**OpenAI assistant with custom tools.txt**

**Workflow: OpenAI Assistant with custom n8n tools**

**Purpose:**  
This workflow is designed to provide an AI assistant interface that leverages OpenAI and custom n8n tools. It accepts manual chat messages, processes the input using an AI assistant, and routes the response based on specific commands. In this example, the workflow returns the capitals of fictional countries based on a pre-defined data set.

**Workflow Overview**

The workflow can be broken down into the following major sections:

1. **Input Handling**

* **On new manual Chat Message**
  + **Type:** Manual Chat Trigger
  + **Function:** This node waits for a user to manually trigger the chat input.
  + **Configuration:**
    - Activated by clicking the "Chat" button.
    - Captures the user's message and makes it available as chatInput.
* **OpenAI Assistant**
  + **Type:** OpenAI Assistant Node
  + **Function:** Processes the chat input using OpenAI, based on a pre-configured assistant ID.
  + **Input:** The user’s chat input captured by the trigger.
  + **Output:** The AI-generated response.

2. **Conditional Routing Based on Query**

* **List countries? (IF Node)**
  + **Type:** IF Node
  + **Function:** Checks the user's query to determine whether they requested a list of countries.
  + **Condition:**
    - Compares the trimmed input ($json.query) to the string "list".
  + **Outputs:**
    - If the query equals "list", the workflow will branch to return the full list of countries.
    - Otherwise, it will proceed to return a specific capital.
* **Mapping data and Mapping data1 (Code Nodes)**
  + **Type:** Code Nodes
  + **Function:** Provide static data consisting of fictional country names and their capitals.
  + **Output:**
    - The first code node (Mapping data) provides a JSON array of countries and capitals.
    - The second code node (Mapping data1) provides identical data and may be used by subsequent nodes for enriching the response.

3. **Response Generation**

* **Return country list**
  + **Type:** Set Node
  + **Function:** Returns the concatenated list of countries as the final response if the user’s query was "list".
  + **Output:**
    - A JSON object with a field response containing the list of countries (one per line).
* **Return specific capital**
  + **Type:** Set Node
  + **Function:** Returns the capital of a specific country if the user's query matches one of the country names.
  + **Configuration:**
    - If a capital is not found, it returns "Capital not found".

4. **Tool Workflow Integration**

* **Tool to call the workflow below**
  + **Type:** Tool Workflow Node
  + **Function:** Provides an interface for the AI assistant to call the entire workflow as a sub-tool.
  + **Usage:**
    - The assistant can invoke this tool by passing a command (either "list" to retrieve the country list or a specific country name to retrieve its capital).

5. **Final Execution**

* **Execute Workflow Trigger**
  + **Type:** Execute Workflow Trigger
  + **Function:** Manually triggers the workflow for testing and execution.
  + **Usage:**
    - This allows you to run the workflow in a test mode, where the user's query is processed, and the final response is generated.

**Data Flow Summary**

1. **User Input:**  
   The workflow begins when a user manually triggers a chat message using the "On new manual Chat Message" node. The user's query is captured as chatInput.
2. **AI Assistant Processing:**  
   The captured input is passed to the "OpenAI Assistant" node, which uses a pre-configured assistant to process the query and generate a response.
3. **Conditional Logic:**
   * An IF node checks if the query is "list".
   * If it is, the workflow uses static mapping data to output a list of countries.
   * If not, it attempts to find a specific capital based on the user's query.
4. **Workflow Tool Integration:**
   * The "Tool to call the workflow below" node allows the AI assistant to invoke the entire workflow as a subroutine, returning either the list of countries or a specific capital.
5. **Output:**
   * The final response is generated by either the "Return country list" node or the "Return specific capital" node, depending on the conditional check.
   * This response is sent back to the chat interface.

**Setup Instructions**

1. **Credentials Configuration:**
   * **OpenAI:** Ensure the OpenAI account credentials are correctly set up and linked with the "OpenAI Assistant" node.
   * **n8n Tools:** Verify that the custom n8n tool (for calling the workflow) is configured with the correct workflow ID and permissions.
2. **Static Data:**
   * Update the mapping data (in "Mapping data" and "Mapping data1") as needed. This static data represents fictional country names and capitals used in the response.
3. **Conditional Logic:**
   * Confirm that the IF node ("List countries?") accurately checks for the "list" keyword.
   * Ensure that the branch for a specific country returns the correct capital, or "Capital not found" if no match exists.
4. **Testing:**
   * Trigger the workflow manually using the "Execute Workflow Trigger" node.
   * Input various queries (e.g., "list" or a specific country name) to test that the correct responses are generated.
5. **Deployment:**
   * Once tested, activate the workflow to handle live user queries through the chat interface.

**Final Output**

The final output of the workflow is a JSON object with a field response containing either:

* A list of countries (if the query was "list").
* The capital of a specific country (if a matching country name was found), or an error message ("Capital not found") if not.