.

**Delivery Time Estimates:** Provides the estimated delivery time based on the user’s country.

**5. Code Overview**

**main.py:**

* Initializes the chatbot interface using functions like `interact\_with\_chatbot()`, which continuously receives user input and processes it.
* Uses the `send\_message` function to handle communication with the assistant.

**tools.py:**

* Functions to manage the shopping experience such as `search\_products()`, `add\_to\_cart()`, `remove\_from\_cart()`, and `checkout()`.
* Handles global cart state and includes functions like `view\_cart()` and `order\_status()`.

**utils.py:**

* Contains error handling (`handle\_tool\_error()`) and utility functions like `\_print\_event()` to print event messages and responses.

**6. Future Improvements**

**Extended Search Functionality:** Implement advanced filtering options like category or brand for product searches.

**Persistent Cart:** Allow users to save their cart between sessions.

**User Profile:** Implement user profiles that store past purchases and preferences for a personalized experience.