# **HSN CODE VALIDATOR AGENT REPORT**

* This report documents the design, code, and usage instructions for the HSN (Harmonized System of Nomenclature) code validator agent implemented in the provided collab notebook.

**CODE :**

**A screen shot of a computer program

AI-generated content may be incorrect.**

**OUTPUT :**

**A screenshot of a computer

AI-generated content may be incorrect.**

**Agent Design Explanation**

**PURPOSE :**  
The agent validates HSN codes by checking their format and their existence in a master dataset. This is crucial for GST compliance and data integrity in supply chain and accounting systems.

**DESIGN STEPS :**

* The code first installs the required google-adk package (though it is not directly used in the validation logic).
* It downloads the HSN master data as an Excel file from a Google Sheets link.
* The file is loaded into a Pandas DataFrame, and column names are stripped of whitespace for consistency.
* The agent defines a function validate\_hsn\_code(hsn\_code) which:
  + Checks if the input is numeric and of valid HSN code lengths (2, 4, 6, or 8 digits).
  + Checks if the code exists in the master data under the 'HSNCode' column.
  + Returns a validation message, including the description if the code is valid.
* Several sample codes are checked to demonstrate the validator.

**AGENT LOGIC :**

* **Format Validation :** Ensures codes are numeric and of correct length.
* **Master Data Validation :** Ensures codes exist in the official HSN list.
* **Feedback :** Provides clear messages for valid, invalid, and format errors.

**Documentation**

**FUNCTIONS :**

validate\_hsn\_code(hsn\_code):

* + **Input :** String representing an HSN code.
  + **Output :** String message indicating validity and, if valid, the description from the master data.

**DATA REQUIREMENTS :**

* Excel file with at least two columns: 'HSNCode' (code) and 'Description' (text description).

**Run Instructions**

* **Environment :**
  + Ensure Python 3.x is installed.
  + Install Jupyter Notebook or use Google Colab.
* **Dependencies :**
  + The code uses pandas and requests.
  + The notebook installs google-adk, but this is not essential for the core HSN validation.
* **Execution Steps :**
  + Open the notebook in Jupyter or Colab.
  + Run all cells sequentially.
  + The agent will download the latest master data, load it, and validate sample HSN codes.
  + To check your own codes, modify the codes\_to\_check list.