Spheron YAML Generator - Hackathon Project Documentation

Team Information

Team Name: Coldplay Rookies
Team Leader: Aaradhya Kesarwani (brokesari100@gmail.com) – Madan Mohan Malviya University of Technology, Gorakhpur
Team Member: Atharva Raj Sinha (sinhaatharva@gmail.com) - Graphic Era Hill University, Bhimtal

Project Overview

The Spheron YAML Generator is a web-based tool designed to simplify the creation and validation of YAML configurations for Spheron's Infrastructure Composition Language (ICL). The project leverages NLP to interpret natural language prompts and generate corresponding YAML configurations.

Key Features

- Interactive UI for user-friendly YAML generation
- NLP-based parsing of user input
- Automated validation of YAML configurations
- Supports essential configuration parameters such as service, port, CPU, memory, and replicas

Installation and Setup

Frontend Setup

The frontend runs locally using Live Server.

1. Open the frontend folder.
2. Use a Live Server extension (such as the one in VS Code) to serve the files.

Backend Setup

1. **Uncomment Hugging Face API Credentials:**

- o   Navigate to `backend/utils/huggingface.py`.
  - o   Uncomment the token and URL for the Hugging Face API.
2. **Create a Virtual Environment:**
   - o   **Windows:**
   - o   `python -m venv venv`
   - o   **Linux/macOS:**
   - o   `python3 -m venv venv`
3. **Activate the Virtual Environment:**
   - o   **Windows:**
   - o   `venv\Scripts\activate`
   - o   **Linux/macOS:**
   - o   `source venv/bin/activate`
4. **Install Dependencies:**
5. `pip install -r requirements.txt`
6. **Run the Backend:**
7. `uvicorn main:app --reload`

Usage

1. Start both the frontend (via Live Server) and the backend (via `uvicorn`).
2. Enter a natural language prompt describing the desired configuration.
3. The system will generate a YAML configuration specifying:
   - o   Service
   - o   Port
   - o   CPU allocation
   - o   Memory allocation
   - o   Number of replicas

Hackathon Details

This project was developed as part of a hackathon to simplify the creation and management of YAML configurations for Spheron's ICL. By leveraging NLP, the tool enhances accessibility and efficiency in defining infrastructure configurations, reducing manual YAML writing efforts.

Repository

[GitHub Repository](#)