BV(DU)COEP ACM STUDENT CHAPTER

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Challenge Book

Global SDG + AI Hackathon 2026

20 AI-for-SDG challenges · 6 tracks
25–27 September 2026 · Pune, India

How this works

FORMAT

Pick any one challenge below. Each entry is a self-contained brief: the problem, your mission, what a working submission needs, and where to start with data.

TIMELINE

Round-1 proposal submissions close 20 September 2026, 11:59 PM IST. Later official notices from the organising committee override this reference.

TRACKING

Use the Challenge ID (PS-01 to PS-20) consistently across your proposal, repository, slide deck and final submission.

DATA

Every challenge links a real, public dataset as a starting point. Verify its licence and privacy terms before use. Synthetic data is acceptable where the real thing is sensitive.

SCOPE

Healthcare, safety and public-sector challenges are decision-support tools, not autonomous clinical, legal, emergency-command or enforcement systems. Name your prototype's limitations in the demo.

JUDGING

Working core implementation, justified use of AI, technical quality, real-world impact and responsible design outweigh feature count.

Tracks

Healthcare & Well-being	PS-03, PS-09, PS-10, PS-11, PS-12
Education & Inclusion	PS-13, PS-14, PS-16
Agriculture & Food Systems	PS-05, PS-06
Climate, Water & Circularity	PS-02, PS-04, PS-07, PS-08
Safe & Smart Communities	PS-01, PS-17, PS-18, PS-20
Livelihoods & Clean Energy	PS-15, PS-19

PS-01 · JanRakshak: AI-Assisted Emergency Response and Resource Coordination

Track	Safe & Smart Communities
SDG Focus	SDG 11, SDG 13
Dataset	Multilingual Disaster Response Messages (Kaggle) / OpenStreetMap

THE CHALLENGE

During fires, floods, accidents, local infrastructure failures or other emergencies, information about affected people, available responders, nearby shelters, medical support and blocked routes is often fragmented across calls and messages. Build an AI-assisted coordination system that combines incident reports, location, urgency, available resources and route conditions to create a shared operational picture. The system should help authorised coordinators identify high-priority cases, avoid duplicate dispatches, recommend suitable nearby resources and update the response plan as new information arrives. The challenge is decision support and coordination, not autonomous emergency command.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Build a working web or mobile prototype that accepts simulated incident reports, classifies urgency, places incidents and resources on a map, recommends a response/resource match, and shows a live coordinator dashboard.

The minimum prototype should demonstrate at least three incident types and an auditable explanation for prioritisation.

STRETCH GOALS

multilingual voice intake, offline capture, responder ETA prediction or dynamic rerouting.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-02 · CoolRoute: Heat-Aware Safer Routing and Exposure Reduction

Track	Climate, Water & Circularity
SDG Focus	SDG 3, SDG 11, SDG 13
Dataset	NASA POWER meteorological & solar API / OpenStreetMap

THE CHALLENGE

The fastest walking, cycling or outdoor-work route is not always the safest during extreme heat. Heat exposure can change with time of day, surface temperature, shade, traffic, humidity, route duration and access to drinking water or rest points. Design an AI-assisted route planner that estimates relative heat exposure across possible routes and recommends a practical lower-risk option. The system should explain why one route is safer, update recommendations when weather changes and avoid presenting a single city-level temperature as if it represents every street.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Create a map-based prototype for one selected campus or city zone.

It should compare at least two routes using a transparent heat-risk score, display shaded/rest/water points, show the trade-off between travel time and heat exposure, and reroute when a simulated condition changes.

STRETCH GOALS

a worker-mode with rest scheduling, crowdsourced shade verification or short-term microclimate prediction.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-03 · SaansAI: Personal Air-Quality Exposure and Action Guidance

Track	Healthcare & Well-being
SDG Focus	SDG 3, SDG 11, SDG 13
Dataset	Real-Time Air Quality Index, data.gov.in / OpenAQ API

THE CHALLENGE

Air-quality alerts are usually issued for large geographic areas, while a person's actual exposure depends on route, time, local traffic, nearby emission sources and duration outdoors. Children, older adults and people with respiratory sensitivity may need more actionable information than a city-wide AQI value. Create an AI-based exposure-support system that combines local air-quality readings, weather, location and planned activity to estimate short-term exposure and suggest lower-exposure choices. The solution must communicate uncertainty clearly and must not diagnose disease or replace professional medical advice.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Develop a mobile/web prototype that ingests public or simulated air-quality data, produces a location/time-specific exposure score, compares two activity or travel options, and gives understandable protective guidance.

Include an explanation of the main risk factors and data freshness.

STRETCH GOALS

short-horizon AQI forecasting, school/worker dashboards, multilingual alerts or low-cost sensor integration.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-04 · JalRakshak: AI-Based Water Quality Anomaly Detection and Response Prioritisation

Track	Climate, Water & Circularity
SDG Focus	SDG 6, SDG 11
Dataset	Water Potability dataset (Kaggle)

THE CHALLENGE

Communities may continue using unsafe water because contamination is detected late, test results are scattered or authorities cannot quickly identify which supply point requires attention first. Design a water-quality monitoring and decision-support platform that combines parameters such as pH, turbidity, TDS, residual chlorine, conductivity and complaint patterns. The system should detect abnormal readings, estimate confidence, map affected locations and prioritise verification or response. It should distinguish between a sensor anomaly and a confirmed public-health event and avoid declaring water unsafe from a single unverified reading.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Build a dashboard prototype for multiple water points using open or synthetic sensor data.

It should flag anomalies, explain the triggering parameters, visualise risk on a map, create a verification/inspection queue and track resolution.

STRETCH GOALS

sensor-health detection, contamination-source clues, short-term quality forecasting or multilingual public alerts after authorised verification.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-05 · KisanMitra: AI Decision Support for Small-Farmer Crop Risk and Action

Track	Agriculture & Food Systems
SDG Focus	SDG 2, SDG 15
Dataset	PlantVillage crop-disease image dataset (Kaggle) / Agmarknet mandi prices, data.gov.in

THE CHALLENGE

Small farmers often receive separate advice about crop disease, weather, irrigation and market conditions, making it difficult to decide what action matters most at a particular time. Build an AI-assisted farmer support system for one clearly defined crop and region. It should combine a small set of practical inputs such as crop image, growth stage, recent weather, soil or irrigation status and local market information to identify a likely risk and recommend a limited set of evidence-based next actions. The system should state uncertainty and must not present unvalidated pesticide or medical-style claims as guaranteed advice.

YOUR MISSION: A WORKING SUBMISSION SHOULD

- Create a working prototype for one crop that supports image or structured symptom input, risk classification, weather-aware advice and a simple market or resource view.
- Demonstrate the complete farmer journey with sample data and report model/logic limitations.

STRETCH GOALS

offline regional-language support, explainable image regions, irrigation scheduling or farmer-group aggregation.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-06 · FoodBridge: Intelligent Surplus Food Rescue and Last-Mile Matching

Track	Agriculture & Food Systems
SDG Focus	SDG 2, SDG 12
Dataset	Food Waste dataset, UNEP Food Waste Index (Kaggle)

THE CHALLENGE

Restaurants, hostels, events and institutions may have safe surplus food while nearby shelters, community kitchens or verified organisations have unmet demand. The main difficulty is not only discovering surplus, but matching quantity, food type, remaining safe-use time, transport and recipient capacity quickly enough to avoid waste. Design an AI-assisted coordination platform that ranks feasible donor-recipient matches, considers perishability and travel time, and provides a transparent handover workflow. The system should not encourage unsafe redistribution and should include clear food-safety and verification controls.

YOUR MISSION: A WORKING SUBMISSION SHOULD

- Build a prototype with donor and recipient onboarding, surplus listing, need listing, time-sensitive matching, map-based pickup/drop suggestions and a completed-handover record.
- Demonstrate at least five simulated listings and explain why the selected match is preferred.

STRETCH GOALS

demand forecasting, volunteer routing, cold-chain flags or waste/impact analytics.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-07 · ReLoop: AI-Assisted Circular Economy and Responsible Material Recovery

Track	Climate, Water & Circularity
SDG Focus	SDG 11, SDG 12
Dataset	TrashNet material-classification image dataset (GitHub)

THE CHALLENGE

Reusable materials, e-waste, packaging and repairable items often enter mixed waste because households and institutions do not know the correct recovery channel, while authorised recyclers and reuse organisations lack reliable visibility into available material. Create a circular-economy platform that classifies an item or material, recommends a suitable reuse/repair/recycling pathway and matches it with a verified collection or processing option. The system should make its classification understandable, maintain chain-of-custody evidence where appropriate and avoid directing hazardous material to unverified handlers.

YOUR MISSION: A WORKING SUBMISSION SHOULD

- Develop a web/mobile prototype that accepts an image or item description, identifies the material/category, recommends the preferred recovery pathway, shows nearby approved options and records handover status.
- Demonstrate several common categories including at least one e-waste case.

STRETCH GOALS

pickup optimisation, QR traceability, repairability scoring or institutional waste analytics.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-08 · PlasticWatch: AI-GIS Detection and Prioritisation of Plastic Waste Hotspots

Track	Climate, Water & Circularity
SDG Focus	SDG 11, SDG 12, SDG 14
Dataset	TACO: Trash Annotations in Context

THE CHALLENGE

Plastic waste accumulates repeatedly near drains, riverbanks, markets, roadsides and vacant plots, yet clean-up activity is often reactive and hotspot data is not systematically maintained. Develop an AI-GIS system that uses geotagged images, citizen reports or sample aerial/street imagery to detect probable plastic-waste accumulation, cluster repeated reports and prioritise locations for verification or cleanup. The system should include confidence scores and should not treat unverified citizen images as conclusive evidence of responsibility.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Build a prototype that processes sample images/reports, classifies likely plastic-waste presence, maps detections, merges duplicate reports and ranks hotspots by severity, recurrence and proximity to sensitive locations such as drains or water bodies.

STRETCH GOALS

before/after verification, route planning for cleanup teams, trend prediction or ward-level dashboards.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-09 · MaaSuraksha: Offline-First Maternal Risk Screening and Referral Support

Track	Healthcare & Well-being
SDG Focus	SDG 3, SDG 5
Dataset	Maternal Health Risk dataset (UCI ML Repository)

THE CHALLENGE

Frontline health workers may need to identify maternal danger signs in villages with weak connectivity and limited access to specialists. Important information such as blood pressure, haemoglobin, gestational age, bleeding, severe headache, swelling or reduced fetal movement may be recorded inconsistently or escalated late. Build an offline-first decision-support tool that structures this information, applies validated red-flag logic or a carefully evaluated model, explains the risk level and supports referral coordination when connectivity becomes available. It must be positioned as support for trained workers, not an autonomous diagnostic system.

YOUR MISSION: A WORKING SUBMISSION SHOULD

- Create an Android/PWA prototype with offline case capture, multilingual or voice-assisted input, risk-level output with reasons, recommended escalation category, local secure storage and delayed synchronisation to a supervisor dashboard.

STRETCH GOALS

facility matching, transport coordination or follow-up tracking. Use synthetic cases unless appropriate de-identified open data is available.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-10 · VaxReach: AI-Powered Immunisation Gap Detection and Outreach Planning

Track	Healthcare & Well-being
SDG Focus	SDG 3, SDG 10
Dataset	UNICEF Immunization Data

THE CHALLENGE

Immunisation programmes may know overall coverage but still miss specific children or localities because of incomplete follow-up, migration, scheduling conflicts, distance or repeated missed sessions. Design a privacy-aware analytics system that uses de-identified or synthetic vaccination records, location and session information to identify likely coverage gaps and help health teams plan targeted outreach. The system should focus on prioritisation and logistics rather than making clinical decisions, and should avoid discriminatory assumptions about communities.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Build a prototype that imports sample beneficiary/session data, identifies missed or due vaccinations, generates locality-level gap maps, prioritises outreach lists and proposes a simple session or route plan.

Include fairness/coverage metrics and an audit trail for why an area was prioritised.

STRETCH GOALS

migration-aware follow-up, multilingual caregiver reminders or demand forecasting for vaccine sessions.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-11 · AMR Guard: Explainable Antimicrobial Stewardship Risk Analytics

Track	Healthcare & Well-being
SDG Focus	SDG 3
Dataset	WHO GLASS (Global AMR & Use Surveillance System) / Antimicrobial Resistance Dataset (Kaggle)

THE CHALLENGE

Antimicrobial resistance is worsened by inappropriate or poorly reviewed antibiotic use, but small hospitals and academic prototypes often lack tools that can summarise prescription patterns and highlight cases needing stewardship review. Develop an explainable analytics system that examines de-identified or synthetic prescription, diagnosis, culture/lab and duration information to flag patterns that may warrant human review. The system must not prescribe treatment, change medication or claim clinical validity without evidence; its purpose is to prioritise and explain potential stewardship concerns.

YOUR MISSION: A WORKING SUBMISSION SHOULD

- Create a dashboard that loads sample antibiotic-use data, applies transparent rules and/or a model, produces a review-priority score, explains the factors behind each flag, and shows aggregate trends by drug or ward.
- Demonstrate false-positive handling and limitations.

STRETCH GOALS

guideline retrieval with citations, resistance-trend visualisation or pharmacist review workflow.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-12 · MindBridge: AI-Assisted Student Mental Well-Being Support and Escalation

Track	Healthcare & Well-being
SDG Focus	SDG 3, SDG 4
Dataset	Student Mental Health dataset (Kaggle)

THE CHALLENGE

Students experiencing sustained stress, isolation or emotional difficulty may not know when or how to seek support, while institutions need a way to provide low-friction resources without turning normal emotions into diagnoses. Build a privacy-first well-being support system that uses voluntary check-ins or journaling signals to identify broad support needs, recommend appropriate self-help or campus resources and escalate only according to clearly defined safety rules. The design must be transparent that it is not a therapist or diagnostic tool and must minimise collection of sensitive data.

YOUR MISSION: A WORKING SUBMISSION SHOULD

- Develop a prototype with consent-based check-ins, a simple well-being trend view, explainable support categories, curated resource recommendations and a user-controlled escalation pathway.
- Demonstrate privacy settings and safe handling of high-risk language using synthetic scenarios.

STRETCH GOALS

multilingual interaction, appointment/resource availability or anonymous institutional trend analytics with strong aggregation.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-13 · ShikshaSetu: Explainable Student Success and Early-Intervention Platform

Track	Education & Inclusion
SDG Focus	SDG 4, SDG 10
Dataset	Student Performance Data Set (UCI ML Repository)

THE CHALLENGE

Schools and colleges store attendance, assessment and learning-activity data but often use it only after a student has already fallen behind. Design an AI-assisted early-intervention platform that identifies patterns of academic or engagement risk, explains the main contributing factors and recommends practical interventions for teachers or mentors. The solution must distinguish correlation from cause, avoid labelling students permanently and include fairness checks so that protected or socioeconomic characteristics are not used carelessly.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Build a working dashboard using synthetic or open student-performance data.

It should generate risk bands, show feature-level explanations, suggest at least three intervention options, allow mentor feedback and track whether risk changes over time.

STRETCH GOALS

personalised learning-resource recommendations, missing-data handling, intervention-effect analytics or student-facing progress views.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-14 · AccessAI: Accessible Campus and Public-Space Navigation Assistant

Track	Education & Inclusion
SDG Focus	SDG 10, SDG 11
Dataset	Wheelmap open wheelchair-accessibility data / OpenStreetMap

THE CHALLENGE

People with mobility, visual or other accessibility needs may reach a building or route only to discover stairs, inaccessible entrances, broken lifts or poorly described facilities. Standard maps rarely represent accessibility at the detail required for real journeys. Design an accessibility assistant that captures or consumes verified barrier information, builds a user-specific accessible route and presents guidance in a suitable modality. The system should distinguish verified data from community reports and should not assume that every user with the same disability has identical needs.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Create a prototype for one campus or public complex with an accessibility profile, mapped entrances/ramps/lifts, route generation, barrier reporting and dynamic rerouting after a simulated facility failure.

Include voice/text or high-contrast guidance.

STRETCH GOALS

image-based barrier detection, indoor navigation, crowdsourced verification or accessibility analytics for facility managers.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-15 · ShramSetu: AI Skill-to-Opportunity and Support Matching for Informal Workers

Track	Livelihoods & Clean Energy
SDG Focus	SDG 8, SDG 10
Dataset	Periodic Labour Force Survey, MoSPI

THE CHALLENGE

Informal and gig workers may have practical skills that are poorly represented by formal job portals and may also miss relevant training, certification or government-support opportunities. Build a multilingual AI-assisted matching platform that converts a worker's skills, experience, preferred location and availability into a structured profile and recommends suitable jobs, micro-gigs, training or verified schemes. The system should explain why a match was made, avoid hidden discriminatory ranking and protect personal data.

YOUR MISSION: A WORKING SUBMISSION SHOULD

- Build a mobile-first prototype with simple text/voice profile creation, skill extraction, ranked opportunity matching, explanation of match factors and a verified resource/scheme section.
- Demonstrate with synthetic workers and opportunities across at least three skill categories.

STRETCH GOALS

skill-gap recommendations, reputation/credential verification or low-connectivity offline capture.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-16 · SignBridge: AI Communication Bridge for Indian Sign Language

Track	Education & Inclusion
SDG Focus	SDG 4, SDG 10
Dataset	INCLUDE: Indian Sign Language dataset, AI4Bharat / IIT Madras (GitHub)

THE CHALLENGE

Deaf and hard-of-hearing users may face communication barriers in classrooms, service counters and everyday interactions where an Indian Sign Language interpreter is not immediately available. Build a focused AI prototype that translates a limited, clearly defined set of Indian Sign Language gestures to text/speech, or converts common spoken/text phrases into an accessible sign representation. The scope should prioritise reliable performance on a small domain rather than claiming universal sign-language translation.

YOUR MISSION: A WORKING SUBMISSION SHOULD

- Create a working prototype for one use case such as campus help desk, hospital registration or classroom interaction.
- It should support a defined vocabulary, show confidence/uncertainty, provide text output and include an evaluation on held-out samples.

STRETCH GOALS

two-way interaction, signer adaptation, low-light robustness or a sign-avatar component using a carefully validated phrase set.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-17 · Vision Zero: AI Road-Risk and Near-Miss Intelligence for Safer Streets

Track	Safe & Smart Communities
SDG Focus	SDG 3, SDG 11
Dataset	Road Accidents in India, MoRTH (data.gov.in)

THE CHALLENGE

Road-safety interventions often rely on reported crashes, which reveal dangerous locations only after harm has occurred. Near misses, speeding patterns, unsafe crossings and recurring conflict points can provide earlier evidence. Create an AI-based road-risk analytics system that uses sample traffic video, road geometry, speed or incident data to identify conflict patterns and rank locations for engineering or enforcement review. The system should protect privacy, avoid face identification and present risk as decision support rather than automatic fault assignment.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Build a prototype that processes recorded/simulated traffic data, detects vehicles/pedestrians, derives at least one near-miss or conflict indicator, maps risk hotspots and generates a transparent recommendation report.

STRETCH GOALS

short-term risk prediction, safer route suggestions, signal-timing analysis or before/after intervention comparison.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-18 · CivicFix: Intelligent Citizen Grievance Triage, Deduplication and Accountability

Track	Safe & Smart Communities
SDG Focus	SDG 11, SDG 16
Dataset	NYC 311 Service Requests dataset (Kaggle, reference model)

THE CHALLENGE

Municipal complaints about potholes, waste, streetlights, drainage and other civic issues may arrive through multiple channels, producing duplicates, vague locations and inconsistent priorities. Design an AI-assisted grievance platform that classifies incoming complaints, extracts location and issue details, groups probable duplicates, recommends priority based on transparent criteria and tracks service-level progress. AI should reduce administrative workload without silently rejecting complaints or creating opaque priority decisions.

YOUR MISSION: A WORKING SUBMISSION SHOULD

> Build a web/mobile prototype that accepts text/image complaints, classifies at least five issue types, geocodes or maps the issue, detects duplicate reports, generates an explainable priority score and displays an administrator SLA dashboard.

STRETCH GOALS

multilingual voice intake, image severity estimation, work-order routing or citizen feedback after closure.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-19 · GridSathi: AI Energy Forecasting and Smart Demand Scheduling

Track	Livelihoods & Clean Energy
SDG Focus	SDG 7, SDG 9, SDG 13
Dataset	Hourly Energy Consumption dataset (Kaggle) / Individual Household Electric Power Consumption (UCI)

THE CHALLENGE

Campuses, hostels, small facilities and microgrids may experience avoidable peak demand because major loads are scheduled without considering predicted consumption, renewable generation or tariff periods. Develop an AI-assisted energy management system that forecasts short-term demand and, where relevant, solar generation, then recommends a practical schedule for flexible loads. The system should show expected savings or peak reduction and maintain user/administrator control instead of switching critical loads autonomously.

YOUR MISSION: A WORKING SUBMISSION SHOULD

- Create a dashboard prototype using historical or synthetic load and solar data.
- It should forecast demand, identify peak periods, recommend rescheduling for at least three flexible load types, and compare baseline versus proposed energy/cost/carbon metrics.

STRETCH GOALS

battery scheduling, anomaly detection, occupancy-aware forecasting or live IoT integration.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.

PS-20 · SurakshitPath: Transparent Safe-Route Planning for Night Travel

Track	Safe & Smart Communities
SDG Focus	SDG 5, SDG 11
Dataset	Crime in India, NCRB (data.gov.in) / OpenStreetMap

THE CHALLENGE

Conventional navigation usually optimises distance or time, while a person travelling at night may also care about lighting, active public spaces, public transport, verified help points, recent incidents and road closures. Design a transparent risk-aware routing system that compares feasible routes, explains the factors that affect each score and updates the route when local conditions change. The design must avoid permanently labelling neighbourhoods as “unsafe” from biased or sparse incident data and should give users control over the trade-off between safety factors and travel time.

YOUR MISSION: A WORKING SUBMISSION SHOULD

Build a map-based web/mobile prototype for a defined area.

It should calculate a multi-factor route score, compare at least two routes, explain the main factors, support a simulated real-time condition change and trigger an optional safety check for an unexpected stop/deviation.

STRETCH GOALS

verified crowd reports, trusted-contact sharing, multimodal guidance or time-of-night calibration.

SUGGESTED STACK

Web/mobile application, AI/ML models, a mapping or dashboard interface, and open APIs as appropriate to the problem.