UNIVERSITI TEKNOLOGI PETRONAS

TEB1113/TFB2023: Algorithm and Data Structure
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REPORT:

TIMING TEST

Lecturer: Dr M Nordin B Zakaria

No.	Name	ID	Program
1.	Danish Safin bin Zulkarnain	24000149	CS
2.	Abdullah Shahir bin Zulmajdi	24000112	CS
3.	Dzuriyat Ilhan bin Mohd Ridzuan	24000061	CS
4.	Muhammad Faiq Hakeem bin Farid	24000054	CS
5.	Ahmad Aqil Fahmi bin Ahmad Nor	24000235	CS

Performance Comparison of Code Execution Across Three Devices

1.Introduction

This report aims to compare the performance of code execution across three devices. The primary focus is on understanding how the different hardware specifications impact the performance of a common program executed on each device. The key devices tested include processors with different generations and RAM capacities. This analysis provides insight into the influence of these specifications on code performance.

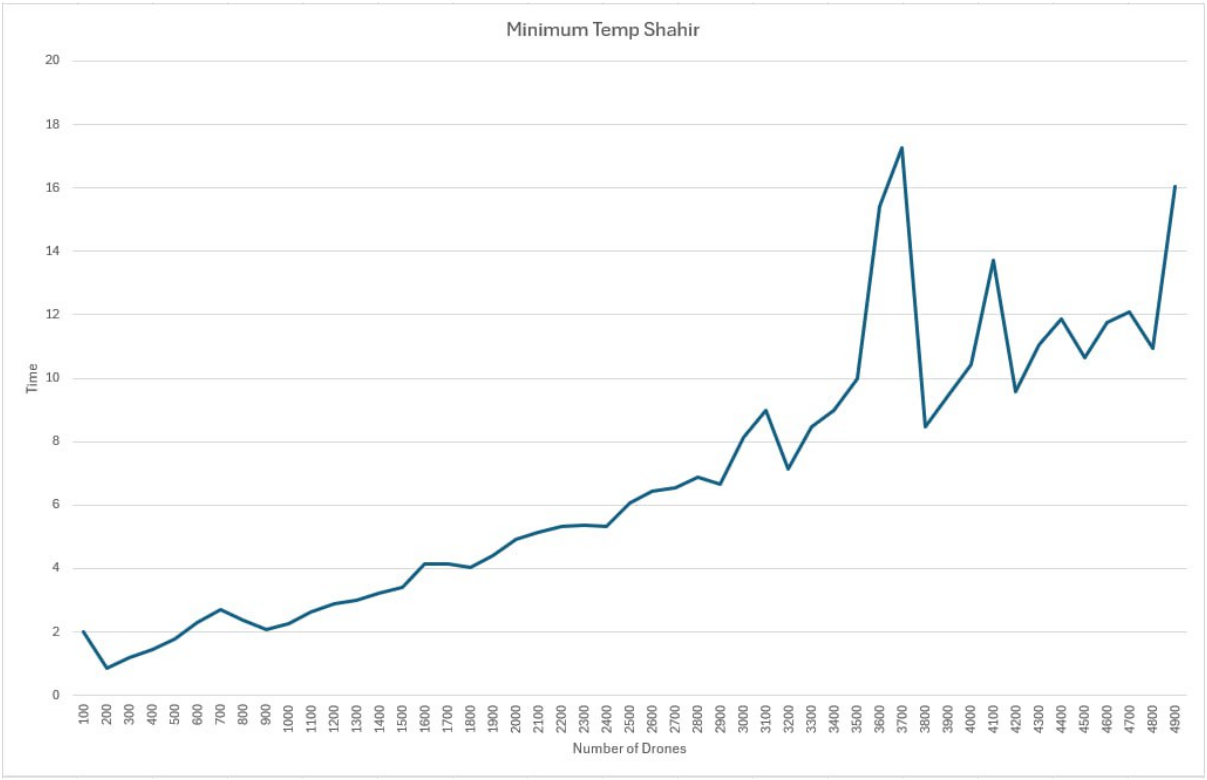
2.Device Specifications

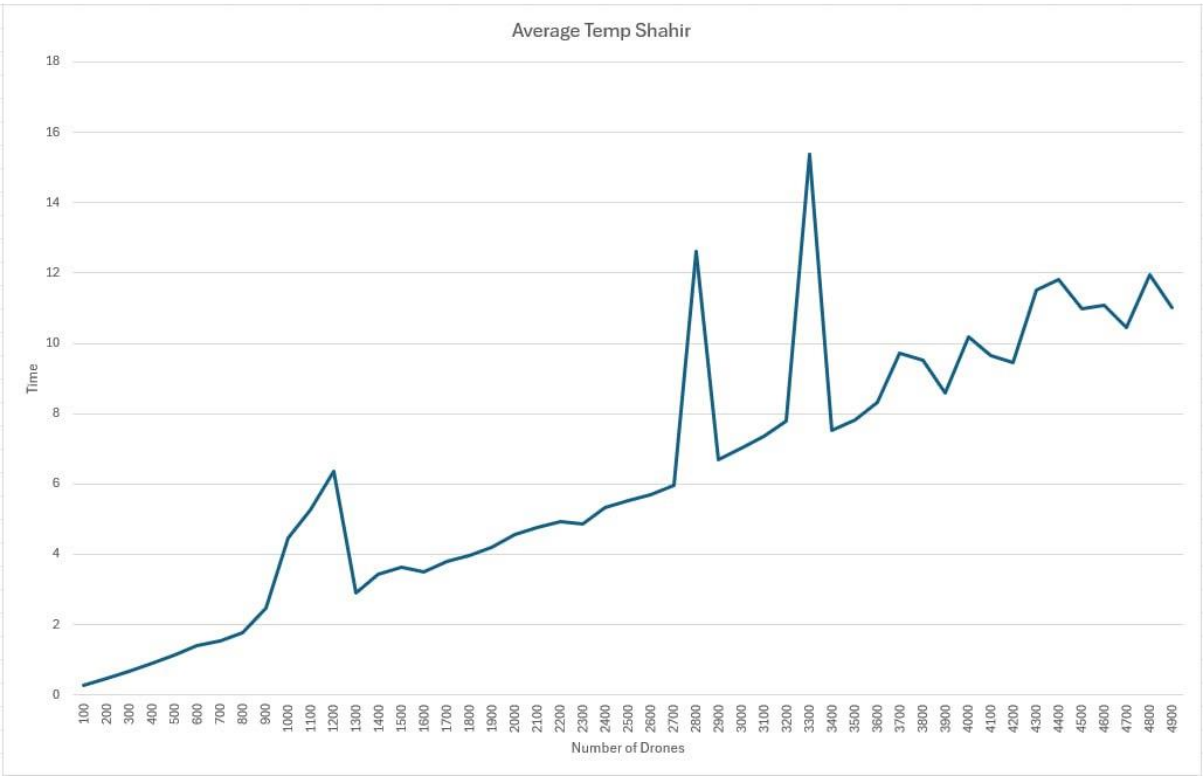
The following devices were used for testing the program execution:

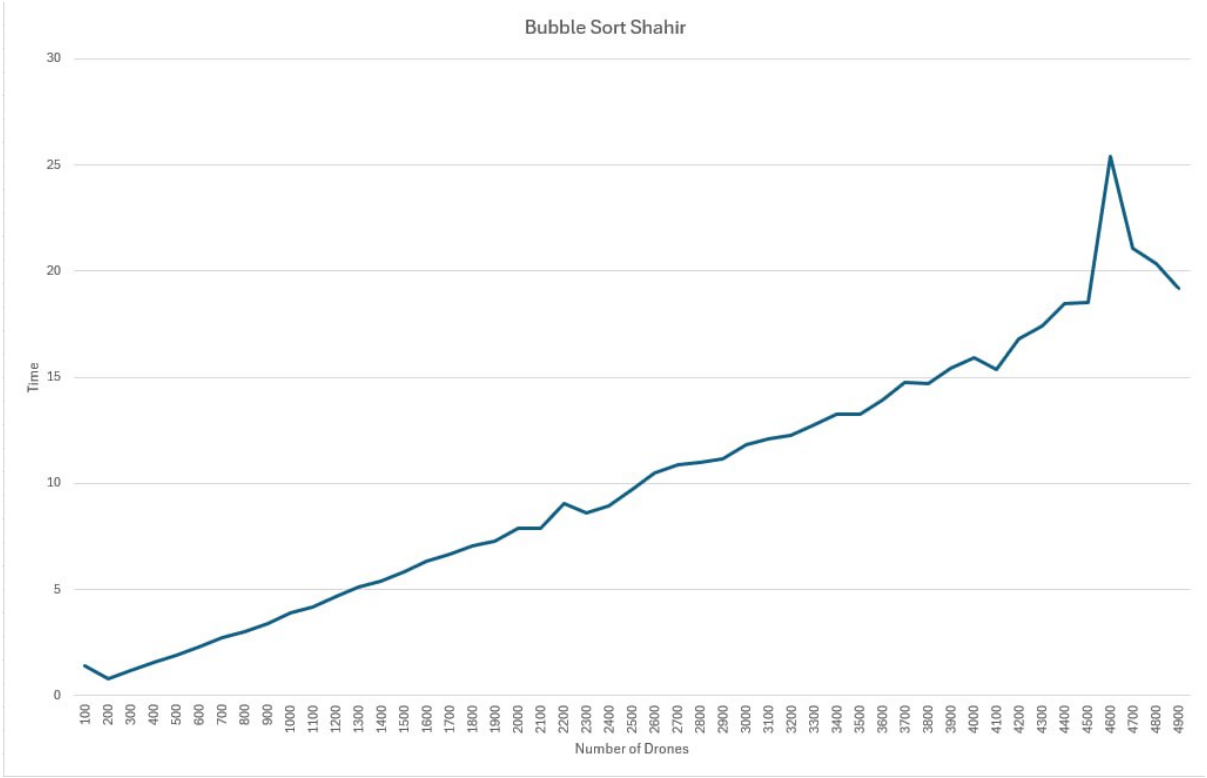
Device Name	Processor	RAM	System Type
Shahir	12th Gen Intel(R) Core(TM) i5-12500H	16	64-bit operating system, x64-based processor
Safin	11th Gen Intel(R) Core(TM) i3-1115G4	8	64-bit operating system, x64-based processor
Yat	11th Gen Intel(R) Core(TM) i5-11400H	16	64-bit operating system, x64-based processor

3.Data Comparison: Five Different Sorting Functions

3.1 *Device 1 – Shahir*


Minimum Temp Shahir
Time
Number of Drones


Average Temp Shahir
Time
Number of Drones


Bubble Sort Shahir
Time
Number of Drones
0
5
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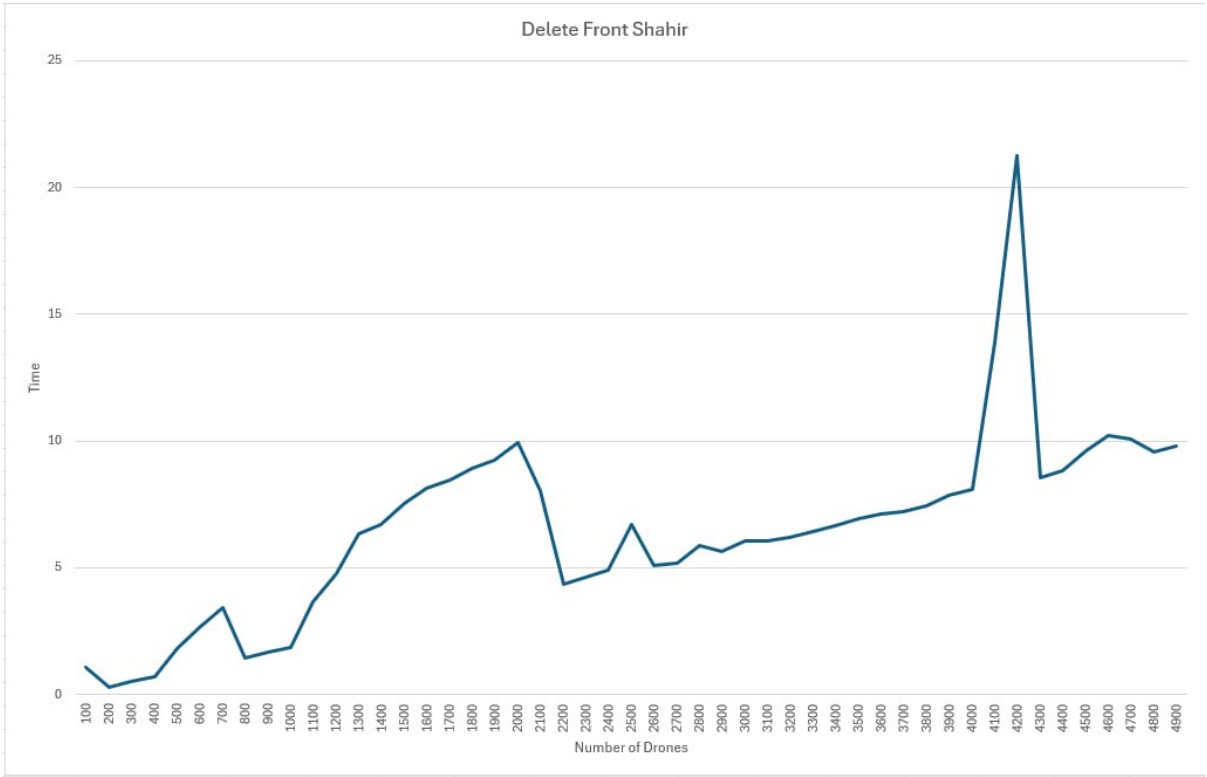
100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900


Delete Front Shahir
Time
Number of Drones
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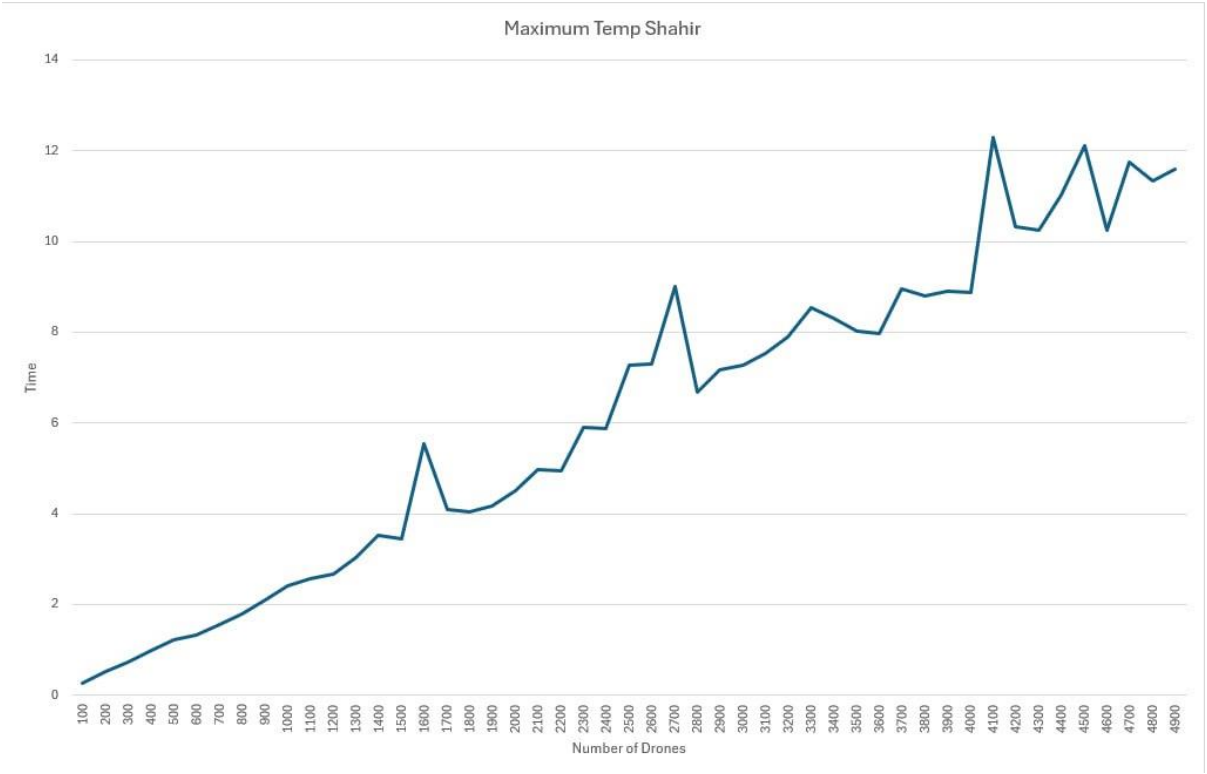
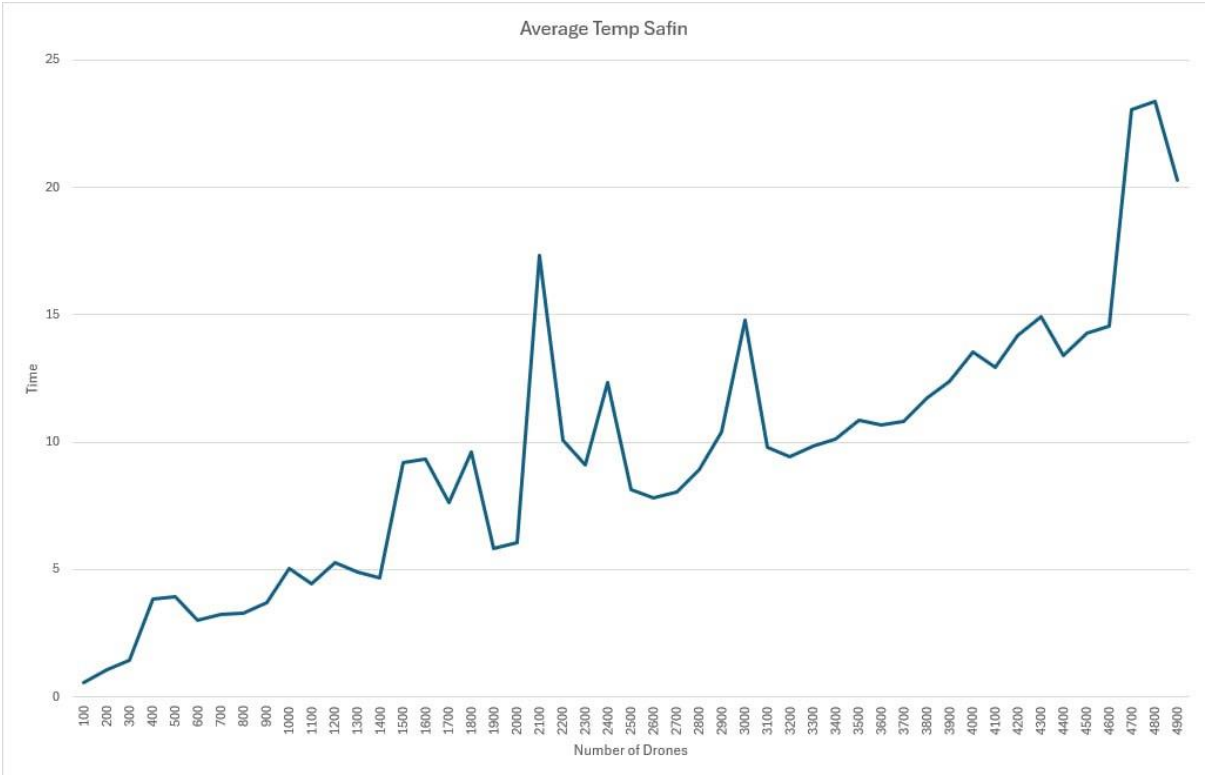
100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900



3.2 *Device 2 – Safin*


Average Temp Safin
Time
Number of Drones
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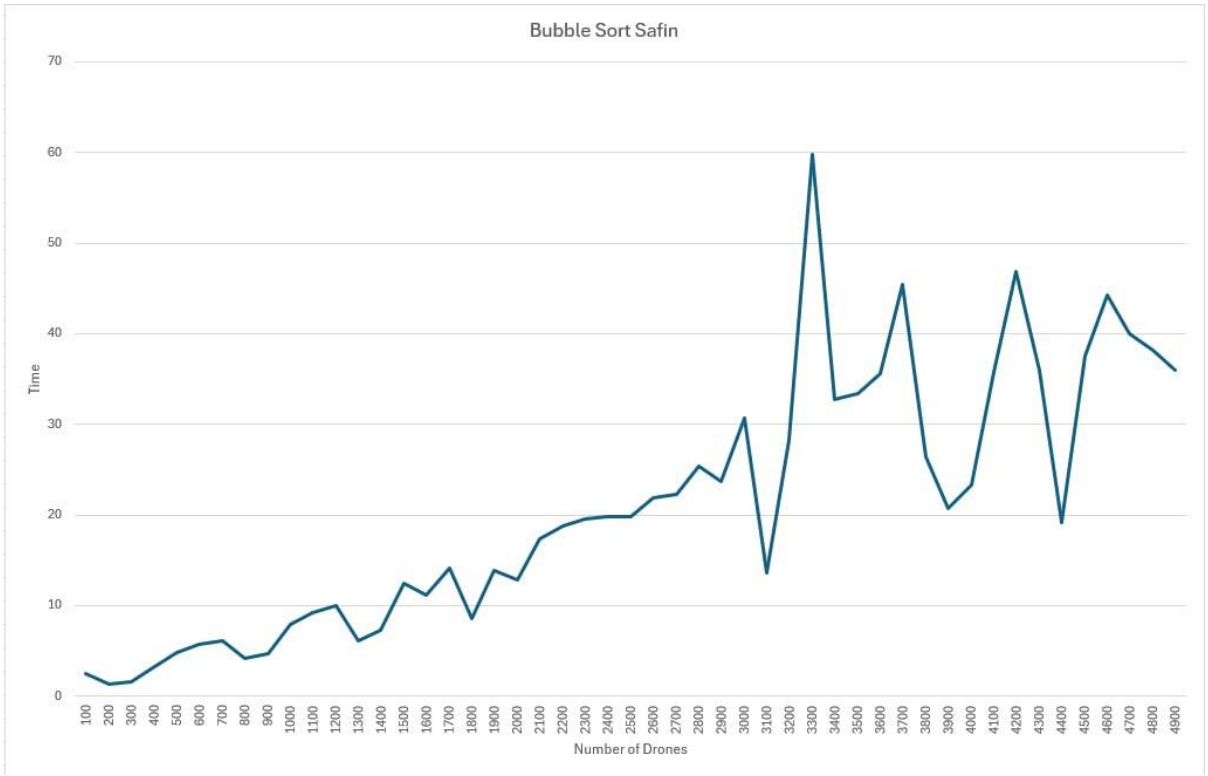
100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900


Bubble Sort Safin
Time
Number of Drones
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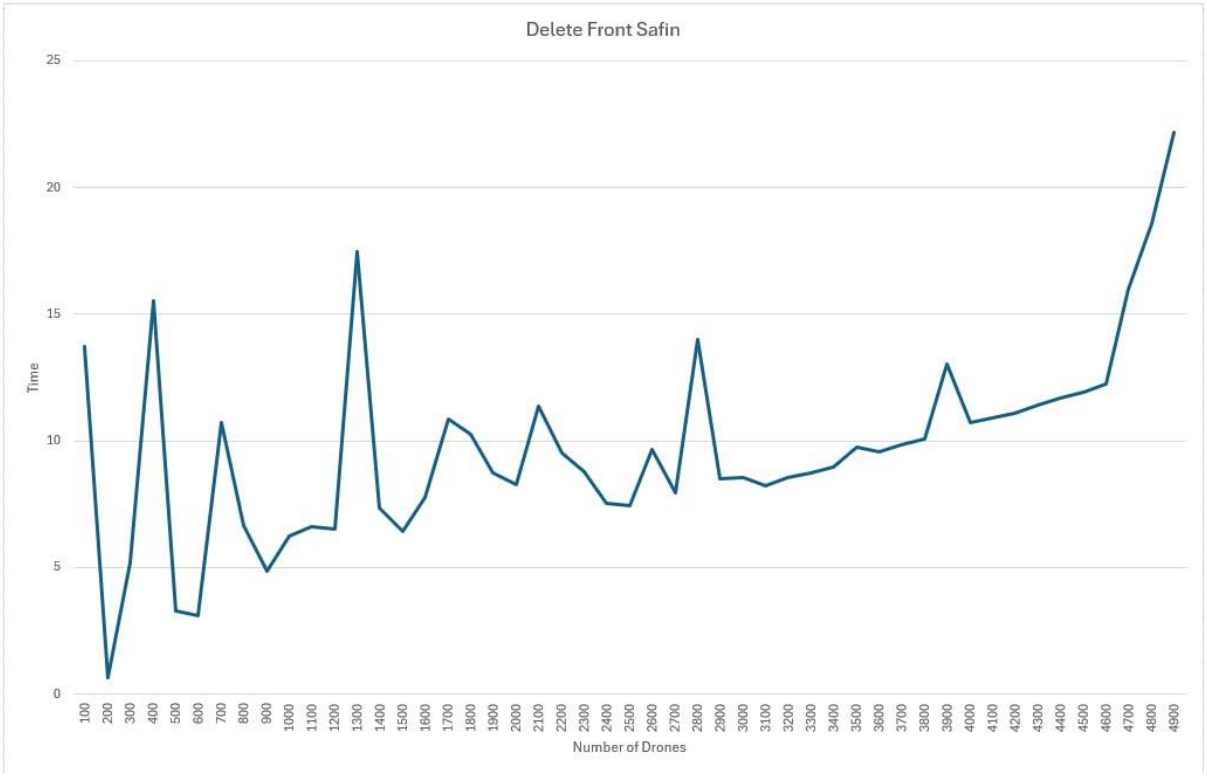
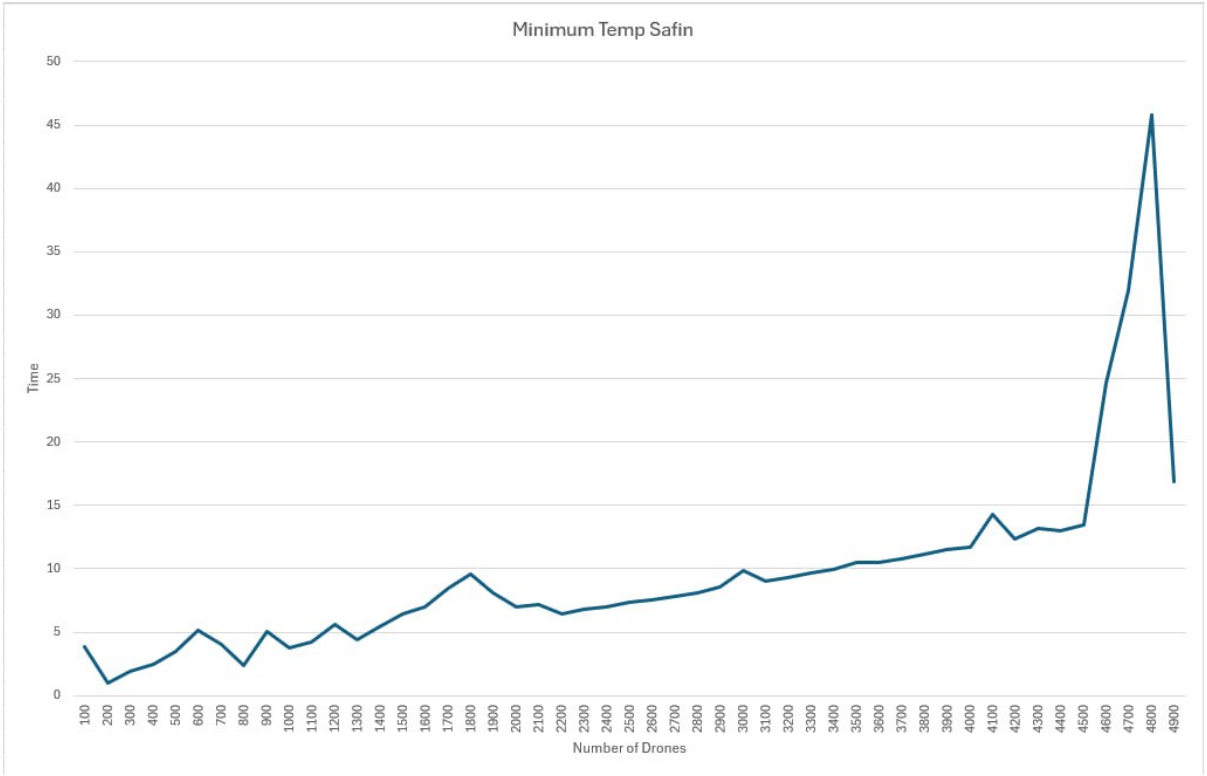
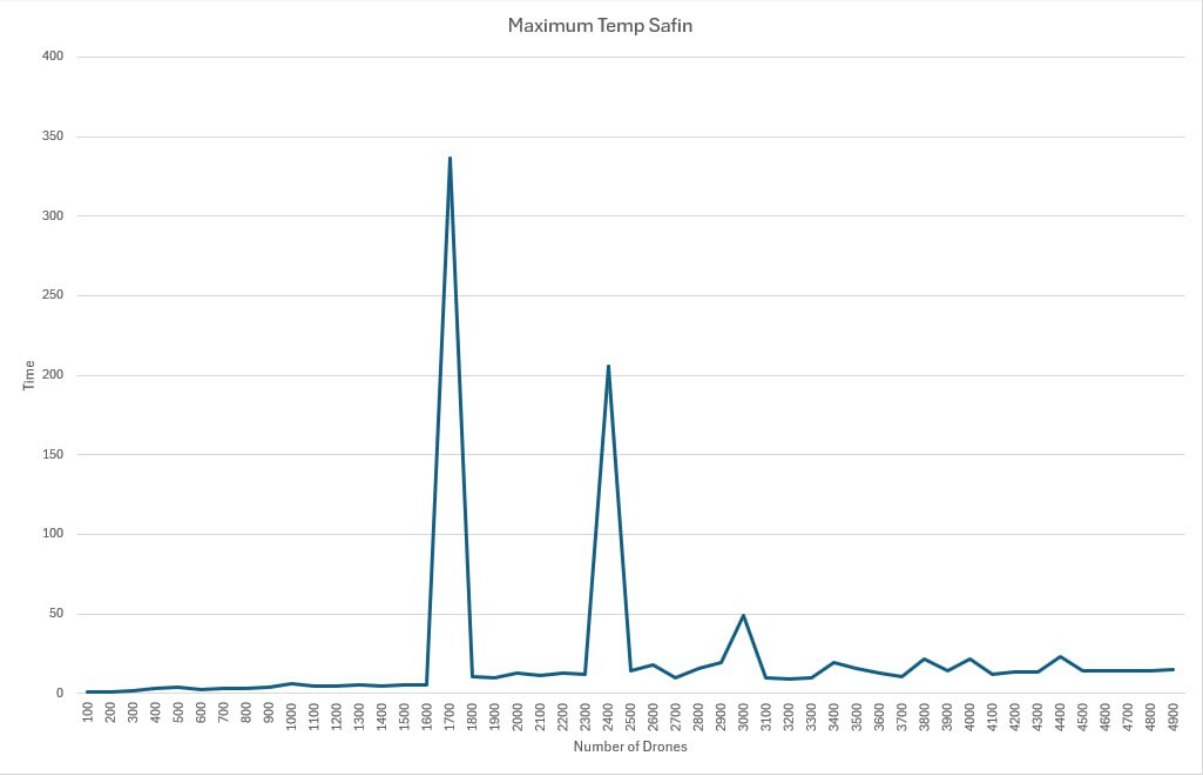
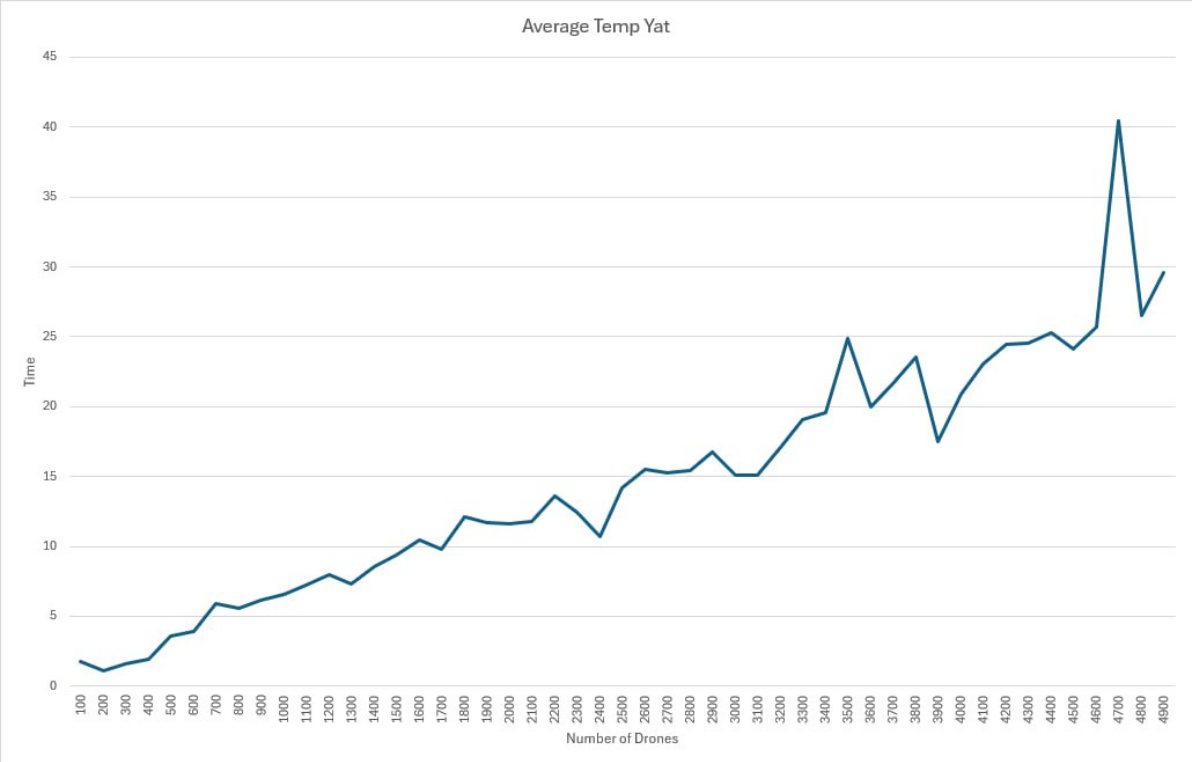
100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900

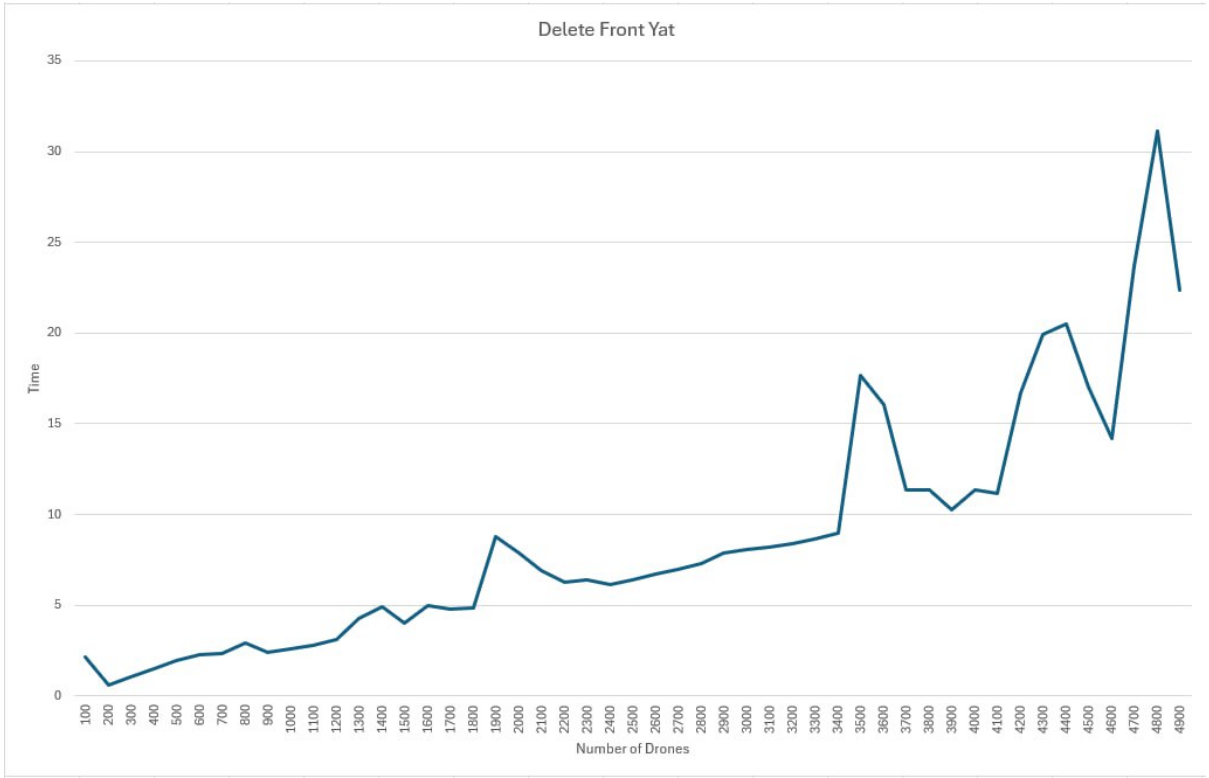

Delete Front Safin
Time
Number of Drones


Minimum Temp Safin
Time
Number of Drones



3.3 *Device 3 – yat*




Delete Front Yat
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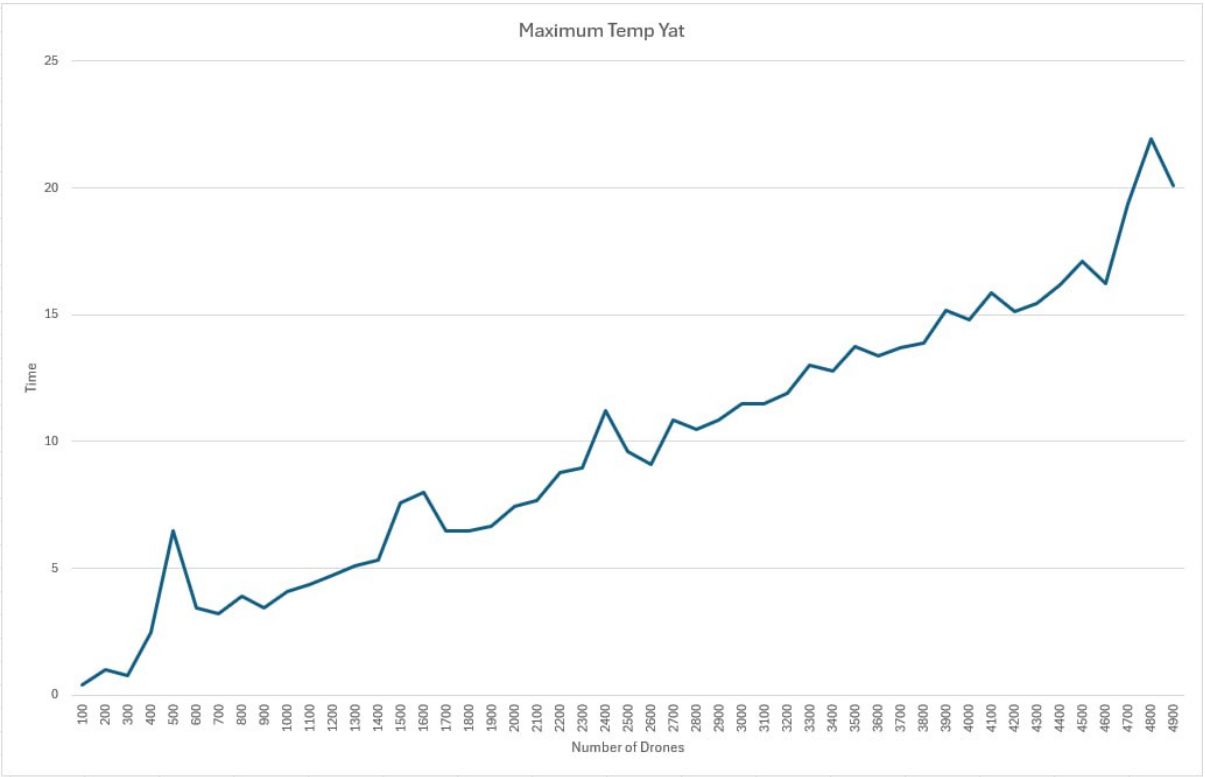
Maximum Temp Yat
Time
Number of Drones
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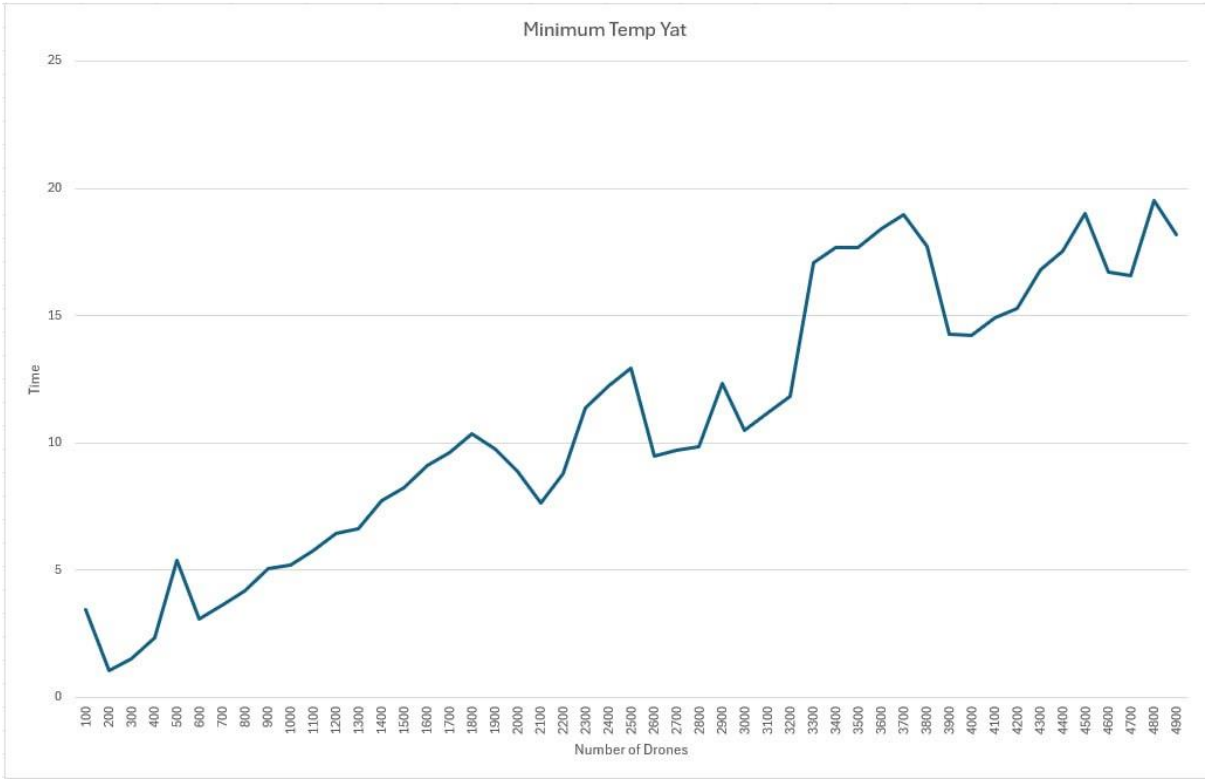

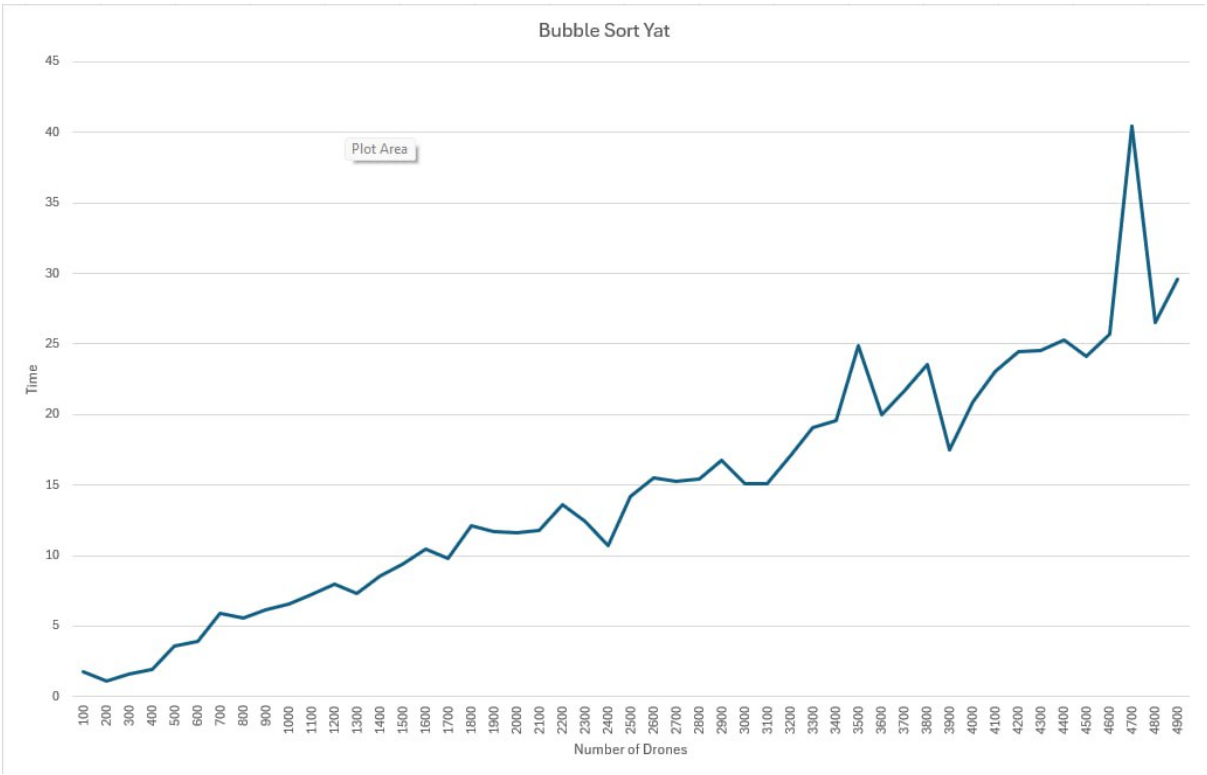

4. Discussion and Analysis

The analysis of the performance across these devices reveals that while CPU generation plays a critical role, the amount of available RAM also has a notable impact on execution time, particularly for larger data sets. Shahir's device, with its newer generation CPU and larger RAM, performs more efficiently. Pros of Shahir:- Newer CPU with higher efficiency- Larger RAM for better multitasking Page 7 Performance Comparison of Code Execution Across Three Devices Cons of Safin:- Older generation CPU- Lower RAM which results in slower performance for memory-intensive tasks. Pros of Yat:- Balanced performance due to sufficient RAM and a mid-range CPU Overall, a balance between CPU power and memory resources is essential for achieving the best execution speed.

5. Conclusion

In conclusion, the performance differences between the three devices demonstrate the importance of both processor generation and RAM in code execution efficiency. Shahir's device consistently outperformed Safin and Yat, primarily due to its newer CPU and higher RAM. For future performance improvements, opting for devices with more modern processors and larger memory capacities is recommended.