# Dependency Analysis of flask\_app.py

## Core Web Framework

The `flask\_app.py` file demonstrates a well-structured Flask web application. Flask serves as the central web framework, providing routing, templating, and HTTP response handling for the graduate school data analysis interface.

## Database Integration

psycopg functions as the PostgreSQL database adapter. It enables secure database connections and parameterized SQL queries, which are critical for preventing SQL injection attacks.

## Local Modules

The application imports three critical local modules:

* config.py – Provides centralized database configuration management.
* query\_data.py – Contains the GradCafeQueryAnalyzer class, which executes analytical queries.
* load\_data.py – Provides the GradCafeDataLoader class for data ingestion operations.

## Standard Library Dependencies

Several Python standard library modules support system integration:

* os – Handles file system interactions.
* subprocess – Executes background data pipeline processes.
* threading – Manages concurrent operations.
* datetime – Provides time and date management for scheduling and data handling.

## Architectural Overview

The dependency graph reveals a clean separation of concerns. The flask\_app.py file acts as the main orchestrator, coordinating between:

* The web interface,
* Database operations,
* Data processing components.

This modular architecture ensures maintainability and enables independent testing of each component, while presenting a unified web-based interface for the Grad Café data analysis system.