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AI Engineer Assessment – Medical Text Compliance Checker

Objective

You are tasked with developing a **medical compliance checker** that processes an input text and determines whether it meets **regulatory compliance standards** set by agencies such as the **FDA (US), EMA (Europe), and HSA (Singapore)**. Your system should classify an input **medical claim** as **compliant or non-compliant** based on standard industry regulations.

Problem Statement

Medical product claims must comply with regulatory standards to ensure accuracy, prevent misinformation, and protect consumers. Regulatory agencies prohibit misleading, exaggerated, or unsupported claims in medical advertising and product communication.

Your task is to **build a system** that:

- Accepts **a medical text input** (e.g., a drug claim, treatment description).
- **Checks compliance** based on regulatory requirements (choose between US FDA/EMA Europe or HSA Singapore)
- Returns a **binary classification** (Compliant or Non-Compliant).
- If Non-Compliant, provides a **brief explanation** of why.

Task Requirements

1. **Develop a compliance checker** using any suitable method:
    - **NLP-based approach** (Regex, keyword matching, rule-based filters).
    - **Machine Learning approach** (Fine-tuned BERT, GPT prompt engineering, etc.).
    - Justify your approach in your submission.
2. **Test the system** with at least **10-20 sample statements** to demonstrate effectiveness.
3. **(Optional Bonus)** Build a **simple UI/API (Flask or Streamlit)** to allow users to enter text and get compliance feedback.

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Example Inputs & Expected Outputs

Input Text	Expected Output	Explanation
"This drug guarantees 100% effectiveness in curing diabetes."	**Non-Compliant**	Absolute claims are not allowed.
"Our pain relief cream is the most advanced in the world!"	**Non-Compliant**	Superlative claims need supporting evidence.
"This supplement will prevent heart attacks."	**Non-Compliant**	Medical claims require proper disclaimers.
"Clinical studies show this knee surgery has a 95% success rate."	**Compliant**	Backed by clinical trial data.
"This treatment is better than all others available."	**Non-Compliant**	Comparative claims must be evidence-based.

Deliverables

1. **Python script or Jupyter Notebook** implementing the compliance checker.
2. **Brief write-up (max 1 page)** explaining your approach.
3. **GitHub repository link or ZIP file submission.**

Submission Guidelines

- **Deadline:** 3 days
- **Evaluation Criteria:**
    - Accuracy of classification (Compliant/Non-Compliant)
    - Efficiency and clarity of code
    - Justification of chosen approach
    - Bonus: UI/API for better usability

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