CS2053 - Computer Architecture

Department of Computer Science and Engineering - University of Moratuwa

Assignment: Performance Benchmarking

Learning Outcomes:

After completing this assignment, you will be able to:

- Get hands-on experience using various benchmarking tools and methodologies to assess the performance of computer systems.
- Analyze benchmarking results and identify performance bottlenecks or issues
- Compare and contrast benchmarking results from different hardware configurations or software setups.

This assignment is a group activity. Form groups of 5 students in the Moodle activity

Activity

Choose three freely available benchmarking tools and test them on at least three devices of the same category (Laptops, Desktops or Mobile phones). Using the results, perform the following tasks given below and prepare a presentation from your findings.

To evaluate your performance, you will need to submit a report, deliver a live presentation (10-15mins) and a Q & A session (10 mins)

Deadlines: Report: 27th October 11.59pm
Presentation and Viva: 28th October 2024

Tasks

1. Describe the measures of performance used in each benchmark.
2. After conducting the benchmarks, compare the results for each device. Choose which device has the best overall performance with justifications.
3. Compare your benchmark results with publicly available benchmarks.
4. Compare the cost of devices and describe which device can give the best performance for the cost. Justify your choice with some application categories such as gaming, content creation, etc.

Notes

- Some freely available benchmarking tools are mentioned below. You are free to use any other tools as well.
    - Geekbench - All OSes
    - Antutu benchmark - All OSes
    - Passmark - Android / iOS, Linux / macOS (not free for Windows)
    - Cinebench - Windows/Mac

    - 3DMark - Windows / Android / iOS
- Make sure to describe the operating system and a complete system specification including CPU, GPU, memory, disk, and battery life performance measures in your report.
- You can also compare your results with publicly available benchmark results from websites like AnandTech, and Tom's Hardware, or user reviews from websites like Amazon. Make sure to include the references.
- Make sure to provide evidence for the costs of different devices you wish to use.
- Which of the devices you've benchmarked has the best price/performance ratio?

Submission guidelines

- A presentation of the benchmark analysis must be submitted. Make sure to complete all the tasks mentioned above and include them.
- Include the contribution and index number of each member of the group.

Evaluation Criteria

- Quality of the Report - 10%
- Quality of the Presentation - 10%
- Q & A - 10%
- Content - 70%
    - Selecting benchmarks and evaluation criteria - 10%
    - Device selection and specification - 5%
    - Description of the experiments - 10%
    - Results/ Findings - 20%
    - Analysis - 20%
    - Additional Experiments/Insights and Recommendations - 5%