Run Guild for tuning model

This project is located under the path lab3/, which is a performance tuning experimental system with multi-algorithm comparison.

Environmental preparation

Make sure you have the following dependencies installed:

pip install -r requirements.txt

Description of the project directory structure

lab3/

├── datasets/ # System Configuration Performance Data (CSV)

├── search_results/ # Results output directory after running algorithms (automatically generated)

├── visualization_results/ # Visual Image Output Directory (automatic generation)

├── main_bestconfig.py # Term by Term perturbation method (BestConfig)

├── main_decisiontree.py # Decision Tree Optimization

├── main_flash_cart.py # Flash Optimization

├── main_bayes.py # Bayesian Optimization

├── main_ga.py # Genetic Algorithm

├── main.py # Bayes + Genetic algorithm combination

├── visualize_search_results.py # Visual Line Chart Drawing Script

├── requirements.txt # Project dependency file

How do you run each optimization algorithm

Each algorithm can be run separately, with the following command (using Flash as an example) :

python main_flash.py

When run, it will:

Automatically reads all CSV datasets in datasets/

Generate the corresponding search record file in search_results/ (for example: 7z_search_results.csv)

Other scripts can be run in turn to complete a system-wide search for all algorithms.

How do I generate visualizations

After all algorithms have been run, execute the following command to generate search line charts for all systems:

python visualize_search_results.py

How saved images

All images will be saved in the visualization_results/ folder, named in the following format:

Search_Results_Visualization_for_7z.png

Search_Results_Visualization_for_apache.png