# 📋 TruthLens Hackathon PRD (Reality-Focused Draft)

## 1️⃣ Project Scope (Hackathon MVP)

TruthLens is an **AI-powered misinformation detection platform** designed for India’s national security context.  
The MVP will focus on **Text Analysis first**, then expand to **Image/URL pipelines**, and finally add the **Educational Engine** (our differentiator).

### MVP Goal

* **Detect misinformation in text** using AI + fact-check sources.
* **Provide verdicts with confidence scores**.
* **Educate the user** with simple lessons after analysis.

## 2️⃣ Core MVP Features (Hackathon Feasible)

### Phase 1: Text Analysis (Primary Focus)

* Input: text (copied/pasted claims, forwards).
* Processing:
  + Language detection (Translate API).
  + Claim understanding (Gemini API).
  + Fact verification (Google Fact Check API).
  + Basic Aggregator:
    - If Fact Check result exists → take verdict.
    - Else → fallback to Gemini explanation.
* Output:
  + Verdict (True/False/Inconclusive).
  + Confidence Score.
  + Sources (Fact Check/Wikipedia).

### Phase 2: Image/URL Analysis (Secondary Priority)

**Option A → Image Pipeline (slightly harder)**  
- Input: image (screenshot, meme).  
- Processing:  
- Vision API (OCR text extraction, basic manipulation detection).  
- Run OCR’d text through **Text pipeline**.  
- Output:  
- Verdict on text inside image.  
- Flag if possible manipulation detected.

**Option B → URL Pipeline (slightly easier)**  
- Input: link.  
- Processing:  
- Safe Browsing API (malware/phishing check).  
- Scrape article body.  
- Run content through **Text pipeline**.  
- Output:  
- Verdict + Confidence.  
- Domain trust score.

👉 Suggestion: Start with **URL pipeline after text**, because integration is easier. Do **image pipeline if time allows**.

### Phase 3: Education Layer (Differentiator)

* Triggered after verdict.
* MVP Education:
  + 3–4 hardcoded modules (Health, Politics, Scam, Media Literacy).
  + “Why it’s false” (from Gemini + trusted sources).
  + “Learn More” section (short tips).
  + One **quiz question** per module.
* Post-Hackathon: Expand modules, real-time source pulling, gamification.

## 3️⃣ APIs to Use (Free + Feasible)

* **Gemini API** → Core text understanding.
* **Google Fact Check API** → Fact verification.
* **Translate API** → Hindi/English support.
* **Safe Browsing API** → URL checks.
* **Vision API (OCR only)** → Image text extraction.
* **Perspective API (optional)** → Flag toxic content.
* **Wikipedia API (optional)** → Trusted source lookup.

## 4️⃣ Aggregation Engine (MVP)

Keep it **simple for hackathon**:

**Logic:**  
- If Fact Check API finds verdict → use it.  
- Else → fallback to Gemini analysis (inconclusive with explanation).  
- Confidence Score:  
- Fact Check hit → 90–100%.  
- Gemini-only → 60–75%.  
- No data → Inconclusive (40–50%).

## 5️⃣ User Flow (Simplified)

1. User lands on Home page.
2. Submits text (Phase 1).
3. Backend processes via Text Pipeline.
4. Results page → shows:
   * Verdict + Confidence.
   * Evidence summary.
   * “Learn More” (Education Module).
5. User can → Save to Archive | Report to Authority (basic form).
6. If time permits → Add URL/Image inputs.

## 6️⃣ Hackathon Timeline (Reality-Focused)

**Day 1–2 → Text Pipeline (core)**  
- FastAPI endpoints.  
- Gemini + Fact Check integration.  
- Aggregation engine (basic).  
- Frontend: Home + Results page.

**Day 3–4 → URL Pipeline (secondary)**  
- Safe Browsing integration.  
- Scrape content → run through text pipeline.  
- Frontend: Add URL option.

**Day 4–5 → Education Layer (differentiator)**  
- Hardcode 3–4 modules in Firestore.  
- Learn Page + Quiz section.  
- Hook into Results page.

**Day 6 → Polish & Demo**  
- End-to-end testing.  
- Deploy on Cloud Run + Firebase.  
- Record 3-min video.  
- Final submission (PPT, video, prototype link, GitHub).

## 7️⃣ Host Alignment

* **Technical Merit (40%)** → Show working AI pipelines (Gemini + Fact Check + Safe Browsing).
* **User Experience (10%)** → Simple UI, clean design, Hindi/English toggle.
* **Cause Alignment (15%)** → Frame around **national security**.
* **Innovation (20%)** → Highlight **education layer** as key differentiator.
* **Feasibility (15%)** → Show future roadmap but keep MVP small + functional.

# 🎯 Reality-Focused Summary

* **Focus first on text pipeline** (don’t over-engineer).
* **Add URL pipeline next** (easier than image for hackathon).
* **Build Education Layer as the differentiator** (even simple static modules are enough).
* Deliverables = PRD, Prototype, Demo Video, Deployment.