Sportmatch Profiler Analysis

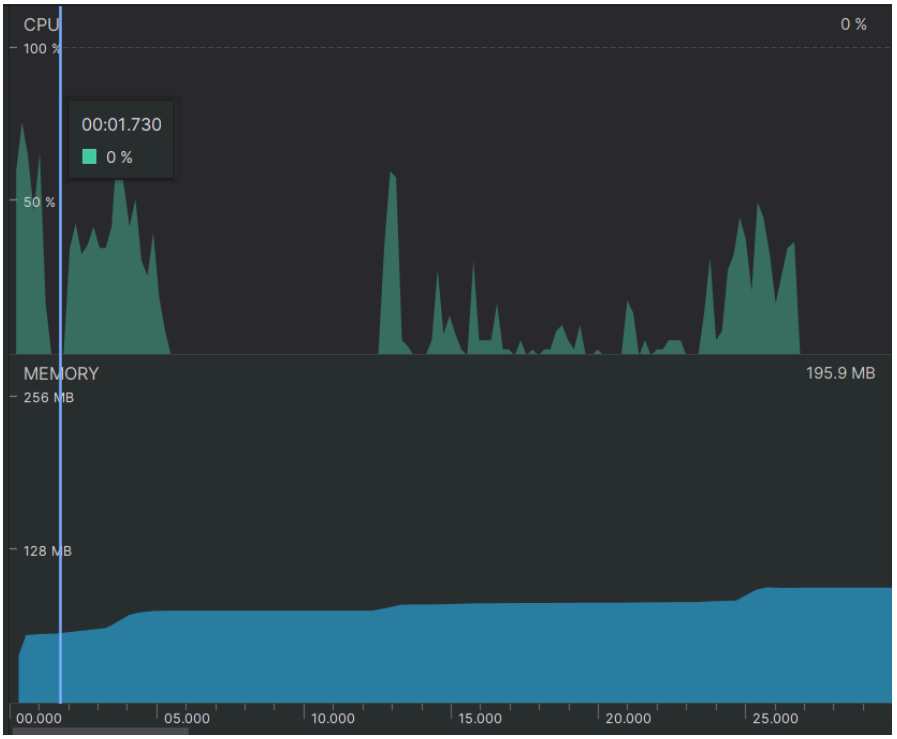
In this profiler analysis, we conducted an extensive examination of the performance metrics of our application, employing both physical devices and emulators, across different computing environments. Our focus was primarily on comparing the CPU and Memory utilization to gain insights into the application's efficiency and resource management. By running the Android Studio Profiler on various devices, including both physical hardware and emulated environments, we aimed to capture a comprehensive understanding of how the application performs under diverse conditions.

Setup:

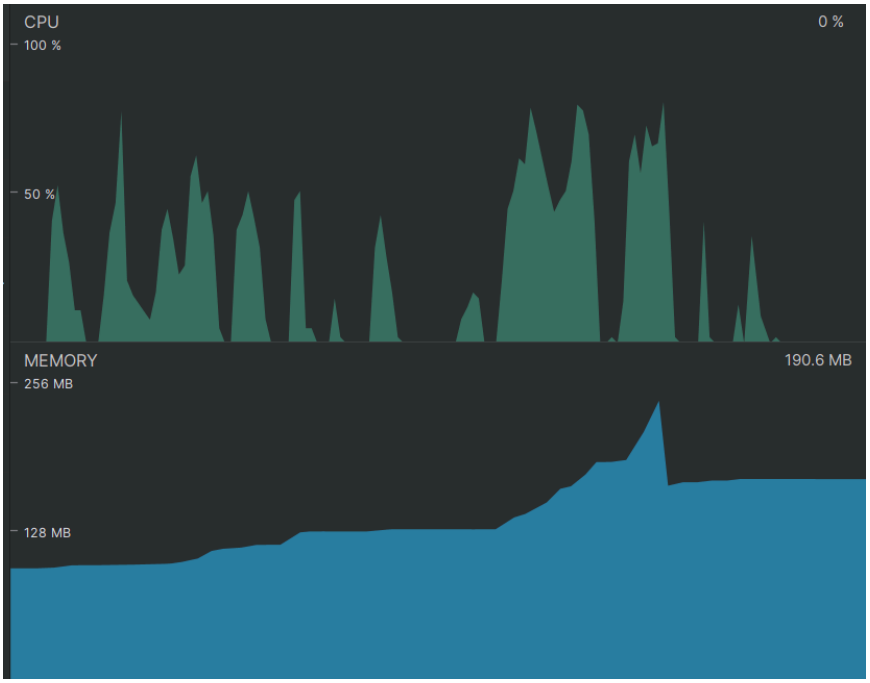
To initiate the Android Studio Profiler setup, we incorporated a modification in the AndroidManifests.yml file by introducing the line `<profileable android:shell="true"/>`. Following this adjustment, you can access the Profiler by navigating to the Profiler section within the left menu of Android Studio. Upon running the application, a profiler session is automatically triggered, enabling real-time monitoring of various performance aspects.

Emulator analysis:

An initial spike in CPU usage can be observed at the start of the application, particularly during the presentation of the Lottie animation. Interestingly, although the login feature is executed, the memory usage registers its lowest point in the initial stages of the application.

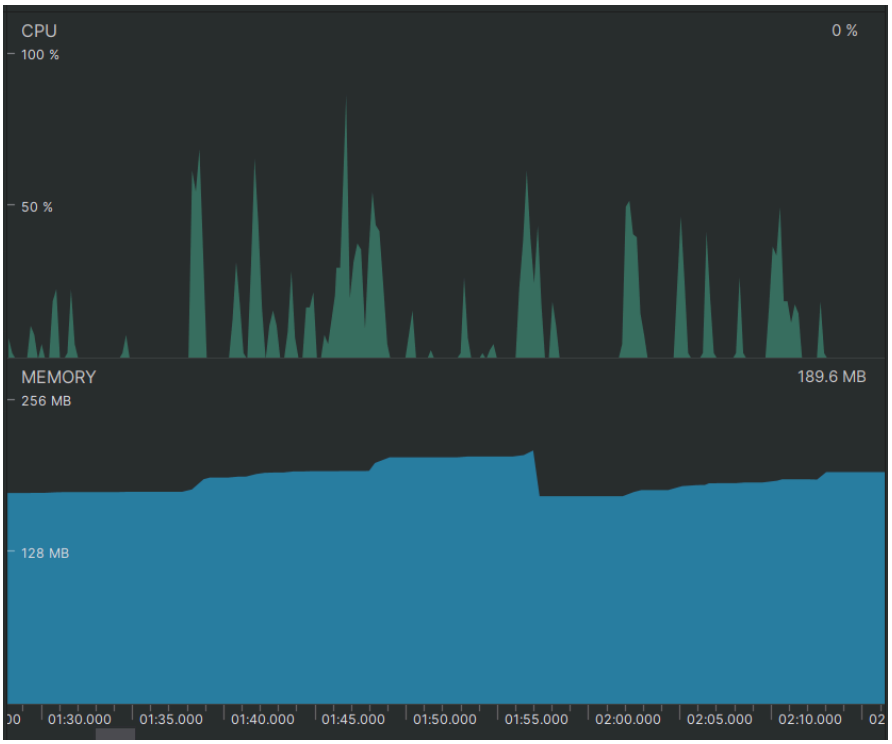


Significant spikes in CPU usage are triggered when users access event details, with the most substantial increases observed during this interaction. Additionally, the Memory usage experiences a gradual escalation, reaching a dramatic peak when the map feature is activated.



Following this interaction, the Memory graph consistently maintains its elevated levels throughout the entire process. Concurrently the CPU continues to spike during this process, its highest point being reached when opening the Map.

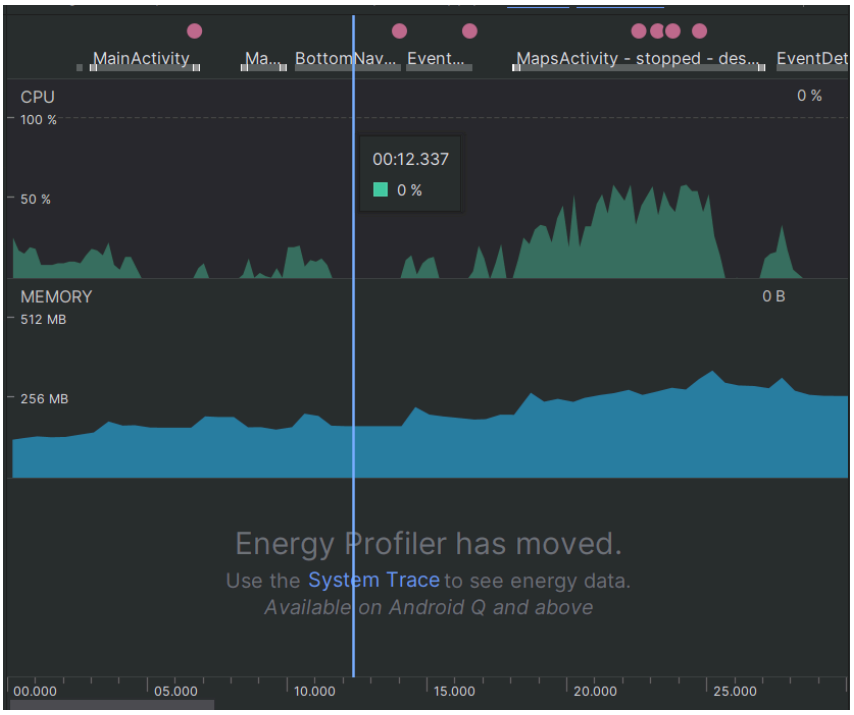
In the following image, the CPU and Memory states are depicted during the creation and posting of a new event. The slight spike in memory once again signifies the initiation of the map feature.



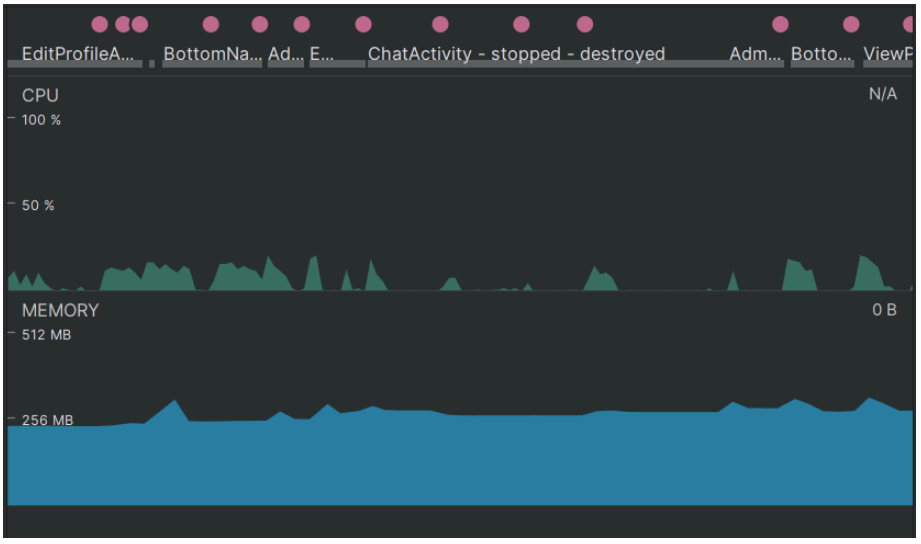
Physical device analysis:

When examining the Profiler results for the application running on a physical device we can also see the exact activity being executed at the moment of the CPU and Memory usage.

Notably, substantial spikes in CPU usage are mostly observed within the MapsActivity, further intensifying as the user is zooming in on different locations on the map. Meanwhile, the Memory has a gradual increase, reaching its peak at the most zoomed-in section of the map.



Furthermore, we can observe that the CPU usage is at its lowest when utilizing the Chat feature of the application, while the Memory usage seems to be pretty consistent during this process.



Comparison between emulator and physical device:

Comparing those two profiles it is clear that the application exhibits a much better performance when being executed on a physical device rather than the Android Studio integrated emulator.
The CPU usage reaches 92% on the emulator contrasting with 63% on the physical device. Additionally, the memory usage reaches a peak of 239MB on the emulator, compared to a higher 343.4 MB on the physical device.