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BrahmaX 1.0

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- **Theme - CYBER**
- **Problem Statement Title - Create A Dark Web Monitoring System**
- **Team ID - 32395993**
- **Team Name - Pratishtha**



→ Solution Overview

- ◆ **Dark Web Scraping** : Automated dark web browsing agent for data collection across multiple pages.
- ◆ **DDoS Protection Bypass** : Ensures continuous access to dark web sites by overcoming security measures designed to block automated traffic.
- ◆ **AI - Classification** : Stores collected data, dynamically classifies it in real-time through an AI agent, and matches leaked credentials for processing and risk assessment.
- ◆ **Automated Email Notification** : Sends alerts for critical issues, ensuring immediate awareness and timely response.
- ◆ **Geo Heatmap & Threat Correlation Engine** : Visualizes dark web activity and correlates data to identify threat patterns.
- ◆ **Severity Visualizer & Prioritizer** : AI-powered color coding ranks threats by risk to guide swift, effective response.

→ Problem - Solving

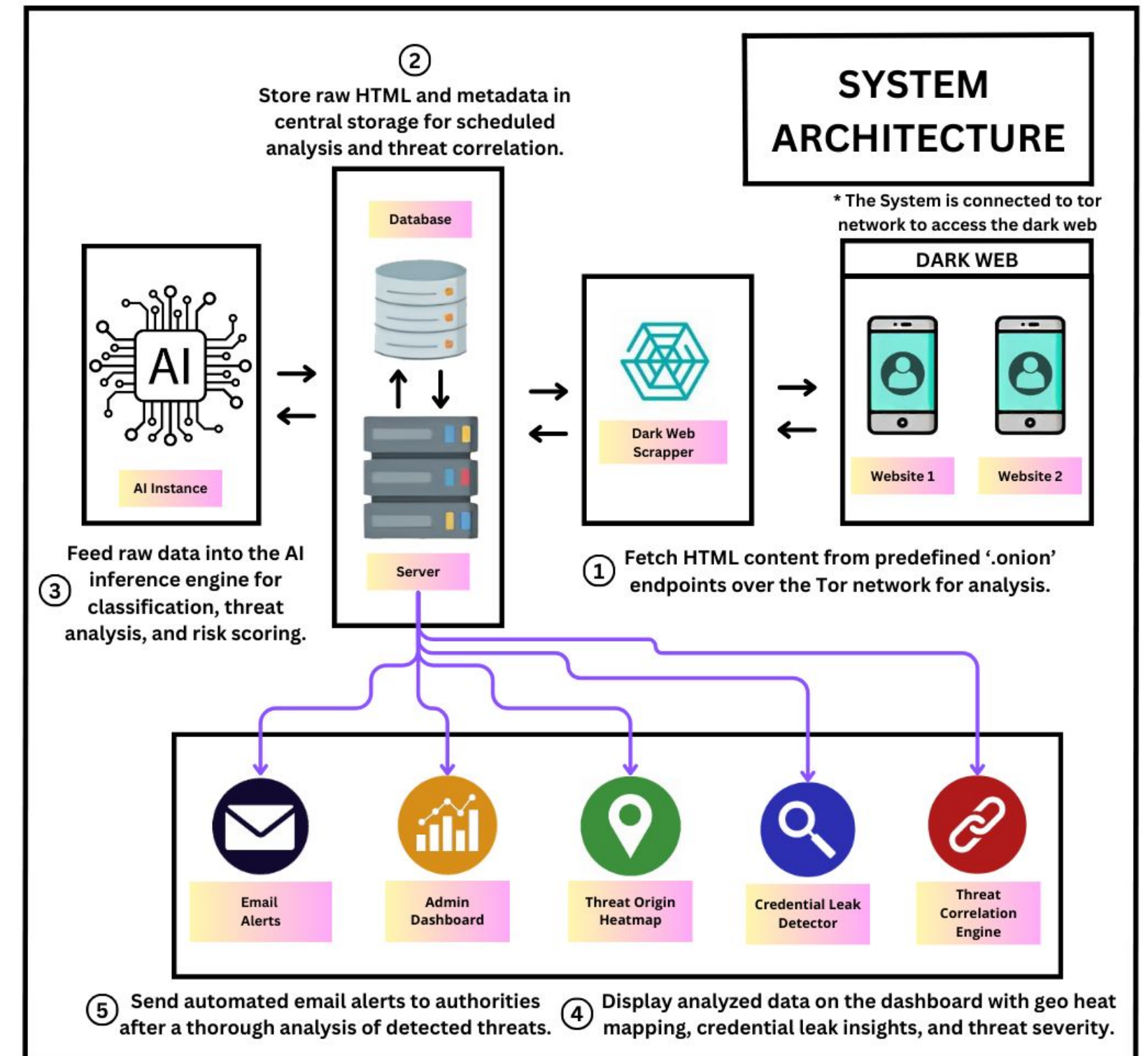
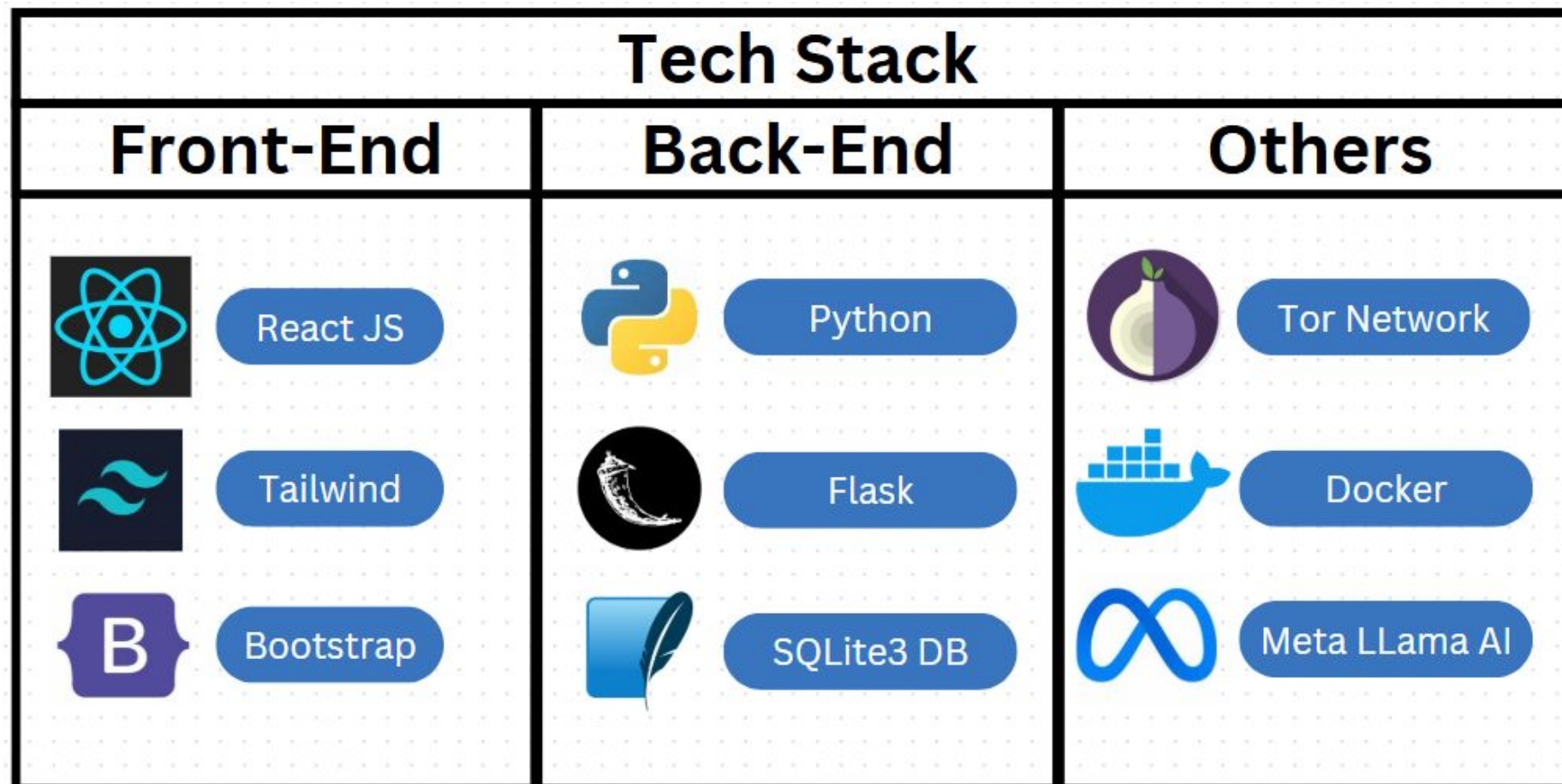
- ◆ **Integrated Platform**: Unifies dark web data collection, processing, and analysis in one resilient system.
- ◆ **AI-Powered Detection**: Specialized crawlers gather data, fed directly to our AI for intelligent threat identification.

→ Innovation:

- ◆ **Cost-Efficient Architecture**: Designed for low-cost deployment without sacrificing performance.
- ◆ **Ultra-Low Latency**: Real-time analysis powered by locally hosted AI — no cloud delay.
- ◆ **Intelligent Threat Correlation**: Automatically links related dark web activities, users, and data to reveal hidden connections.



- **Backend** : Core technologies are **Flask** and **Docker** and **SQLite** database.
- **Frontend** : **React JS** and **Tailwind** will be used to make beautiful User Interface for the website.
- **Hosting** : Local or AWS EC2
- **AI** : Meta LLama 3.2 - 3b Custom Instruct Model





→ Feasibility

- ◆ Uses web scraping libraries, Tor protocols, and pre-trained NLP models for efficient scraping and Adaptive Content Classification.
- ◆ Flask enables rapid development, secure architecture, and easy API integration.
- ◆ Deploying in the cloud with GPU support will incur a cost of ₹15,000 per month.
- ◆ Locally deployed, it remains free with no API or infrastructure costs.

Cost Comparision

AWS	+	ChatGPT API	=	₹20,000 / mo
AWS	+	Gemini API	=	₹18,000 / mo
Local	+	Local LLM	=	₹0 / mo
GCP	+	Local LLM	=	₹15,000 / mo

→ Challenges & Risks

- ◆ Dark web sites often employ CAPTCHAs, JavaScript challenges, or require logins, complicating automated scraping.
- ◆ Dark web marketplaces and forums constantly change names, domains, or branding to evade detection and shutdowns.
- ◆ Cyber criminals sometimes hide messages or data dumps within images using steganography, avoiding detection.

→ Mitigation Strategies

- ◆ Automated dark web agent with headless browsing, steganography detection, human - assisted CAPTCHA solving, and adaptive link traversal.



→ Target Audience Impact

- ◆ Supports cyber security agencies, government bodies, and law enforcement.
- ◆ Delivers real-time, actionable insights for quick decision-making.
- ◆ Empowers non-technical users through a user-friendly dashboard.

→ Social, Economic & Environmental Impact

- ◆ Reduces cybercrime-related losses for individuals and businesses.
- ◆ Helps protect national security and citizen privacy.
- ◆ Encourages digital tracking and reporting, reducing paper-based operations.

→ Long-Term Value

- ◆ Easily scalable across regions and languages.
- ◆ Modular architecture allows future feature integration.
- ◆ AI model can evolve to detect emerging threat types.
- ◆ Maps cybercrime origins for better global response.
- ◆ Can be expanded to mobile, browser extensions, or APIs.

→ Proactive Threat Intelligence

- ◆ Real-time monitoring helps prevent attacks before damage occurs.
- ◆ Risk scoring prioritizes critical threats for faster action.
- ◆ Enables pattern recognition for long-term trend analysis.



- <https://media.blackhat.com/us-13/US-13-Nixon-Denying-Service-to-DDOS-Protection-Services-WP.pdf>
- <https://pypi.org/project/selenium-recaptcha-solver/>
- <https://www.ibm.com/think/topics/threat-intelligence>
- <https://drive.google.com/file/d/1bLHND9UmYAc-NAgTxGG-KhXWF0or07ww/view?usp=sharing>
- <https://flask.palletsprojects.com/en/stable/>
- Frontend Demo Till now : <https://joshi-labs.github.io/darknet/>