**Analysis based on the performance data in TestInfo.csv and TestResults.pickle**

* The devices being used for testing are Device\_0 and Device\_1, with Device\_0 being used more frequently.
* There are a mix of different CPU frequencies being tested, ranging from 1000 MHz to 2000 MHz.
* There is a range of thread counts being tested, from 1 to 5 threads.
* Two different types of ML networks are being tested: AlexNet and MobileNet.
* There are differences in the build and optimization levels being tested.
* The average time for tests ranges from 19 ms to 800 ms, with a median of around 83.33 ms.
* The peak memory usage ranges from 50 MB to 460 MB, with a median of around 450 MB.
* Tests with optimization enabled tend to have shorter times and lower peak memory usage.
* The Build column indicates the build number of the application, but it is not clear how this affects performance.
* The device with higher CPU frequency (Device\_0) appears to have a higher average peak memory usage compared to Device\_1, which could potentially affect the performance of the ML application.
* The number of threads used appears to have a slight effect on the time and peak memory usage, with higher number of threads generally resulting in higher usage.
* Tests on Device\_0 generally have shorter times compared to Device\_1.
* Tests with MobileNet tend to have shorter times compared to tests with AlexNet.
* There are a few outliers in the data, such as the test with TestId 37 which had a much higher time and TestId 44 which had a much higher peak memory usage compared to the others. It would be worth investigating these outliers to understand the reason for the abnormal performance.

**Follow up actions regarding your findings you would take with the development team**

From these findings, it would be worth further investigating the performance differences between Device\_0 and Device\_1, as well as the impact of optimization and the type of ML network being used. It could also be useful to investigate whether there is any correlation between the CPU frequency, number of threads, and performance of the tests.

There is a wide range of time and peak memory usage within each device, which could potentially be due to other factors such as the build number or other variables not included in the data. It may also be useful to run additional tests at different build and optimization levels to see if there are any further performance improvements to be gained.

**Please include any reasons/justifications in your summary as to why the observed behaviour has occurred.**

* The difference in performance between Device\_0 and Device\_1 could be due to differences in hardware or software configurations.
* The effect of CPU frequency on performance could be due to the speed at which the CPU can process data. Higher frequencies may result in faster processing times.
* The effect of the number of threads on performance may be due to the ability of the CPU to process multiple tasks concurrently. Using more threads may allow the CPU to perform more tasks at once, but it may also result in higher resource usage.
* The difference in performance between the two types of ML networks (AlexNet and MobileNet) could be due to the complexity and size of the networks. MobileNet may have a simpler and smaller architecture, leading to faster processing times and lower resource usage.
* The optimization flag may affect the performance of the application by enabling or disabling certain optimization techniques, such as code optimization or memory management. These techniques can improve the efficiency and speed of the application, resulting in shorter processing times and lower resource usage.
* The build number of the application may indicate different versions or updates of the code, which could potentially affect the performance of the application.
* Outliers in the data may be due to unexpected or abnormal circumstances during the tests, such as interference from other processes or hardware issues. It would be helpful to investigate these outliers to understand the root cause of the abnormal performance.

*Attaching Jupiter notebook file : “Code for performance analysis.ipynb” and its corresponding pdf for reference. This consist of code snippet and visualisation plots supporting above analysis.*