SMART INDIA HACKATHON 2025

Team Details and Problem statement

- **Problem Statement ID – SIH25026**
- **Problem Statement Title- Integrating NAMASTE & ICD-11 (TM2) into EMR/EHR Systems**
- **Theme- HealthTech**
- **PS Category- Software**
- **Team ID-**
- **Team Name - MediMinds**

MediMinds

IDEA & APPROACH DETAILS

SMART INDIA HACKATHON 2025

IDEA / SOLUTION :

Implementation of a **FHIR-Compliant Terminology Mapping Service** for unified medical coding.

◆ Lightweight **FHIR R4-compliant micro-service** built on India's 2016 EHR Standards.

◆ Seamless **mapping and translation** between NAMASTE Ayurveda and ICD-11 Biomedicine terminologies.

◆ Smart **autocomplete value-set lookup** endpoint for easy EMR integration.

◆ Secure **FHIR Bundle upload interface** to enable efficient double coding.

◆ Single API endpoint to **fetch mapped terminologies** directly within existing EMR systems.

PROBLEM RESOLUTION :

Creates a Unified Clinical System: It bridges the gap between traditional and modern medicine by automating code translation directly within a doctor's workflow, increasing both efficiency and accuracy.

Enables Nationwide Health Insights: It combines fragmented medical data into a single, reliable source, unlocking powerful analytics for national research and public health decisions.

OUR CORE INNOVATION :

India-Specific Design: Natively supports traditional Indian medicine systems like Ayurveda, Unani, and Siddha through the official NAMASTE coding, creating a truly inclusive digital health platform.

Dedicated Security Layer: Utilizes a separate API exclusively for authentication, ensuring robust, specialized protection for all sensitive patient data and building trust in the system.

MediMinds

TECHNICAL APPROACH

SMART INDIA HACKATHON 2025

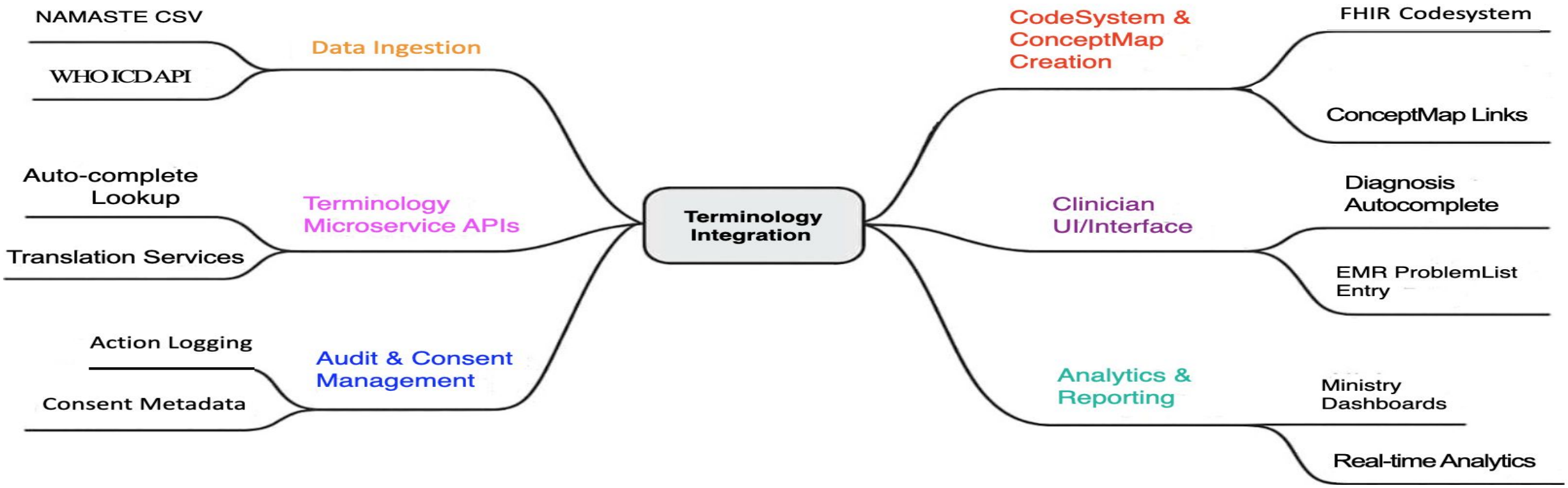
- **Programming Language:**
  - **Node.js** (Fast and scalable backend)
  - **Express** (For making API's)
- **Libraries:**
  - **FUZZ JS** (For Mapping the Data)
  - **React + Vite** (Modern and fast user interface)
- **Data Storage & Management:**
  - **PostgreSQL** (Primary database for all records)
  - **External Resources** (WHO ICD-11 API & NAMASTE data)
- **Authentication with ABHA ID:**
  - **Keycloak / OAuth2.0** (Manages secure user logins, including ABHA)

MediMinds

TECHNICAL APPROACH

SMART INDIA HACKATHON 2025

Integrating Traditional and Modern Medical Terminologies



Prototype Snapshots : https://drive.google.com/drive/folders/18C5fuuvkk5LaSsKIqx6kaR34ej3-NDLh?usp=sharing

MediMinds

FEASIBILITY AND VIABILITY

SMART INDIA HACKATHON 2025

Feasibility

Technical: Node.js, React, Vite, PostgreSQL,FUZZ and Keycloak are proven, well-documented technologies

Operational: Browser-based UI with secure, role-based access is easy for Doctors and staff.

Economic: Open-source stack reduces licensing and maintenance costs

Integration: ICD-11 and NAMASTE
APIs are accessible through standard REST endpoints

Viability

Market: Supports ABHA & ABDM by standardizing disease codes, ensuring accurate records, easy interoperability, and driving healthcare digitization.

Scalability: Modular design allows future growth, analytics, and mobile expansion.

Sustainability: Open-source technologies ensure long-term availability and no vendor lock-in.

Regulatory: FHIR and ABHA
authentication align with national & global standards.

IMPACTS AND BENEFITS

IMPACTS

Enables accurate, real-time access to patient health records for better clinical outcomes

Ensures data confidentiality and compliance through ABHA-based authentication

Streamlines workflows by automating record management and data exchange

BENEFITS

Facilitates interoperability across systems using FHIR, ICD-11, and NAMASTE standards

Reduces operational costs via open-source, standards-based technologies

Provides a scalable, future-ready platform to support analytics and advanced features

RESEARCH AND REFERENCES

1.The challenge of **mapping** between two **medical coding** systems

BE Wojcik, CR Stein, RB Devore Jr… - … **medicine**, 2006 - academic.oup.com

… **mapped** PC **codes** to **ICD**-9-CM diagnosis **codes**. The three … **coder** for each PC **code**, with one record for each **mapping** of … **mapping** between PC **codes** and **ICD**-9-CM diagnosis **codes** …

2.NAMASTE portal, data analysis, and understanding of Ayurveda **medical** records: An initial evaluation

A Rani, V Kumar, H Prasad, SS Mane… - Journal of Research …, 2024 - journals.lww.com

… Thus, it further develops ASU international terminologies and **codes** for **ICD**-11 chapter 26 Traditional **Medicine** Module 2 (TM-2). Through this portal, the Ministry of Ayush has initiated

3.**History** of the **ICD**

WS Staewen, MM Mower - Implantable cardioverter defibrillator therapy …, 1996 - Springer

TOWARDS the latter part of the 1960s, cardiac defibrillation, by external means, was considered

an effective treatment for terminating ventricular fibrillation. Elective cardioversion, using …