**A Simple Micro-Benchmarking in PYTHON**

Angel Rosin Daplas

Central Mindanao University

San Miguel, Maramag, Bukidnon

+63 9079586385

s.daplas.angel@cmu.edu.ph

3rd Author

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**ABSTRACT**

In this paper, we present a simple Python-based micro-benchmarking experiment, focusing on measuring code performance across various devices. Our study implements a quicksort algorithm, measuring execution times under different hardware specifications to observe the performance impact. We explore the influence of factors such as CPU and memory on benchmark results.

**CCS Concepts**

• **Computing methodologies ➝ Machine learning ➝ Machine learning performance** • **Hardware ➝ Mobile and wearable devices ➝ Mobile device benchmarking** • **Software and its engineering➝ Software performance ➝ Micro-benchmarking techniques**.

**Keywords**

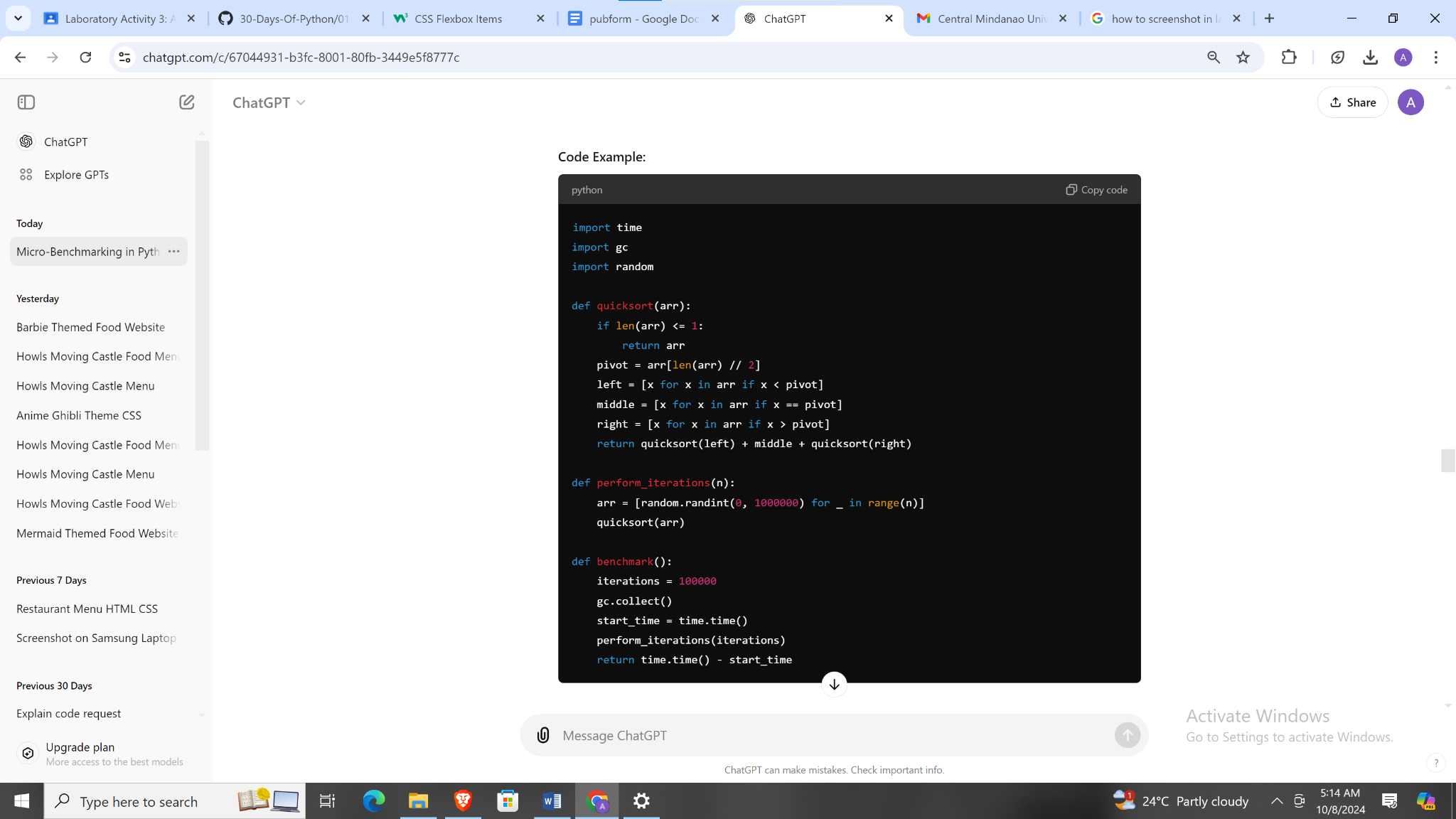
Micro-benchmarking; Python; Performance evaluation; Quicksort; Cross-device comparison.

# INTRODUCTION

Micro-benchmarking provides a means to measure the performance of specific code blocks, particularly useful in identifying bottlenecks and optimization opportunities. This paper explores how a Python quicksort implementation performs across different systems by measuring runtime under various hardware conditions. By running a consistent sorting workload, we can observe the impact of device specifications on the algorithm's execution time.

## 2. MICRO-BENCHMARK PROGRAM

The program used for this benchmark performs quicksort on an array of integers. To minimize garbage collection interference, gc.collect() is called before each run. Execution times were averaged over five runs on each device, reducing variability.

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**Table 1. Benchmark Results for Samsung Desktop**

|  | **Run** | **Elapsed Time** |  |
| --- | --- | --- | --- |
|  |  | 0.69  0.64  0.64  0.60  0.66  0.65 |  |
|  |  | Similar |  |

**Table 1. Benchmark Results for Samsung Desktop**

| **Run** | **Elapsed Time (s)** |
| --- | --- |
| 1 | 0.69 |
| 2 | 0.64 |
| 3 | 0.64 |
| 4 | 0.60 |
| 5 | 0.66 |
| **Average** | **0.65** |

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# ACKNOWLEDGMENTS

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