Sorting Algorithms Analysis

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1 Introduction

This report provides instructions on how to run the C++ code to generate performance data and visualize the results using Gnuplot.

2 Sorting Code

The sorting algorithms are implemented in a C++ program. The source code can be found in the file `sorting.cpp`.

3 Compiling and Running

To compile and run the C++ code, follow these steps:

```
$ g++ -o sorting sorting.cpp
$ ./sorting
```

This will generate the performance data in the file `results.dat`.

4 Plotting Results

The results can be visualized using Gnuplot. The Gnuplot script is provided in the file `linegraph.gnu`. To generate the line graph, execute the following command:

```
$ gnuplot linegraph.gnu
```

This will create a PNG file named `line_graph.png`.

5 Running the Bash Script

To automate the process, a Bash script named `sort_and_plot.sh` is provided. To run the script and generate the graph in one step, execute the following commands:

```
$ chmod +x run_sort_and_plot.sh
$ ./sort_and_plot.sh
```

This will compile the C++ code, run it, execute the Gnuplot script, and generate the graph of comparison.