Track 3 – Care and Cure

1. AI-Driven Clinical Decision Support & Patient Medical Report Understanding Platform

Explanation:

Provide hospitals and healthcare providers with an AI-driven platform that bridges the gap between **clinical decision-making** and **patient understanding**. The system ingests handwritten prescriptions, lab reports, and structured EHR data to both assist clinicians at the point of care with guideline-based insights and translate complex medical reports into clear, patient-friendly explanations.

Scenario:

During short clinical consultations, doctors must interpret lab values, imaging results, prescriptions, and constantly evolving clinical guidelines while patients leave without understanding their diagnosis or treatment plan. The platform runs alongside existing EHR systems, surfacing real-time clinical alerts—such as guideline recommendations, drug–drug interactions, and risk scores—within the clinician's workflow, while simultaneously generating simplified explanations of reports and prescriptions for patient's post-visit.

Example Output:

Input:

- Handwritten prescriptions and scanned lab reports

- Structured EHR data (diagnosis codes, medications, vitals, lab values)

Output:

- "Clinical Alert: Patient on Drug A + Drug B—moderate interaction risk detected per latest guideline."

- "Risk Score Update: Cardiovascular risk elevated (18%) based on lipid panel and vitals."

- "Patient Summary Generated: 'Your blood test shows high cholesterol, which increases heart risk. The prescribed medicine helps reduce this over time.'"

- "Handwritten Prescription Parsed: Medication name, dosage, and frequency digitized and verified."

2. AI-Powered Radiology Report Automation & Quality Assurance Assistant

Explanation:
Provide hospitals and diagnostic centers with an AI-driven radiology reporting assistant that reduces reporting burden while improving diagnostic quality. The system analyzes radiology reports alongside imaging metadata to generate **structured impressions**, flag potential missed findings, and enforce standardized hospital reporting templates—supporting radiologists without replacing clinical judgment.

Scenario:
Radiologists interpret high volumes of CT, X-ray, and mammography studies under time pressure, increasing burnout and the risk of inconsistencies or missed observations. The AI assistant operates within the reporting workflow, reviewing draft reports in real time to suggest structured language, highlight discrepancies between findings and impressions, and ensure adherence to institutional and regulatory reporting standards.

Example Output:

Input:
Radiology study metadata (modality, anatomy, protocol) and draft radiology reports for CT, X-ray, and mammography exams.

Output:

- "Template Compliance Alert: Impression missing mandatory section for follow-up recommendation."

- "Potential Miss Flagged: Report mentions lung opacity but no corresponding impression statement found."

- "Structured Impression Suggested: Findings auto-mapped to standardized terminology and sections."

- "QA Summary: Report completeness score—94%; ready for final sign-off."

3. Federated Learning Platform for Seasonal & Widespread Disease Surveillance

Explanation:

Provide city and state public health authorities with a **privacy-preserving disease surveillance platform** using Federated Learning. The system enables hospitals and Primary Health Centers (PHCs) to collaboratively train outbreak detection models for **seasonal and rapidly spreading diseases** without sharing raw patient data, ensuring compliance with India's ABDM framework and DPDP Act.

Scenario:

Hospitals and PHCs independently record patient symptoms, diagnoses, lab results, and prescription trends, but data silos prevent early detection of disease clusters such as dengue, influenza, or antibiotic-resistant infections. The federated platform deploys local models within each institution, aggregates encrypted model updates centrally, and detects abnormal spatial or temporal disease patterns—alerting public health officials without exposing individual patient records.

Example Output:

Input:

- De-identified EHR summaries from hospitals and PHCs (fever cases, lab trends, prescriptions)

- Federated model updates from participating institutions across a city or district

Output:

- "Outbreak Signal Detected: Dengue-like symptom cluster rising across 3 adjacent zones over 6 days."

- "Seasonal Trend Alert: Influenza cases exceeding historical baseline by 32%."

- "Resistance Pattern Insight: Increased antibiotic non-response reported across 2 hospitals."

- "Public Health Dashboard Update: City-wide risk heatmap generated using federated model outputs."

4. Patient Experience Analytics & Automated Service Recovery Platform

Explanation:

Provide hospitals and healthcare networks with an AI-driven patient experience analytics platform that transforms fragmented feedback into actionable service improvements. The system ingests multi-channel patient feedback and applies sentiment analysis and issue clustering to identify systemic problems, automatically triggering service recovery workflows to close the loop with patients.

Scenario:

Hospitals collect feedback through surveys, reviews, call centers, and social platforms, but insights remain siloed and reactive. The platform continuously analyzes incoming feedback to detect negative sentiment patterns related to billing, nursing care, wait times, or facilities. When thresholds are crossed, automated workflows notify relevant departments, assign ownership, and track resolution—ensuring patient concerns are addressed in near real time.

Example Output:

Input:

- Patient satisfaction surveys

- Google reviews

- Call center transcripts

- Social media mentions related to hospital services

Output:

- "Sentiment Alert: Spike in negative feedback related to outpatient wait times over last 48 hours."

- "Issue Cluster Identified: Billing disputes reported by 23 patients across 2 departments."

- "Service Recovery Triggered: Case assigned to patient relations team with 24-hour SLA."

- "Experience Dashboard Update: Overall patient sentiment improved by 14% post-intervention."

5. AI-Driven Chronic Disease Management Platform for Diabetes & Cardio-Metabolic Care

Explanation:

Provide hospitals and care networks with an AI-driven chronic disease management platform designed for diabetes and cardio-metabolic patients. The system integrates lab results, prescriptions, vitals, and follow-up records to continuously risk-stratify patients, generate personalized care plans, and proactively identify individuals who require tele-consultation or in-person clinical review—reducing preventable complications and hospital overload.

Scenario:

Hospitals in South India manage large populations of diabetes and cardiac patients, many of whom deteriorate due to missed follow-ups or late intervention. The platform aggregates longitudinal patient data from OPDs, labs, and pharmacy systems to monitor disease progression. AI models identify rising risk patterns and trigger timely care actions, enabling clinicians to intervene early while managing patient loads efficiently.

Example Output:

Input:

- Longitudinal lab data (HbA1c, lipid profile, BP readings)

- Prescription history and medication adherence indicators

- Follow-up visit records and vitals

Output:

- "Patient-ID 5521 classified as High Risk: Rising HbA1c and BP trend over last 3 months."

- "Care Plan Generated: Medication adjustment, diet plan, and 2-week tele-consult scheduled."

- "Follow-Up Alert: In-person cardiology review recommended within 72 hours."

- "Population Insight: 21% of enrolled patients escalated to proactive intervention this month."

6. Agentic AI–Driven Clinical Documentation Improvement & Coding Expert System

Explanation:

Provide hospitals with a **domain-expert AI system** that enhances clinical documentation quality and medical coding accuracy using an **Agentic AI architecture**. The platform reads clinician notes, detects documentation gaps, recommends precise ICD and procedure codes, and generates structured clinical summaries—helping hospitals improve care quality scores, compliance, and reimbursement outcomes.

Scenario:

Clinicians document patient encounters under time pressure, often missing key clinical details required for accurate coding and compliance. The AI expert system deploys specialized agents—documentation agents, coding agents, and compliance agents—that collaboratively analyze clinical notes in real time. The system flags missing elements, suggests appropriate codes, and structures encounter summaries before final submission to billing and quality systems.

Example Output:

Input:

Unstructured clinician notes from OPD and inpatient encounters, including diagnoses, procedures, and progress notes.

Output:

- "Documentation Alert: Missing severity descriptor for diagnosis—recommend adding 'acute' or 'chronic'."

- "Coding Suggestion: ICD-10 code updated from I10 to I11.9 based on documented cardiac involvement."

- "Compliance Check: Procedure note lacks indication—add justification to meet audit standards."

- "Structured Summary Generated: Encounter converted into problem list, treatment plan, and discharge instructions."

7. Ambient Clinical Voice Documentation (Scribe AI) with Global Medical Standards

Explanation:

Provide hospitals with an AI-driven **ambient clinical documentation platform** that listens to doctor–patient conversations (with consent) and automatically generates **structured, template-based medical notes**. The system supports **international clinical language patterns**, including American medical slang and conversational English, and converts them into standardized, ABDM-compliant and globally recognized clinical documentation formats.

Scenario:

In high-volume OPDs, doctors spend more time typing notes than engaging with patients, leading to burnout and reduced care quality. The Scribe AI runs in the background during consultations, capturing spoken dialogue and extracting key clinical elements—diagnosis, assessment, treatment plan, and follow-up. The platform structures this information into hospital-approved templates and international medical documentation standards, allowing clinicians to review and approve notes in seconds.

Example Output:

Input:
Live doctor–patient conversation in conversational American English, including informal clinical slang.
Example input snippet:

"Looks like your sugars are still running high. Let's tweak the metformin dose and I'll see you back in two weeks."

Output:

- "SOAP Note Generated:"

    o **Subjective:** Patient reports fatigue; home glucose readings elevated.

    o **Objective:** HbA1c 8.4%, BP 138/86.

    o **Assessment:** Poorly controlled Type 2 Diabetes Mellitus.

    o **Plan:** Increase metformin to 1000 mg BID; dietary counseling; follow-up in 2 weeks.

- "Template Compliance: Hospital OPD format + ABDM clinical record structure applied."

- "Language Normalization: Informal phrase 'sugars running high' standardized to 'hyperglycemia'."

- "EHR Update Ready: Structured note auto-populated for clinician review."

8. AI-Powered Antimicrobial Resistance (AMR) Risk Prediction & Infection Control Platform

Explanation:

Provide hospitals with an AI-driven infection intelligence platform that predicts **antimicrobial resistance (AMR) risk** within hours of patient admission. The system analyzes early clinical indicators—vital signs, blood biomarkers, and prior antibiotic exposure—to guide **empiric therapy decisions** and trigger proactive infection control measures before culture reports become available.

Scenario:

Tertiary hospitals face increasing cases of drug-resistant infections, where delayed identification leads to inappropriate initial treatment and rapid in-hospital spread. The AI platform runs alongside admission workflows, continuously evaluating patient risk for resistant pathogens. High-risk cases trigger immediate alerts for clinicians and infection control teams—supporting timely isolation, cohorting, and optimized antibiotic selection.

Example Output:

Input:

- Admission vitals (temperature, heart rate, BP)

- Blood markers (CRP, procalcitonin, WBC count)

- Patient history including recent hospitalizations and antibiotic exposure

Output:

- "AMR Risk Alert: Patient-ID 4432—High probability of carbapenem-resistant infection (0.81)."

- "Therapy Guidance: Broad-spectrum empiric regimen adjusted to cover CRE risk."

- "Infection Control Triggered: Isolation protocol activated for ward B."

- "Outcome Insight: Predicted time-to-appropriate-therapy reduced by 36 hours."