Architectural Description of the Language Learning Platform

Overview

This document outlines the architecture of a web-based language learning application designed to provide a user-friendly interface for users to manage their vocabulary and track their progress. The platform allows users to log in, sign up, and interact with their personalized learning environment across various devices.

Components

User Interface (UI)

- **Base Template (base.html):** Serves as the foundational layout for all other pages, incorporating Bootstrap CSS for styling, navigation setup, and scripts for interactivity.
- **Home Page (home2.html):** Displays a welcoming interface with functionality for adding and managing vocabulary.
- **Login Page (login.html):** Provides user authentication capabilities.
- **Sign Up Page (sign_up.html):** Facilitates new user registration with fields for email, name, and password.

Backend Logic

- **Authentication Handling (auth.py):** Manages user login, registration, and session management.
- **Database Models (models.py):** Defines schemas for storing user and vocabulary data.
- **View Controllers (views.py):** Manages application logic for responding to HTTP requests and rendering templates.

Technologies Used

- HTML/CSS for page structure and styling.
- Bootstrap for responsive design elements.
- JavaScript for dynamic content updates and interactivity.

- Python (Flask) as the backend framework.
- SQLAlchemy for database interactions.

Workflow

1. **User Registration:** Handles secure user sign-up and data management.
2. **User Login:** Securely manages user sessions and authentication.
3. **Vocabulary Management:** Allows users to add, view, and manage vocabulary interactively.
4. **Progress Tracking:** (Implied) Tracks and displays user progress in learning activities.

Security Features

- Secure handling of user authentication and session management.
- Input validation to prevent SQL injection and XSS vulnerabilities.

Future Enhancements

- Enhancements for optimizing mobile user experiences.
- Implementation of progress analytics for detailed learning insights.