COMP39/9900 Computer Science/IT Capstone Project
School of Computer Science and Engineering, UNSW

Project Number: P39

Project Title: EcoM Platform for the FinTech Industry

Project Clients: Prof. Fethi, Mingqin Yu, Dr. Basem Suleiman.

Project Specializations: Software development; Web application development; Big data analytics and visualization.

Number of groups: 5

Main contact: Mingqin Yu

Background:

The EcoM platform is designed to assist corporations and investors in ESG (Environmental, Social, Governance) reporting and metrics management. The platform aligns with global initiatives such as the Paris Agreement, UNEP FI, IFRS, and TCFD, providing tools for sustainable investing.

Requirements and Scope:

The EcoM project aims to develop a comprehensive web application with a robust API and a user-friendly front-end interface. The application will enable users to manage and analyze ESG data, select ESG frameworks, adjust metrics' weights, and generate detailed reports.

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Key Features and API Requirements

1. **Single Mode**

Functionality: Users can choose one industry and one company from a database including S&P 500 and ASX 200 companies, like CommBank and Westpac.

API Needs: Endpoint to fetch industries and companies. Endpoint to retrieve ESG data for a selected company. Secure access to data with authentication and authorization mechanisms.

Front-End Requirements: User interface for selecting industries and companies. Display of ESG data for the selected company.

2. **Comparison Mode**

Functionality: Allows comparison of multiple companies across various industries.

API Needs: Endpoint to fetch comparison data for selected companies. Endpoint to calculate and return comparative metrics. Efficient data querying and processing.

Front-End Requirements: Interface for selecting multiple companies and industries. Visualization tools for comparing ESG metrics.

3. **Select Framework**

Functionality: Users can choose or customize ESG frameworks (e.g., IFRS S1, IFRS S2, TCFD, TNFD, APRA-CPG).

API Needs: Endpoint to list available frameworks and their details. Endpoint to customize and save user-defined frameworks. Data validation for metric consistency and accuracy.

Front-End Requirements: Interface for selecting and customizing ESG frameworks. Display of framework details and metrics.

4. **Subjective Weighting**

Functionality: Users can assign weights to categories and metrics and visualize details.

API Needs: Endpoint to submit and retrieve user-defined weights. Data processing to apply weights and calculate weighted scores. Endpoint for visualization data.

Front-End Requirements: Interface for assigning weights to metrics. Visualization of weighted metrics and scores.

5. **Download Report**

Functionality: Users can download comprehensive ESG reports.

API Needs: Endpoint to generate and export reports in various formats (PDF, Excel). Integration with reporting tools and libraries. Endpoint to handle user-specific report preferences and templates.

Front-End Requirements: Interface for generating and downloading reports. Customizable report templates.

6. **Chat Feature**

Functionality: Integration with ChatGPT API for a chatbot interface.

API Needs: Endpoint to handle chat queries and responses. Secure integration with OpenAI's ChatGPT API. Logging and monitoring for user interactions.

Front-End Requirements: Chatbot interface for user queries. Display of chatbot responses and interactions.

Innovative Features

1.**Real-time ESG Score Updates**

Functionality: Provides live updates on ESG scores based on the latest data.

API Needs: WebSocket or long-polling endpoints for real-time data push.

Front-End Requirements: Interface for displaying real-time updates and notifications.

2. **Predictive Analytics**

Functionality: Uses machine learning to predict future ESG scores and trends.

API Needs: Endpoints to handle ML model training, predictions, and result retrieval.

Front-End Requirements: Visualization tools for displaying predictive analytics.

Database and Data Sources

The project will use the Clarity AI ESG Risk—Raw Data on Corporations database from EUROFIDAI, covering 105 metrics in environmental, social, and governance domains.

Required Knowledge and skills:

Software Development/Engineering, Web Application Development, Big Data Analytics and Visualization.

Expected outcomes/deliverables:

Source Code: Documented codebase and a recorded demo.

Documentation: Comprehensive project documentation, including requirements, architecture, design, workflows, data models, and user guides.

Challenges: Section detailing encountered challenges and solutions.

Supervision:

Mingqin Yu

Additional resources:

Previous supporting resources and feedback are available.

Teams can join ESG Teams | General | Microsoft Teams for collaboration.

By choosing this project, you will receive support and feedback from the client and agree to share your work with the client while adhering to confidentiality requirements, including not sharing any work publicly without permission.