

## **WEB APPLICATION DEVELOPMENT**

### **Finalization of Requirements**

- Draft Feature Set (authentication, input forms, OSINT modules, reports, dashboard)
- Define Tech Stack (React, Node.js, PostgreSQL, Python)
- Verify Requirements with Faculty Advisor and End-Users (cybersecurity analysts)

### **UI/UX Design**

- Develop Wireframes (dashboard, input forms, login pages)
- Design UI for Report Viewer (to view PDF previews)
- Establish Brand Imaging Protocol
- Conduct Design Reviews with Interns and Faculty Advisor

### **Front-End Development**

- Install React Environment (using CDN: cdn.jsdelivr.net)
- Implement Authentication UI (OAuth-based login)
- Build Input Forms (for domain, email, phone number)
- Construct Dashboard Components (report status, history table)
- Style with Tailwind CSS

### **Back-End Development**

- Install Node.js Server with Express
- Implement Authentication API (OAuth/JWT)
- Design Task Scheduler for OSINT Queries
- Install PostgreSQL Database for Report Storage Table
- Develop API to Generate and Download Reports

### **OSINT Modules**

- Domain and Subdomain Module
  - Integrate WHOIS API (Python whois library)

- Implement Subdomain Enumeration (Sublist3r, crt.sh)
- Neighboring IP Scanner Module
  - Integrate Shodan/Censys APIs
  - Scout IP Neighbors and Open Ports
- Exposed Files Finder Module
  - Implement Google Dorking Queries (GHDB)
  - Scan for .bak, .sql, .cer files
- GitHub Leak Detector Module
  - Integrate Trufflehog/Gitleaks
  - Query GitHub via API to Find Sensitive Data
- Credential Leaks Module
  - Embed HaveIBeenPwned/Dehashed APIs
  - Check Credential Exposures
- Email Harvesting Module
  - Integrate theHarvester/Hunter.io
  - Pull Email Data Using Regex and APIs
- Username Enumeration Module
  - Install Sherlock/WhatsMyName
  - Cross-link Usernames
- Metadata Extraction Module
  - Utilize ExifTool for Images/PDFs
  - Extract EXIF data and Timestamps
- Optional Phone Number Recon Module
  - Research Phone Number APIs (if available)
  - Implement Basic Phone Number Validation with Regex

## **Report Generation**

- Develop JSON to HTML Mapping Logic for Report Structure
- Apply HTML-to-PDF Conversion (pdfkit/weasyprint)
- Implement AES-256 Encryption for PDF Reports
- Design Report Download Button with Authentication
- Design Report Template (branded uniform formatting)

## **Testing and Debugging**

- Conduct Unit Testing of OSINT Modules
- Perform Integration Testing (frontend-backend)
- Eliminate Bugs and Improve Performance (e.g., report generation under 5 minutes)

## **Deployment and Handover**

- Deploy Locally or on Cloud (AWS EC2)
- Produce Deployment Documentation
- Create Project Demo Video
- Commit Final Code to GitHub Repository
- Hand Over Deliverables to Faculty Advisor and End-Users