**Evaluate and Experiment With Virtual Memory Settings on a Computer**

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**Introduction**  
Virtual memory is one of those features that I never really thought much about until this assignment. It works behind the scenes, stepping in when your computer’s RAM isn’t enough to keep up with all the programs you’re running. But once I started experimenting with different virtual memory settings, I realized just how important it is—and how quickly things can go wrong without it! In this assignment, I tested the default virtual memory settings on my laptop, doubled the size, and even turned it off entirely. I used programs like Genshin Impact, Crunchyroll, Spotify, and Adobe Photoshop to see how these changes affected performance.

**System Details**  
For this experiment, I used my personal laptop, which is running Windows 10 (64-bit) with the following specs:

* **Processor**: Intel Core i5-8250U CPU @ 1.60 GHz
* **RAM**: 8 GB DDR4
* **System Type**: x64-based processor
* **Storage**: 256 GB SSD

This setup is decent for basic tasks like browsing or streaming but gets pushed to its limits with heavier applications like games or photo editing software.

**Experiment and Observations**

1. **Default Virtual Memory Settings**  
   My laptop’s default virtual memory setting was 12 GB, which is 1.5 times my RAM size. Honestly, I wasn’t expecting much to change because everything already worked fine for my usual tasks. Crunchyroll streamed smoothly, Spotify didn’t skip a beat, and Adobe Photoshop handled some light editing without any issues. Even when I ran Genshin Impact, the load times were manageable. The game was a bit slow when transitioning between areas, but nothing too frustrating.
   * **Observation**: The default settings felt like a good balance for my laptop. It handled multitasking well and kept things running smoothly, even with a mix of resource-heavy and lighter apps.
2. **Doubling the Virtual Memory Size**  
   I decided to up the virtual memory to 24 GB to see if my laptop could handle resource-heavy tasks better. Honestly, I didn’t notice much difference for lighter apps like Spotify or Crunchyroll—they worked just as well as before. But when I fired up Genshin Impact, I immediately saw an improvement. The game loaded faster, and transitions between areas felt smoother. Running Adobe Photoshop while Spotify played in the background also felt snappier.
   * **Observation**: Doubling the virtual memory didn’t make a huge difference for everyday tasks, but it definitely helped with gaming and photo editing. It’s like giving your laptop a little extra room to breathe during heavier workloads.
3. **Turning Off Virtual Memory**  
   Turning off virtual memory was where things became stressful. At first, everything seemed fine—Spotify was playing, and I had a couple of browser tabs open. But then I opened Adobe Photoshop, and everything froze. I sat there staring at the screen, wondering what I had just done. It got worse when I tried to launch Genshin Impact—it wouldn’t even load. At that point, I was genuinely concerned I had broken something. I quickly went back into the settings and re-enabled virtual memory. Thankfully, everything returned to normal.
   * **Observation**: Disabling virtual memory was not a good idea. My laptop’s 8 GB of RAM wasn’t enough to handle multitasking or resource-heavy apps, and the system struggled to stay functional. This experiment showed just how crucial virtual memory is for keeping the system stable.

**How RAM Size Affects Virtual Memory Recommendations**  
One thing I noticed during this experiment is how much the size of your RAM affects the need for virtual memory. My laptop has 8 GB of RAM, which is decent but not enough to skip out on virtual memory entirely. For systems with less RAM (like 4 GB), virtual memory is essential to avoid constant crashes. On the other hand, if you have 16 GB or more, you might not rely on virtual memory as much for everyday tasks, but it’s still useful for heavy-duty applications like gaming or video editing. The general recommendation of 1.5–3 times the RAM size for virtual memory seems pretty reasonable based on my experience.

**Performance Impact on Applications**

* **Genshin Impact**: Doubling virtual memory made load times faster and transitions between areas smoother. Turning off virtual memory made the game completely unplayable.
* **Adobe Photoshop**: Editing large image files felt snappier with increased virtual memory, but turning it off caused freezes and crashes.
* **Crunchyroll and Spotify**: These apps didn’t seem affected by changes in virtual memory size, except when multitasking with resource-heavy programs.
* **Basic Tasks**: Browsing and word processing worked fine with the default settings and doubled memory, but turning off virtual memory made multitasking sluggish.

**Conclusion**  
This experiment showed me how vital virtual memory is for balancing performance, especially on a system like mine with mid-range specs. The default settings were great for most tasks, while doubling virtual memory gave a noticeable boost for heavier applications like Genshin Impact and Adobe Photoshop. Disabling virtual memory, however, was a poor choice that led to system instability and frustration. For anyone using a system with 8 GB of RAM like mine, keeping virtual memory enabled is a necessity. This assignment helped me better appreciate how virtual memory works behind the scenes to keep computers running smoothly.

**References**

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