**DevKraft: DevChef 2025 Problem Statements**

**1. Adaptive STEM Learning Platform**

**Challenge:** Create an AI-powered web or mobile application that revolutionizes STEM education for students in grades 6-12 through personalized learning experiences.

**Technical Requirements:**

* Build an intelligent assessment system using machine learning to identify learning gaps
* Develop adaptive content delivery that adjusts difficulty based on student performance
* Implement a collaborative learning environment with peer-to-peer problem-solving
* Create visualization tools to track progress and mastery of concepts

**Core Deliverables:**

* User authentication and profile system with learning style assessment
* Initial diagnostic test engine with real-time feedback
* Personal learning path generator with at least 3 STEM subjects
* Performance analytics dashboard showing mastery levels and improvement areas
* Collaborative challenge platform with gamification elements

**Success Metrics:**

* Accurate diagnosis of learning gaps with specific skill recommendations
* Smooth difficulty progression adapted to individual learning pace
* Clear visualization of student progress and achievement
* Functional peer collaboration features
* Intuitive UX/UI suitable for teenage students

**2. Micro-Entrepreneur Financial Empowerment App**

**Challenge:** Develop a mobile app that transforms financial access for micro-entrepreneurs in emerging markets through alternative credit scoring and business intelligence.

**Technical Requirements:**

* Create an alternative credit scoring algorithm using non-traditional data points
* Build real-time expense tracking and categorization features
* Implement predictive cash flow modeling with visualization
* Develop a simplified loan application and matching system
* Design interactive financial education modules

**Core Deliverables:**

* User profile with financial behavior analysis
* Expense and income tracking dashboard with categorization
* Cash flow prediction tool with at least 30-day forecasting
* Business intelligence module with local market trends
* Gamified financial literacy modules with scenario-based learning

**Success Metrics:**

* Accurate alternative credit score generation
* Intuitive expense tracking and categorization
* Practical business insights relevant to micro-entrepreneurs
* Engaging financial education modules with high completion rates
* Secure data handling with user privacy protections

**3. Smart Farming Intelligence Platform**

**Challenge:** Build a data-driven mobile application that helps small-scale farmers optimize crop management and productivity using predictive analytics.

**Technical Requirements:**

* Integrate satellite imagery and weather data APIs
* Implement machine learning for crop health analysis and yield prediction
* Create resource optimization algorithms for water and fertilizer usage
* Develop a market intelligence system with price forecasting
* Build a knowledge-sharing community feature

**Core Deliverables:**

* User profile with farm location and crop selection
* Weather and climate impact forecasting with 7-day predictions
* Crop health monitoring with disease early warning system
* Resource management dashboard with optimization recommendations
* Market price tracker and forecasting tool
* Community forum for knowledge exchange

**Success Metrics:**

* Accurate weather and climate predictions
* Practical resource optimization recommendations
* Reliable crop disease identification
* Up-to-date market pricing information
* Intuitive interface accessible to farmers with limited technical expertise

**4. Community Health Monitoring Platform**

**Challenge:** Create a telemedicine application connecting patients in underserved regions with healthcare support through AI-powered diagnostics and remote consultations.

**Technical Requirements:**

* Develop an AI symptom checker with preliminary diagnosis capabilities
* Build secure patient record management system
* Implement teleconsultation scheduling and video conferencing
* Create medication tracking and reminder system
* Design health trend visualization tools

**Core Deliverables:**

* User authentication with secure health profile
* Symptom assessment tool with risk factor analysis
* Medication management with adherence tracking
* Teleconsultation booking system with calendar integration
* Health metrics dashboard with progress visualization
* Local health resource directory

**Success Metrics:**

* Accurate preliminary health assessments
* Secure and HIPAA-compliant data handling
* Reliable teleconsultation connection
* Effective medication adherence tracking
* Intuitive interface for users of all technical abilities
* Practical health insights and recommendations