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Project: **Semester 4**

ThreatIQ – Phishing Detection Chatbot

Summary Report of Accomplished Tasks:

This report provides an overview of the tasks completed for the ThreatIQ project and indicates where the corresponding work can be found in the submission.

1. Backend Development

- **Authentication System** o Implemented JWT-based authentication with user roles (admin, user).

    - o Location: app/routers/auth.py, app/models.py.

- **Analysis Pipeline**

    - o Built the /analyze/ endpoint to process user inputs and detect phishing vs.
      safe messages.

    - o Integrated multiple heuristic checks and AI-powered results. o Location: app/routers/analyze.py, app/heuristics.py.

- **Data Persistence** o Implemented SQLAlchemy models for User and Analysis. o Analysis history stored with timestamps, linked to users.

    - o Location: app/models.py, app/database.py.

- **Statistics API**

    - o Created /stats/judgments endpoint for pie chart data (Safe vs Phishing vs Other).

    - o Provides aggregated analysis counts for frontend charts.

    - o Location: app/routers/stats.py.

- **Seeding Script**

    - o Added seed_data.py to generate dummy analyses for testing dashboard charts.

o Location: app/seed_data.py.

2. Frontend Development • **Authentication & Routing**

    o Next.js pages for login, dashboard, analyze, history, settings.

    o Location: frontend/src/pages/*.

• **Analyze Page (Chat Interface)**

    o Built a conversational interface for analyzing user text. o Includes structured bot responses (judgment, explanation, tips). o Bug fixes: input clears after send, "Analyzing…" message added.

    o Location: frontend/src/app/analyze/page.tsx.

• **Dashboard** o Integrated charts for activity insights:

        ☐ **Line Chart**: analyses per day.

        ☐ **Bar Chart**: monthly analyses.

        ☐ **Pie Chart**: judgment breakdown. o Location: frontend/src/app/dashboard/page.tsx, frontend/src/components/charts/*.

3. Testing & Debugging

- Verified seeded data connects to the correct user (ID=2).

- Debugged pie chart showing only "Other" → fixed parsing logic in backend & frontend.

- Resolved frontend input persistence bug.

- Confirmed endpoints respond correctly (/analyze/, /analyze/history, /stats/judgments).

4. Documentation

- Added README.md with project overview, features, and usage instructions.

- Created detailed deliverables (Parts A–F) explaining design decisions.

- Prepared GenAI-log.docx documenting where generative AI was used (less than 30% of total work).

Conclusion

All major project requirements have been met:

- Authentication

- Analysis pipeline

- Dashboard with charts

- Seeding and statistics

- Frontend interaction

The work is fully functional and tested, with clear documentation for review.