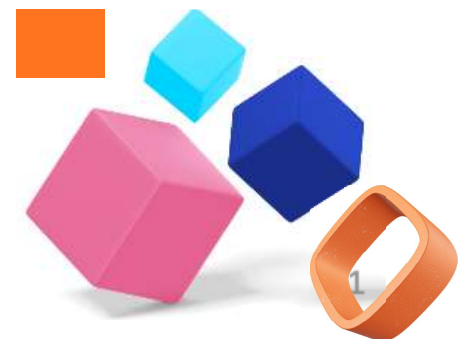




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FAKULTI SAINS KOMPUTER DAN MATEMATIK
UNIVERSITI TEKNOLOGI MARA
CAWANGAN JOHOR



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PREFACE

Praise be to Allah SWT, with His will, this eBook, ICT Trends that Matter, has been successfully compiled to capture some of the most relevant and transformative discussions in the world of Information and Communication Technology (ICT).

The work is a compilation of various views of the different practitioners, scholars, and professionals who have contributed their ideas and thoughts regarding the emerging technologies and their influence. The chapters provide just a few examples of how cybersecurity, big data harmonisation, artificial intelligence, novel learning tools, and social media analytics demonstrate the extent to which ICT has permeated our everyday worlds, our classrooms, workplaces, and communities.

ICT Trends that Matter offers readers a comprehensive exploration of 14 contemporary ICT themes that are shaping education, industry, and society. The eBook covers a wide spectrum of topics such as Big Data & AI, Digital Learning & Tools, Practical ICT Applications, Social Media & Communication and Smart Campus Initiatives highlighting UiTM Johor's experience in developing a data-driven digital ecosystem.

This eBook is informative and inspirational, with contributions that combine theory, research, and practical work. It makes the readers consider the existing ICT issues and opportunities and provides practical knowledge on personal, educational, and professional development. I would like to say that I am very grateful as the chief editor to all the contributors whose commitment, professionalism, and innovativeness have added value to the contents of this eBook. I believe ICT Trends that Matter will be useful to academicians and students, as well as any industry professional, policymaker and those who are keen to learn more about the dynamic ICT environment.

Whether you are an academic, student, or industry professional, ICT Trends that Matter provides valuable insights into the technologies that are redefining our world today. May this work inspire further dialogue, innovation, and collaboration toward building a smarter and more sustainable digital future.

Dr. Shamsatun Nahar Ahmad
Chief Editor
Brain Hub: ICT Trends that Matter

SYNOPSIS

ICT Trends that Matter is a compilation of 14 thought-provoking chapters, which discuss the most significant trends in Information and Communication Technology (ICT) and their implications on education, industry, and society.

The elements cut across essential areas of the digital world. Discussions about the harmonisation of big data and artificial intelligence to fight cybersecurity and comparative studies concerning popular AI tools will be available to the readers. The eBook also highlights innovative approaches to teaching and learning, such as Easymath2U and V-CCMPedia, to improve conceptual learning in calculus, and AI-assisted tools to improve student engagement.

The useful experience is presented with the help of the following topics: computer tips and tricks, free e-learning applications used by children, and the successful utilisation of social media analytics tools. The role of contemporary communication mediums such as Telegram and the global presence of TikTok are also discussed in the chapters, as well as reflections on institutional work towards data-driven digital ecosystems, such as the UiTM Johor RSP16 experience.

This eBook contains the work of numerous scholars and researchers and offers both theoretical insights and practical solutions, which is why it can be of interest to academics, students, practitioners in the industry, or policymakers. ICT Trends that Matter is not merely an anthology of articles but rather is a convenient way to learn about the latest trends in ICT and predict what to expect and what to take advantage of in the digital age.

ACKNOWLEDGEMENT

The Editorial Board of ICT Trends that Matter would like to thank everyone whose assistance and commitment enabled us to make this publication possible.

We would like to thank the Department of Linkage Industry and Alumni, UiTM Johor, Segamat Campus, for enabling the acquisition of eISBN and subsequent guidance throughout the publication process.

A special mention of gratitude belongs to all contributors, whose skills, knowledge and dedication have been instrumental in the content of this eBook. Every chapter is an embodiment of how well, creatively, and committed our writers were to delivering substantial discussions on the current issues in ICT.

We also recognise the unwearying efforts on the part of the Editorial Board, which have been tireless from the very beginning of the conception to the final production of this eBook, which makes it and guarantees its success.

We are most thankful to all who have assisted this undertaking either directly or indirectly. May Allah SWT bless this endeavour and enable it to do good for the readers and the community at large.

COMPUTER TIPS AND TRICKS: HOW TO MAKE YOUR PC RUN FASTER

ISMA ISHAK

Introduction

A sluggish computer can be frustrating, especially when you are trying to complete important tasks. Many users often assume that when a PC becomes slow, it is time for a new one. However, before considering an upgrade, there are several methods you can apply to dramatically improve your computer's speed and overall performance. These methods involve optimizing system settings, managing resources more efficiently, and cleaning out digital clutter without purchasing any additional software. In this article, you will learn a variety of practical tips to boost your PC's performance using built-in Windows tools and simple system adjustments.

Tips 1: Optimizing System Settings

One of the most effective ways to speed up a computer is by adjusting its visual settings to prioritize performance over appearance. Windows includes many visual effects such as fading menus, animations, and transparent windows that may look aesthetically pleasing but often consume significant memory and processing power. To enhance performance, these effects can be disabled. This can be done by accessing the System Properties window, navigating to the Performance Settings under the Advanced tab, and selecting the option to adjust for best performance. Once this change is applied, the system will turn off all unnecessary graphical effects, allowing more system resources to focus on speed and efficiency.

Another overlooked solution is simply restarting the computer. Restarting helps clear temporary files and cached data from the system's memory, offering a quick refresh that redistributes workload between the CPU and GPU. In systems with dedicated graphics cards, certain processes will be redirected to the GPU, which is often more efficient at handling visual tasks. This shift reduces the burden on the central processor and allows the system to perform better overall.

Tips 2: Managing Startup and Disk Cleanup

A common cause of slow startup times is the presence of too many programs launching when the system boots. Each startup application consumes memory and processing power, delaying access to the desktop and making the system less responsive. By opening the Task Manager and reviewing the Startup tab, users can identify which applications are automatically starting and disable those that are unnecessary. Disabling unused apps from startup can significantly reduce boot time and free up resources for other tasks.

Cleaning the hard drive is another critical step. Over time, the system accumulates temporary files, cache data, logs, and other unnecessary files. These not only occupy valuable disk space but also slow down system operations, especially on hard disk drives (HDDs). Windows provides built-in tools like Disk Cleanup, which allows users

to select and delete redundant files safely. On systems using traditional HDDs, running the Disk Defragmenter helps reorganize fragmented files, enabling faster data access. While defragmentation is unnecessary for SSDs, freeing up space remains essential regardless of the storage type.

In addition to cleaning clutter, users should perform routine scans for malicious software. Windows includes the Malicious Software Removal Tool (MRT), which scans for and removes specific threats. Running a quick scan using this tool can detect hidden malware that may be secretly using system resources, contributing to overall sluggishness.

Tips 3: Deleting Junk and Temporary Files

Temporary and cached files accumulate each time applications are opened or tasks are completed. Although these files help speed up access in the short term, they can pile up over time, leading to storage issues and slower performance. Clearing these files periodically helps maintain a cleaner and faster system.

The %temp% folder contains temporary files created by various applications. By accessing this folder using the Run command and deleting its contents, users can recover storage and reduce background load. Another similar folder named temp also stores temporary data. These two directories are safe to clean regularly, and Windows will recreate necessary files when needed.

The Prefetch folder operates a bit differently. It stores data about frequently used applications to help them load faster in the future. However, this folder can become bloated over time, especially if many applications are installed or uninstalled. While deleting prefetch files may slightly delay app loading initially, it can improve general system responsiveness by eliminating old or broken cache entries. Cleaning this folder is optional but beneficial if your system is running low on storage or feels unusually sluggish.

Tips 4: Power Settings and Disk Space Awareness

Windows laptops and desktops often use a balanced or power saver plan to reduce energy consumption. While this is helpful for extending battery life, it can also limit performance by slowing down the CPU. Users looking to maximize their system's responsiveness can change the power settings to High Performance. This plan allows the hardware to operate at full capacity without throttling speeds for energy savings. To change the power plan, users can access the Power Options from the Control Panel or the quick-access Power menu by pressing Windows + X. Choosing the "Best Performance" mode ensures that the processor and other components are allowed to run at their optimal levels.

Monitoring available disk space is another key factor in maintaining speed. When the primary drive is nearly full, the system struggles to store virtual memory, update applications, or cache data efficiently. By going into the Storage settings in the System menu, users can review how space is being used and identify large files or folders to remove. Keeping at least 15% of disk space free is a good rule of thumb to prevent bottlenecks in system performance.

Tips 5: System Integrity, Hardware Upgrades, and Extras

Even with optimal settings and cleanup, performance issues may persist due to corrupted system files. Windows provides a powerful command-line tool known as the System File Checker (SFC). Running this tool via the Command Prompt checks the integrity of all protected Windows files and replaces corrupted ones with a cached copy. The command `sfc /scannow` can resolve many hidden problems that affect system stability and speed. It is especially useful after system crashes or failed updates.

For users still experiencing performance issues, hardware upgrades may offer the most dramatic improvement. Replacing a traditional hard drive with a solid-state drive (SSD) can significantly reduce boot times and application load times. SSDs read and write data much faster than HDDs, making them one of the best upgrades for any aging computer. Similarly, increasing the RAM (random access memory) enhances the computer's ability to multitask. With more RAM, the system can keep more applications open simultaneously without slowing down.

Lastly, there are some interesting and fun tricks for customizing your computer. Creating a slide-to-shutdown shortcut adds a sleek shutdown method to your desktop. Applications like TranslucentTB and Lively Wallpaper from the Microsoft Store can enhance the look of your taskbar and desktop with transparency effects and animated backgrounds. Although these do not directly improve performance, they offer a more enjoyable user experience, especially after system optimizations are completed.

Tips 6: Keep Drivers and Windows Up to Date

Keeping your device drivers and Windows OS up to date is crucial for maintaining peak performance. Hardware manufacturers often release driver updates to fix bugs, improve compatibility, and enhance performance. Similarly, Microsoft regularly provides system updates that patch vulnerabilities and optimize system efficiency. To update drivers, users can go to the Device Manager, select the device, and check for updates. For Windows updates, navigating to Settings > Update & Security and clicking 'Check for updates' ensures your system is running with the latest patches and features. An outdated system can lead to crashes, slowdowns, and security issues.

Tips 7: Manage Background Apps and Services

Windows often runs various background apps and services that may not be essential to your workflow. These background processes can quietly consume valuable CPU, memory, and network bandwidth. To manage them, open the Task Manager and check the Processes and Services tabs for unnecessary applications. Additionally, go to Settings > Privacy > Background apps and disable apps that do not need to run in the background. Reducing background activity can noticeably enhance responsiveness and free up system resources for the tasks that matter.

Tips 8: Use Storage Sense for Automatic Cleanup

Windows 10 and 11 include a feature called Storage Sense, which can automatically free up space by deleting unnecessary files like temporary data, items in the Recycle Bin, and previous versions of Windows updates. This tool helps users maintain a cleaner, more efficient storage environment without manual intervention. To enable Storage Sense, go to Settings > System > Storage and toggle the feature on. You can also customize its behavior by setting cleanup schedules and file deletion rules. Regular use of Storage Sense ensures the system does not become bogged down with redundant files.

Tips 9: Optimize Browser Usage

Web browsers are often among the most resource-intensive applications on a computer. Multiple open tabs, extensions, and cached data can slow down not just the browser, but the entire system. Users should regularly clear browsing data, limit the number of open tabs, and remove unused extensions. Many browsers offer a Task Manager (e.g., Chrome's Shift + Esc) to see which tabs or extensions are consuming the most resources. Switching to a more lightweight browser or using Reader Mode can also improve performance during web browsing.

Tips 10: Disable Visual Animations in Windows Settings

Aside from the 'Adjust for Best Performance' setting in the System Properties, users can fine-tune individual visual effects within the Windows Settings menu. By going to Settings > Accessibility > Visual effects (or Display in older versions), users can turn off animations, transparency, and other motion effects that consume processing power. Disabling these settings makes the user interface feel more snappy and responsive, especially on older machines or devices with limited hardware capabilities.

Tips 11: Turn Off Search Indexing for Low-End PCs

Search indexing is a built-in Windows feature that speeds up the search function by creating a constantly updated index of files and folders. While beneficial for quick access, it can consume a significant amount of CPU and disk usage, especially on systems with limited processing power or hard disk drives. Disabling search indexing can free up resources and improve system responsiveness. To do this, open the Services app (services.msc), find "Windows Search," and set it to "Disabled." Additionally, you can go to "Control Panel > Indexing Options" to exclude folders that don't need to be indexed.

Tips 12: Disable Windows Tips and Suggestions

Windows provides tips and suggestions via notifications based on your usage. Although helpful to some, they run background services that can slow down your PC. These notifications also disrupt your workflow with pop-ups. You can disable them by going to "Settings > System > Notifications & actions" and toggling off the option

labeled "Get tips, tricks, and suggestions as you use Windows." This improves both focus and system performance by reducing the load on system resources.

Tips 13: Adjust Virtual Memory Settings

Virtual memory allows your PC to use a portion of your hard drive as if it were RAM. This paging file helps maintain system stability when physical RAM is full, but if configured improperly, it can hinder performance. To manually adjust virtual memory, go to "Control Panel > System > Advanced system settings > Performance Settings > Advanced > Virtual Memory." Uncheck "Automatically manage paging file size for all drives" and set a custom size, ideally 1.5 to 3 times your actual RAM. Proper configuration ensures smoother multitasking, especially on systems with low RAM.

Tips 14: Regularly Restart Your Router

Sometimes, perceived computer slowness is actually due to a weak or unstable internet connection. Restarting your router helps refresh the network connection, apply updates, and clear internal caches. This is especially important in environments with multiple devices or high internet traffic. A weekly router restart can improve streaming, video calls, downloads, and overall online performance — making your computing experience smoother even if your device is working fine.

Tips 15: Use Lightweight Alternatives for Software

Heavy software can slow down your system, especially if you are using an older PC. Opting for lightweight alternatives reduces the strain on RAM and CPU. For example, replace Microsoft Office with LibreOffice or Google Docs, and use VLC Media Player instead of heavy multimedia suites. Lightweight apps are optimized for minimal system impact and are often open-source, making them both efficient and cost-effective.

Conclusion

Improving the performance of your computer does not always require expensive upgrades or professional help. With the right combination of system adjustments, regular maintenance, and selective hardware enhancements, you can extend the life of your PC and restore its speed. This guide has outlined the essential steps — from adjusting power settings and cleaning files to running integrity checks and upgrading components — to help your computer run as fast and efficiently as possible.

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