# ESGgpt

Team: AIML-Explorers

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AI companion for creating ESG indexes and prediction with eco friendly touch

In today's rapidly evolving business landscape, where sustainability and corporate responsibility are becoming increasingly crucial, the ability to effectively assess and monitor Environmental, Social, and Governance (ESG) factors is paramount.

Investors, stakeholders, and regulators alike are demanding greater transparency and accountability from organizations regarding their ESG performance. This heightened focus on ESG has created a pressing need for innovative solutions that can streamline the process of extracting, analyzing, and reporting ESG metrics.
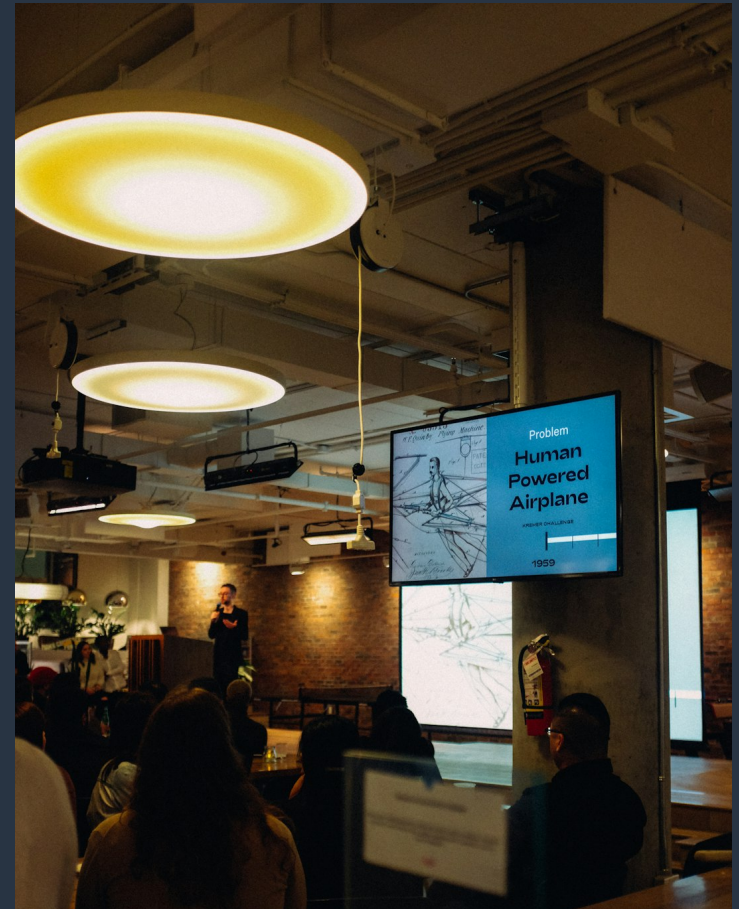
# Purpose and Scope

Introducing the AI Companion for Creating ESG Indexes and Predictions, a cutting-edge application that harnesses the power of artificial intelligence and cloud computing to revolutionize the way organizations manage and leverage their ESG data. This application empowers businesses to unlock the true potential of their ESG initiatives, driving sustainable growth, enhancing brand reputation, and fostering a more responsible and ethical corporate culture.

# Technical Design



ESG Survey Automation Conceptual Overview Diagram
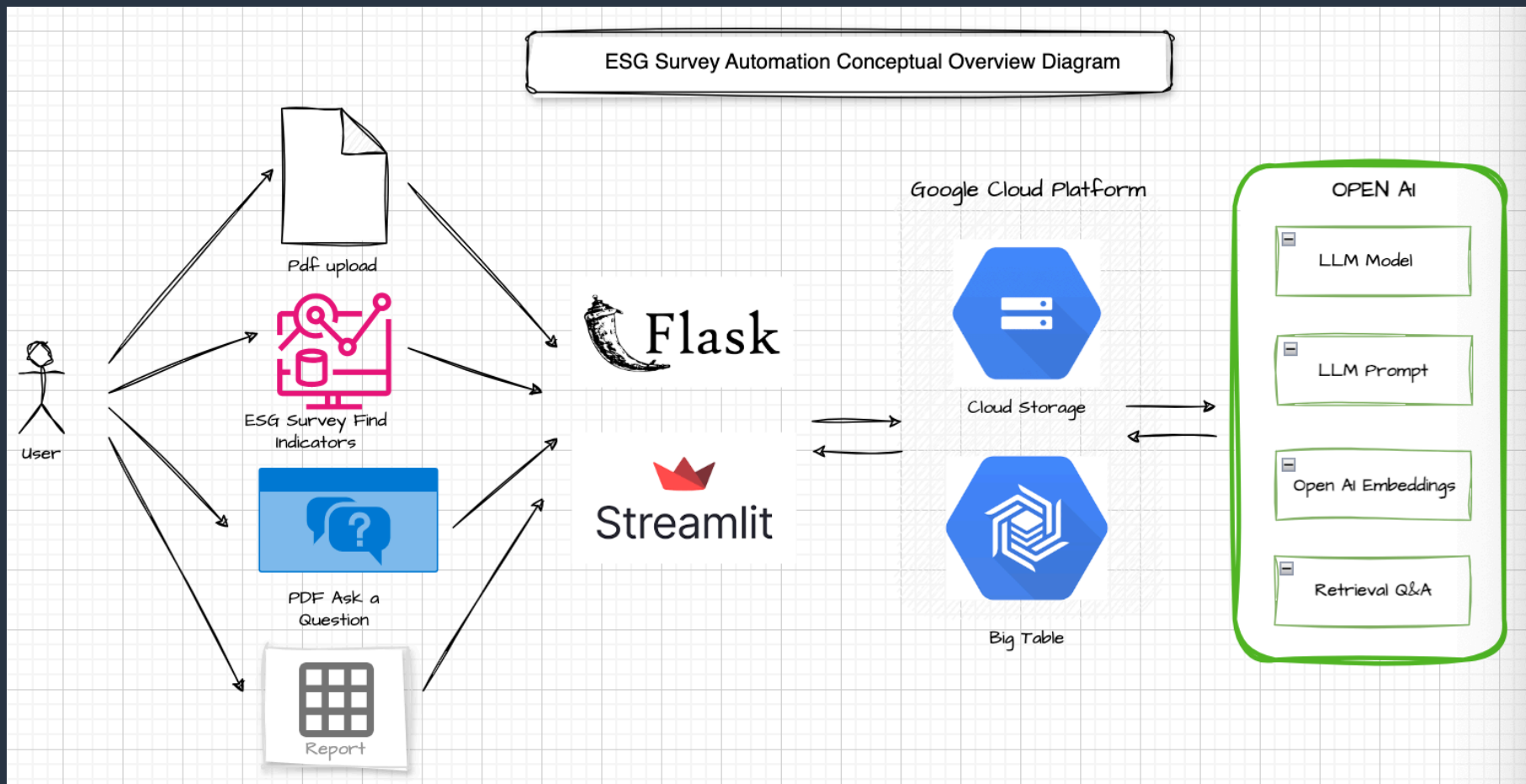
# Technical Components Explained

- **User Interface:** This is where users interact with the application by uploading PDFs, searching for metrics, and using the chat function.
- **Flask application (main.py):** This is the backend web application that handles user requests, interacts with other services, and orchestrates the workflow.
- **Streamlit application (webpage.py):** This component builds the user interface using Streamlit and allows users to interact with the application.
- **OpenAI API (pdf_open_ai.py):** This module interacts with the OpenAI API to extract ESG metrics from the PDF content using GPT-4.
- **Parse PDF (parse_pdf.py):** This module extracts text from uploaded PDFs using the PyPDF2 library.
- **Google Cloud Storage:** This cloud storage service stores the uploaded PDFs and the extracted text from the PDFs.
- **Google Cloud Bigtable:** This NoSQL database stores the extracted ESG metrics.

# Overall Testing Coverage - CI readiness

Coverage report: 87%

coverage.py v7.4.4, created at 2024-03-17 19:20 -0400

| Module | statements | missing | excluded | coverage |
|---|---|---|---|---|
| src\__init__.py | 0 | 0 | 0 | 100% |
| src\gcp_services.py | 49 | 6 | 0 | 88% |
| src\main.py | 69 | 10 | 0 | 86% |
| src\parse_pdf.py | 42 | 6 | 0 | 86% |
| src\pdf_open_ai.py | 42 | 4 | 0 | 90% |
| **Total** | **202** | **26** | **0** | **87%** |

coverage.py v7.4.4, created at 2024-03-17 19:20 -0400

# Key Design Considerations

**Cloud-based Infrastructure:** The application leverages Google Cloud Platform (GCP) for storage and Bigtable for data persistence. This provides scalability, reliability, and manageability benefits.
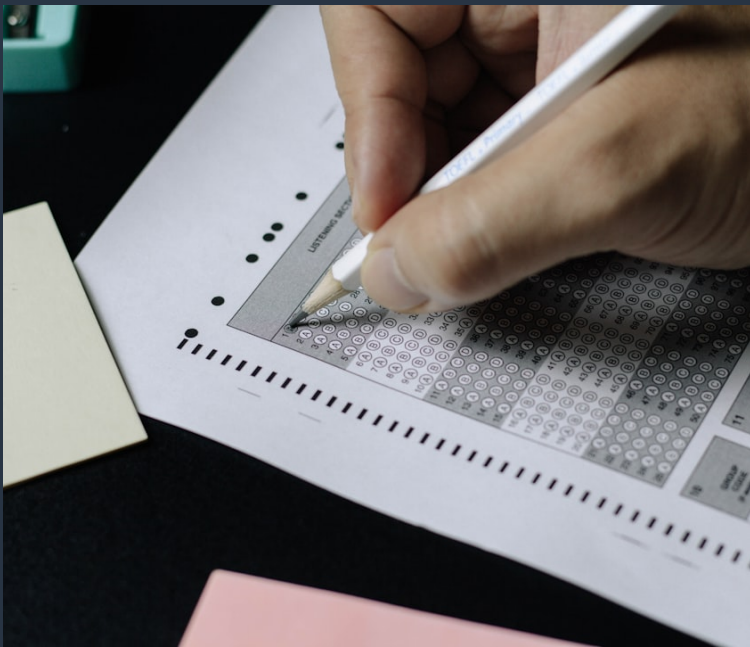
**OpenAI Integration:** The application utilizes OpenAI's GPT-4 language model, a powerful tool for extracting ESG metrics from complex PDF documents.

**User-friendly Interface:** Stream-lit allows for creating an interactive user interface where users can upload PDFs, search for metrics, and interact with the extracted content using a chat function.

**Focus on Data:** The design prioritizes data by separating data storage from the application logic. This makes data management and potential future migrations of the core application logic easier.

**Prototype Assumption-Security Consideration:** As this is a prototype, user authentication and authorization are not implemented. This is a design assumption to prioritize core functionalities during the development phase. However, for a production-ready application, robust user authentication and access control mechanisms will be essential to ensure data security and privacy.

# Benefits and Value to business



- Regulatory Compliance and Reporting: By maintaining a comprehensive repository of ESG data, organizations can streamline their compliance efforts and generate accurate and timely reports, meeting the increasing demands of regulatory bodies and stakeholders.

- Predictive Analytics and Forecasting: Leveraging the cutting-edge capabilities of OpenAI's language models, the application can provide valuable insights and predictions related to future ESG trends and potential risks, empowering organizations to proactively adapt their strategies.

- Eco-friendly Approach: By automating the extraction and analysis of ESG data, the application minimizes the need for resource-intensive manual processes, contributing to a more sustainable and environmentally conscious approach to ESG management.

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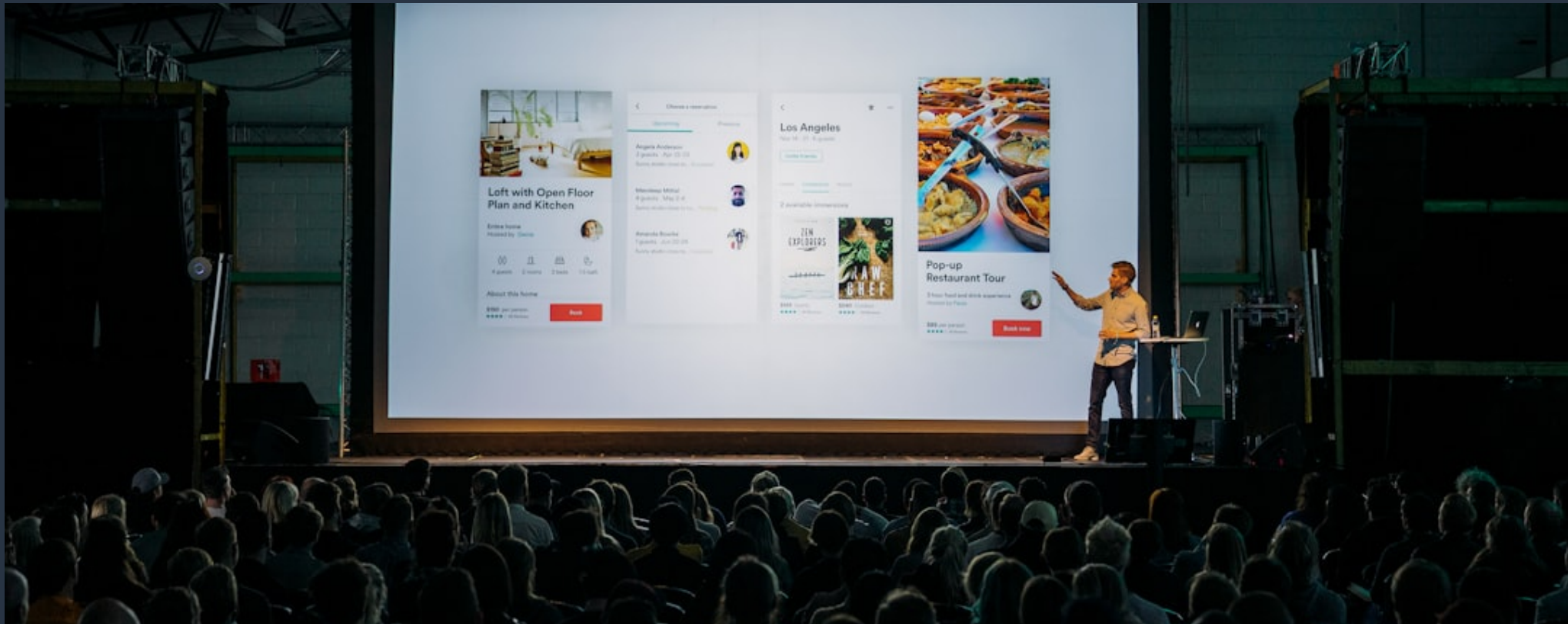
# Go-to-Market Strategy



- Targeted Advertising and Outreach: Implementing targeted advertising campaigns and direct outreach efforts can effectively raise awareness about the application's capabilities and benefits among key decision-makers within target organizations.

- Proof of Concept and Pilot Programs: Offering pilot programs or proof-of-concept deployments can provide potential customers with hands-on experience and tangible results, increasing their confidence in the application's ability to meet their ESG management needs.

- Continuous Innovation and Adaptation: Regularly updating the application with the latest advancements in AI, cloud computing, and ESG best practices will ensure that it remains at the forefront of the industry, fostering long-term customer loyalty and adoption.

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[Demo](Demo)