Replication Instructions for Experimental Results

Dylan Williams
Student ID: 2521133

1. Environment Setup

- Ensure Python 3.8 or newer is installed.

- Install dependencies:

```
pip install -r requirements.txt
```

2. Data Preparation

- Ensure all dataset CSV files are placed in:

```
datasets/
```

- Each dataset should include valid configuration columns and a performance metric in the last column.

3. Replicating Random Search Results

- Run:

```
python testRS.py
```

- Outputs:
  - Raw run data: `RS_RawRunData/`
  - Summary: `RS_RawRunData/RS_summary_statistics.csv`

4. Replicating Genetic Algorithm (GA) Results

- Run:

```
python testGA.py
```

- Outputs:
  - Raw run data: GA_RawRunData/
  - Summary: GA_RawRunData/GA_summary_statistics.csv

5. Performing Statistical Analysis

- Run the Welch's t-test script:

```
python t-test.py
```

- Output: Welch_ttest_results.csv containing p-values, significance, and summary stats.

Expected Outputs

- RS_summary_statistics.csv and GA_summary_statistics.csv

- Welch_ttest_results.csv

- Raw per-run CSVs for each system in RS_RawRunData/ and GA_RawRunData/