Sign-Sync

Coding Standards Document (Demo 2)

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General Conventions

- **Language Use**
    - Backend: Python 3.10+ (FastAPI)
    - Frontend: JavaScript/TypeScript (React)
    - Styling: Tailwind CSS for consistent UI layout
- **File Naming**
    - Python files: snake_case.py
    - React components: PascalCase.js
    - CSS/tailwind files: component-name.module.css
- **Variable Naming**
    - Python: snake_case for variables/functions, CamelCase for classes
    - React/JS: camelCase for variables, PascalCase for components
- **Commenting**
    - Inline comments only where necessary
    - JSDoc-style comments for complex frontend logic

Linting and Formatting Tools

To maintain consistent code quality and style across the project, we use automated linting and formatting tools. These tools are enforced via GitHub Actions using Super-Linter.

Tools Configuration

- **JavaScript/TypeScript (React)**
  - **ESLint**:
    - Primary linter for JS/TS code.
    - Configured via `.eslintrc.js` (project-specific rules).
    - Catches syntax errors, anti-patterns, and enforces code style.

- **Python**
  - **Flake8**:
    - Default linter for Python (enforces PEP 8 style guide).
    - Checks for syntax errors, undefined names, and style violations.
  - **Pylint** (Optional):
    - Provides deeper static analysis (e.g., code complexity, unused variables).
  - **Black** (Optional):
    - Opinionated code formatter (enable if adopted).

GitHub Actions Setup

The following standards are enforced on every `push`:

```
VALIDATE_ALL_CODEBASE: false  # Only lint changed files

VALIDATE_JAVASCRIPT_ES: true  # ESLint for React

VALIDATE_PYTHON_FLAKE8: true  # Flake8 for Python

VALIDATE_PYTHON_PYLINT: true  # Optional

VALIDATE_PYTHON_BLACK: false  # Enable if using Black
```

Requirements

- **Local Setup**:
  - Developers should install and run these tools locally before pushing: bash

```
# JavaScript/TS

npm run lint  # Runs ESLint

# Python

flake8 .      # Runs Flake8
```

- **IDE Integration**:
  - Configure your editor to use these tools (e.g., ESLint plugin for VSCode, Flake8 for PyCharm).

- **Pre-commit Hooks** (Recommended):
  - Add tools like `pre-commit` to auto-lint before commits.

Repository Structure

```
/Sign-Sync
├── frontend/
│   ├── public/
│   └── src/
│       ├── components/
│       ├── pages/
│       ├── assets/
│       ├── index.css
│       ├── index.js
│       └── app.js
│
├── backend/
│   ├── name-services/
│   └── tests/
│
├── .babelrc
├── jest.setup.js
├── package-lock.json
├── package.json
├── postcss.config.js
├──tailwind.config.js
├──webpack.config.js
├── .gitignore
└── README.md
```

Git and Branching Strategy

Repository Type: Monorepo

This project follows a monorepo structure, where all components are maintained in a single repository.

Git Branching Strategy

This repository follows a structured branching strategy (Git-Flow):

- **main** - The stable production-ready branch
- **develop** - Integration branch for ongoing development work
- **feature/frontend/*** - Short-lived branches for individual frontend features.
- **feature/backend/*** - Short-lived branches for individual backend features.
- **release/*** - Temporary branches for final testing before production.
- **hotfix/*** - Emergency branches for critical production bug fixes.

Git Organization and Management

- Changes are introduced through feature branches and merged into main via pull requests
- Code reviews are performed before merging
- Releases follow semantic versioning (release/v1.0, release/v1.1, etc.)
- Branch naming follows a consistent pattern for easy identification (feature/, bugfix/, release/)
- Temporary test branches like Tracking_Test are used for isolated testing
- Branches are regularly updated to stay in sync with main, as shown by the "Behind/Ahead" metrics

Additional Practices

- Avoid deeply nested logic (>2 levels of indentation)
- Keep functions under 50 lines where possible
- One component per file for React
- Use `.env` files to store configuration secrets