Operating Systems LAB-1
Analysis of Image Processing Performance

Mubarakpur Keerthi CS22BT032/220010032
N Sowmya CS22BT036/220010036
Choudari Harshitha Reddy CS22BT015/220010015

10th August 2024

Objective

The goal of this experiment is to measure the performance of an image sharpening application across different input image sizes. The experiment tracks the time taken in five distinct phases: file read, S1 (smoothen), S2 (find details), S3 (sharpen), and file write. Each experiment is repeated five times to compute average timings.

Results

Image	File Read (s)	S1 (Smoothen)	S2 (Find Details)	S3 (Sharpen)	File Write
1.ppm	0.004509	0.007899	0.003206	0.002935	0.002202
2.ppm	0.011139	0.025083	0.011691	0.014074	0.005271
3.ppm	0.021303	0.043837	0.017062	0.019742	0.009661
4.ppm	0.035978	0.087956	0.032927	0.049406	0.020810
5.ppm	0.057054	0.115388	0.051277	0.062252	0.026062
6.ppm	0.114253	0.257857	0.106181	0.123457	0.056840
7.ppm	0.399068	0.840185	0.617584	0.659614	0.397286

Table 1: Average Time (in seconds) for Each Phase Across Different Images

Analysis

Increasing Image Size

The time for all phases (file read, S1, S2, S3, file write) increases as the image size increases. This is expected as larger images contain more data that needs to be processed.

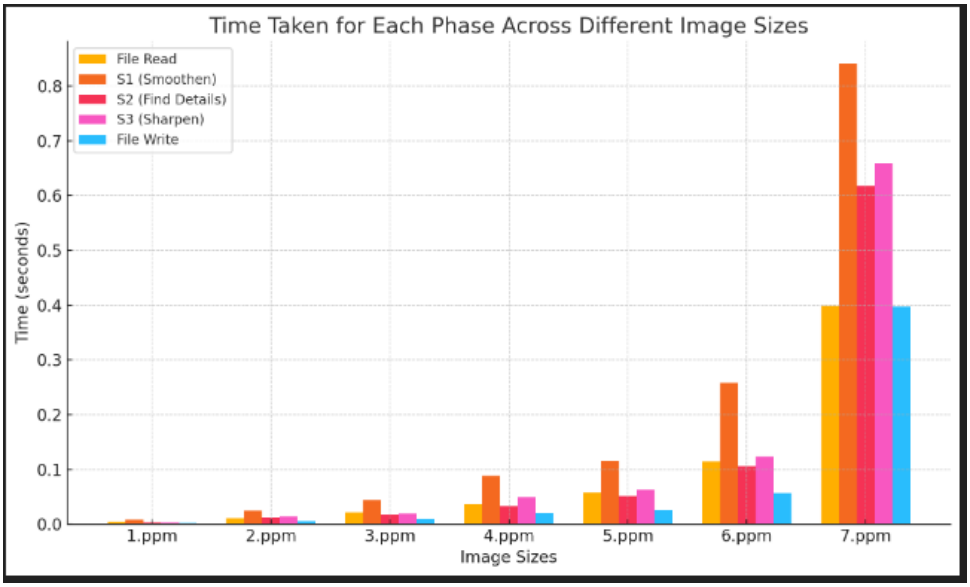

Figure 1: Time Taken for Each Phase Across Different Image Sizes

Conclusion

The experiment successfully measured the variation in times for different images. The results highlight that the smoothening phase (S1) is the most time-consuming operation, and overall performance is closely tied to image size.