**Task: Automate product HS code classification and blacklist validation using AI**

1. **Product classification using HS codes, based on product description.**
2. **Company blacklist verification, using global sanction databases.**
3. **A natural language interface to query trade policies and compliance rules.**

Currently no open-source Large Language Models (LLMs) that have been trained specifically on export control and compliance data such as export control lists, sanctions databases, or export legal texts.

Approach

* Dataset: Collect HS codes and its description.

US ITC API/TariffNumber.com

* Pre-processing the Data with proper Format
* Embeddings with LLM model
* Use Vector store (**vector store** is a special type of database designed to store and search embeddings efficiently.)

For Company Blacklist Checker

**Data Sources**

* Use:
  + - U.S. Consolidated Screening List API
    - OFAC SDN list (JSON/CSV)
    - UN sanctions
* Store company names in MongoDB or as JSON
* Embedding Based Check

**How the System Works**

**➤ Product to HS Code Flow:**

1. Client enters product description.
2. AI model converts it into a vector (a mathematical representation).
3. The system compares this vector against a database of HS code descriptions.
4. It returns the top 3 closest HS codes.

**➤ Blacklist Check Flow:**

1. Client enters the company name.
2. The system cleans and normalizes the name.
3. Checks against all available sanction lists using:
   * Fuzzy logic
   * Embedding similarity (AI-based search)
4. If found, shows source, match name, and reason.

**➤ Regulation QA :**

1. Client uploads BIS/UN/EU regulations or uses preloaded docs.
2. AI splits and indexes the documents.
3. User asks a question in plain English.
4. AI finds the relevant paragraphs and generates an answer with source.

Use Case Example:

**Input**: “Handheld GPS navigation device with screen”  
**Output**:

* 852691: Radio navigational aid apparatus (92% match)
* 851770: Parts of telecommunication devices (84%)
* 847130: Portable automatic data-processing machines (77%)

**Input**: “ABC Technologies Ltd”  
**Output**:

* ⚠️ Blacklisted under OFAC SDN
* Match found: “ABC Technologies (P) Ltd.”
* Reason: National Security concern
* Link: OFAC Source

 Upload regulatory documents (like BIS guidelines, DGFT circulars).

 Ask natural questions like:

* “Can I export lithium batteries to Germany?”
* “What are the export rules for pharmaceuticals from India to the US?”

 Get answers directly from AI with supporting references from documents.

**1. HS Code Data Sources (Product Classification)**

US ITC Harmonized Tariff Schedule  
Link: https://hts.usitc.gov  
Notes: Searchable US HS codes with descriptions

TariffNumber.com  
Link: https://www.tariffnumber.com  
Notes: Clean interface for browsing HS codes by keyword

WCO HS System (World Customs Organization)  
Link: https://www.wcotradetools.org/en/harmonized-system  
Notes: Official global HS classification; very authoritative

EU TARIC (EU Customs)  
Link: https://ec.europa.eu/taxation\_customs/dds2/taric/taric\_consultation.jsp  
Notes: HS codes with EU-specific duties and controls

Indian DGFT / ICEGATE HS Codes  
Link: https://www.dgft.gov.in/CP/ and https://www.icegate.gov.in  
Notes: Indian product classification and trade documents

**2. Blacklist / Sanctioned Entities Data Sources**

U.S. Consolidated Screening List (CSL)  
Link: https://www.trade.gov/consolidated-screening-list  
API: https://developer.trade.gov/consolidated-screening-list.html  
Data Format: JSON, XML, CSV

OFAC Sanctions (U.S. Treasury)  
Link: https://sanctionssearch.ofac.treas.gov/  
Lists: https://home.treasury.gov/policy-issues/financial-sanctions/consolidated-sanctions-list  
Data Format: CSV

UN Security Council Sanctions List  
Link: https://www.un.org/securitycouncil/sanctions/un-sc-consolidated-list  
Data Format: XML, PDF

EU Sanctions Map  
Link: https://www.sanctionsmap.eu  
Data Format: Country-wise searchable

UK Sanctions List  
Link: https://www.gov.uk/government/publications/the-uk-sanctions-list  
Data Format: CSV

SECO (Switzerland)  
Link:

https://www.seco.admin.ch/seco/en/home/Aussenwirtschaftspolitik/Wirtschaftsbeziehungen/exportkontrollen-und-sanktionen/sanktionen-embargos.html  
Data Format: XML/CSV

**3. Export Control / Trade Regulation Documents**

BIS (U.S. Bureau of Industry and Security)  
Link: https://www.bis.doc.gov  
Type: EAR regulations, control lists

DGFT (India)  
Link: https://www.dgft.gov.in/CP/  
Type: Notifications, trade circulars

EU Export Control Regulations  
Link: https://eur-lex.europa.eu  
Type: Search EU laws and export policy

UK Export Control Unit  
Link: https://www.gov.uk/government/organisations/export-control-organisation  
Type: Policies and forms

WTO Trade Policy Documents  
Link: https://www.wto.org/english/tratop\_e/tpr\_e/tpr\_e.htm  
Type: Country-specific export rules