# Perks of Working Entirely with Keyboard

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## ABSTRACT

Working in today's corporate world requires users to switch between keyboard and mouse constantly. According to a survey conducted, an average user switches between keyboard and mouse 90 times in an hour. These frequent switches cause several discomforts to the user and the user's efficiency takes a major fall. Use of touchpad in place of mouse is one another major setback. It has been noticed that a user switching from mouse/touchpad to keyboard and vice versa consumes time in completing a task as compared to a user depending entirely on keyboard.

**Keywords:** Mouse, Keyboard, Carpal Tunnel Syndrome, Efficiency, Keyboard Shortcuts

## I. INTRODUCTION

Every corporate environment requires users to spend hours every day engaging in computer activities which requires them to have great efficiency. These activities depend heavily on the speed at which users perform tasks. There are two ways to execute a set of operations. It can be either using a keyboard and a mouse or just a keyboard. These both methods cause a huge variation in time efficiency.

### A. Effects of using mouse

Early researches on experienced users have shown that working entirely using the keyboard is a more efficient method for performing computerized tasks as compared to a mouse. The efficiency that the practiced users obtained by using the keyboard

shortcuts instead of point and clicking via mouse is extraordinary, how a user can switch to multiple tasks in a blink of an eye using a single keystroke drives the productivity of the user to the next level. Apart from increasing efficiency, the use of a keyboard also aids in reducing the ill-effects caused by continuous use of a computer using a mouse. The excessive use of the mouse causes several wrist and hand discomforts which can also lead to CTS or Carpal Tunnel Syndrome.

### B. Carpal Tunnel Syndrome

Carpal tunnel syndrome is a common condition that causes pain and numbness in the hands and arms. The condition

occurs when one of the major nerves of the hand — the median nerve — is compressed as it travels

through the wrist. This type of syndrome generally gets developed in the people who use the mouse excessively. The results have proved that entrants, who spend more time using the keyboard as compared to the mouse, had less chances of developing CTS. In most patients, carpal tunnel syndrome gets worse with time, so early diagnosis and proper treatment are necessary. At the start, symptoms can often be relieved by simple measures like wearing a wrist splint or avoiding certain activities. If pressure on the nerve continues, however, it can lead to worsening symptoms and even nerve damage. To prevent complete damage, surgery to take pressure off the median nerve is recommended for some patients.

Thus, it is our hypothesis that pointing tasks performed directly on the keyboard may result in less discomfort, but possibly at the cost of worse performance for pointing tasks.

## C. Wrist injuries

There are two reasons why using a mouse regularly can be dangerous.

First, using a mouse requires the person to make small, concise movements with their wrist, fingers, and thumb. By positioning, travelling, and clicking the mouse buttons again and again, the small muscles can become tired and overworked. This overuse can cause:

- Pain on the top of the hand
- Pain around the wrist
- Pain along the forearm and elbow.
- Formulation of painful nodules, and later on, ganglion cysts, around the joints and along the tendons
- Numbness in the thumb and the index finger
- Burning, stiffness, restricted range of motion

The secondary reason using a computer mouse can be hazardous is that the placement of the mouse can make it difficult to reach. Almost every computer workstation has limited space; since the keyboard is already directly in front of the person using the computer, most of the time the mouse is placed around the upper right hand corner of the keyboard and towards the back of the desk.

Maintaining this position for the day can cause soreness and fatigue by putting an extra load in the muscles in the upper back and shoulder. Continuous use of the mouse, therefore, can cause aches and pains in the shoulder and neck. Lower back pain, which is not directly caused by the mouse, can also be a problem if the computer user has bad posture and leans forward while sitting.

## II. RESULTS

### A. Experimental Trials

To compute the effects of the condition and compare efficiency, trials were conducted for a number of participants. It was observed that a participant working entirely using a keyboard would complete in less time and with greater ease as compared to using both mouse & keyboard simultaneously.

It was noticed that using only a keyboard would wind up the task in less time . A participant was given a task to complete using only a keyboard and using both keyboard and mouse. It was also seen that on an average,each participant took 30 minutes to complete the work using both mouse and keyboard whereas on the other hand, the task was completed in 25 minutes using just a keyboard.

An infographic by American Express Open Forum states that "an average person loses 2 seconds per minute of the work" just by switching back and forth between the mouse and keyboard.

## A. Discussion

The results show a clear advantage of using a keyboard over using both mouse and keyboard simultaneously. By assessing the completion time of the given tasks between both of the methods, it can be easily concluded that using only the keyboard is far superior in terms of efficiency and productivity. The reduction in completion time alone is sufficient for switching to the superior method, i.e. using only a keyboard.

## III. SOLUTIONS

The best way to tackle this, for Windows users, is to reduce mouse usage by using more and more of keyboard shortcuts. On the other hand, Linux users can completely switch from mouse to keyboard.

Some of the important keyboard shortcuts for Windows users are mentioned below.

| Keyboard shortcut | Action |
|---|---|
| Ctrl + A | Select all content. |
| Ctrl + C (or Ctrl + Insert) | Copy selected items to clipboard. |
| Ctrl + X | Cut selected items to clipboard. |
| Ctrl + V (or Shift + Insert) | Paste content from clipboard. |
| Ctrl + Z | Undo an action, including undelete files (limited). |
| Ctrl + Y | Redo an action. |

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|---|---|
| Ctrl + Shift + N | Create a new folder on desktop or File Explorer. |
| Alt + F4 | Close the active window. |
| Ctrl + D (Del) | Delete selected item to the Recycle Bin. |
| Shift + Delete | Delete the selected item permanently, skipping Recycle Bin. |
| F2 | Rename selected item. |
| ESC | Close current task. |
| Alt + Tab | Switch between open apps. |
| PrtScn | Take a screenshot and store it in the clipboard. |
| Windows key + I | Open Settings app. |
| Windows key + E | Open File Explorer. |
| Windows key + A | Open Action center. |
| Windows key + D | Display and hide the desktop. |
| Windows key + L | Lock device. |
| Windows key + V | Open the Clipboard bin. |
| Windows key + Period (.) or semicolon (;) | Open emoji panel. |

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| Windows key + PrtScn | Capture the full screenshot in the "Screenshots" folder. |
| Windows key + Shift + S | Capture part of the screen with Snip & Sketch. |
| Windows key + Left arrow key | Snap app or window left. |
| Windows key + Right arrow key | Snap app or window right. |

| Keyboard shortcut | Action |
|---|---|
| Windows key (or Ctrl + Esc) | Open Start menu. |
| Ctrl + Arrow keys | Change Start menu size. |
| Ctrl + Shift + Esc | Open Task Manager. |
| Ctrl + Shift | Switch keyboard layout. |
| Alt + F4 | Close active window. (If no active window is present, then a shutdown box appears.) |
| Ctrl + F5 (or Ctrl + R) | Refresh current window. |
| Ctrl + Alt + Tab | View open apps. |
| Ctrl + Arrow keys (to select) + Spacebar | Select multiple items on desktop or File Explorer. |

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|---|---|
| Alt + Underlined letter | Runs command for the underlined letter in apps. |
| Alt + Tab | Switch between open apps while pressing Tab multiple times. |
| Alt + Left arrow key | Go back. |
| Alt + Right arrow key | Go forward. |
| Alt + Page Up | Move up one screen. |
| Alt + Page Down | Move down one screen. |
| Alt + Esc | Cycle through open windows. |
| Alt + Spacebar | Open context menu for the active window. |
| Alt + F8 | Reveals typed password in Sign-in screen. |
| Shift + Click app button | Open another instance of an app from the Taskbar. |
| Ctrl + Shift + Click app button | Run app as administrator from the Taskbar. |
| Shift + Right-click app button | Show window menu for the app from the Taskbar. |
| Ctrl + Click a grouped app button | Cycle through windows in the group from the Taskbar. |
| Shift + Right-click grouped app button | Show window menu for the group from the Taskbar. |

| Ctrl + Left arrow key | Move the cursor to the beginning of the previous word. |
|---|---|
| Ctrl + Right arrow key | Move the cursor to the beginning of the next word. |
| Ctrl + Up arrow key | Move the cursor to the beginning of the previous paragraph |
| Ctrl + Down arrow key | Move the cursor to the beginning of the next paragraph. |
| Ctrl + Shift + Arrow key | Select block of text. |
| Ctrl + Spacebar | Enable or disable Chinese IME. |
| Shift + F10 | Open context menu for selected item. |
| F10 | Enable app menu bar. |
| Shift + Arrow keys | Select multiple items. |
| Windows key + X | Open Quick Link menu. |
| Windows key + Number (0-9) | Open app in number position from the Taskbar. |
| Windows key + T | Cycle through apps in the Taskbar. |
| Windows key + Alt + Number (0-9) | Open Jump List of the app in number position from the Taskbar. |
| Windows key + D | Display and hide the desktop. |

| Windows key + M | Minimize all windows. |
|---|---|
| Windows key + Shift + M | Restore minimized windows on the desktop. |
| Windows key + Home | Minimize or maximize all but the active desktop window. |
| Windows key + Shift + Up arrow key | Stretch the desktop window to the top and bottom of the screen. |
| Windows key + Shift + Down arrow key | Maximize or minimize active desktop windows vertically while maintaining width. |
| Windows key + Shift + Left arrow key | Move the active window to monitor on the left. |
| Windows key + Shift + Right arrow key | Move the active window to monitor on the right. |
| Windows key + Left arrow key | Snap app or window left. |
| Windows key + Right arrow key | Snap app or window right. |
| Windows key + S (or Q) | Open Search. |
| Windows key + Alt + D | Open date and time in the Taskbar. |

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|---|---|
| Windows key + Tab | Open Task View. |
| Windows key + Ctrl + D | Create a new virtual desktop. |
| Windows key + Ctrl + F4 | Close active virtual desktop. |
| Windows key + Ctrl + Right arrow | Switch to the virtual desktop on the right. |
| Windows key + Ctrl + Left arrow | Switch to the virtual desktop on the left. |
| Windows key + P | Open Project settings. |
| Windows key + A | Open Action center. |
| Windows key + I | Open Settings app. |
| Backspace | Return to Settings app home page. |

| Keyboard shortcut | Action |
|---|---|
| Windows key + E | Open File Explorer. |
| Alt + D | Select address bar. |
| Ctrl + E (or F) | Select search box. |
| Ctrl + N | Open a new window. |
| Ctrl + W | Close the active window. |

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|---|---|
| Ctrl + F (or F3) | Start searching. |
| Ctrl + Mouse scroll wheel | Change view file and folder. |
| Ctrl + Shift + E | Expands all folders from the tree in the navigation pane. |
| Ctrl + Shift + N | Creates a new folder on desktop or File Explorer. |
| Ctrl + L | Focus on the address bar. |
| Ctrl + Shift + Number (1-8) | Changes folder view. |
| Alt + P | Display preview panel. |
| Alt + Enter | Open Properties settings for the selected item. |
| Alt + Right arrow key | View the next folder. |
| Alt + Left arrow key (or Backspace) | View previous folder. |
| Alt + Up arrow | Move up a level in the folder path. |
| F11 | Switch active window full-screen mode. |
| F5 | Refresh the instance of File Explorer. |
| F2 | Rename selected item. |
| F4 | Switch focus to address bar. |
| F5 | Refresh File Explorer's current view. |

| F6 | Cycle through elements on the screen. |
|---|---|
| Home | Scroll to the top of the window. |
| End | Scroll to the bottom of the window. |

Linux users can completely switch from mouse to keyboard using some of the following tools and softwares.

## A. Vim

Vim is a free and open-source, text editor program for Unix. Vim is designed to be used both from a command-line interface and as well as a standalone application in a graphical user interface. There is no need to reach for the mouse again as everything is a mere keypress or combination away with almost 200 functions specified for text editing. Vim does support the mouse, but it's designed so we don't have to use it for greater efficiency.

A mouse is useless when you are using Vim. We are forced to do everything with the keyboard, and it makes us a stronger, more efficient developer. The more we take our hands off the keyboard and use the mouse, the less effective we are while working. Each mouse movement is effectively a mini-context switch that slowly destroys your overall efficiency. We should learn to use keyboard shortcuts. A benefit of Vim is that it's entirely keyboard shortcuts. We can't use the mouse.

## B. Window Manager

Window Manager makes extensive use of keyboard shortcuts to control different aspects of your environment. These include opening the terminal and other programs, resizing and positioning windows,

changing layouts, and even exiting wm. When you start using a window manager, you need to memorize a few of those shortcuts to get around and, with time, you'll use more of them.

The main benefit is that you don't often need to switch contexts from the keyboard to the mouse. With practice, it means you'll improve the speed and efficiency of your workflow.

For example, to open a new terminal, press <SUPER>+<ENTER>. Since the windows are automatically positioned, you can start typing your commands right away. Combine that with a nice terminal-driven text editor (e.g., Vim) and a keyboard-focused browser for a fully keyboard-driven workflow.

In a window manager, you can define shortcuts for everything. Here are some examples:

- Open terminal
- Open browser
- Change layouts
- Resize windows
- Control music player
- Switch workspaces

## C. Command-Line Interface

If the user knows the correct commands then the command-line interface can be much faster than any other type of interface. Some of the commands are listed below

**man** *command* - Show manual for *command*

**pwd** - Prints the full name (the full path) of current/working directory

**ls** - List directory contents

**ls -a** - List all the content, including hidden files

**ls -l** - List the content and its information

**mkdir** *foldername* – Create a new directory *foldername*

**cd** *foldername* – Change the working directory to *foldername*

**cd** - Return to $HOME directory

**cd ..** - Go up a directory

**cd -** - Return to the previous directory

**emacs, nano, vi** – File editors

**cp** *source destination* – Copy *source* to *destination*

**cp -r** *source destination* – Copy a directory recursively from *source* to *destination*

**mv** *source destination* - Move (or rename) a file from *source* to *destination*

**rm** *file1* - Remove *file1*

**rm -r** *folder* - Remove a directory and its contents recursively

**cat** *file* – Print contents of *file* on the screen

**less** *file* - View and paginate *file*

**head** *file* - Show first 10 lines of *file*

**tail** *file* - Show last 10 lines of *file*

### D. Command-Line Tools

Command line tools are scripts and programs that are created with a unique purpose, generally to solve a problem that the creator of that particular tool had faced. There is mostly a command line alternative to a GUI tool and using the command line alternative can boost up productivity significantly. Some of the command-line tools are mentioned below.

### E. Ranger

Ranger is a dynamic UI for complete system file management needs. It supports VI bindings for easier access across the whole of your file system. The interface focuses on a minimal design, emphasizing on the structure of each directory. Additionally, you can also customize Ranger with external plugins, or you can build your own.

Key Features:

- Supports the file management operations.
- File and the directory previews.
- Filetype detection and also automated execution.

### F. Qute Browser

Qutebrowser is a keyboard-only web browser for Linux, Windows, and macOS operating systems with VI key bindings and a minimal interface. It is completely keyboard-driven and is inspired by similar applications such as Vimperator and dwb. It accesses DuckDuckGo as the default search engine. qutebrowser is included in the native repositories of Linux distributions including Fedora, Arch Linux, etc. Similar to Vim and vi, the browser has a *command* mode and an *insert* mode. In command mode key binds can be used to perform different functions, for ex: 'G' to go to the bottom of a page, and 'gg' to the top. Specific commands can be bound to key-sequences by the user.

### G. Wikit

Wikit is a free and open source CLI program for easily accessing Wikipedia resources of search queries; it is built using Nodejs. The verb Wikit means looking up for something on wikipedia.org, the popular open source encyclopedia on the Internet.

## H. Googler

Googler is a powerful and feature-rich CLI tool for accessing Google Search within the Linux terminal. It provides a CLI to Google search and displays results informing of title, URL and other abstract information in pages, with page navigation similar to that on a graphical web browser.

## I. Custom shortcuts and Scripts

Knowing the right keyboard shortcuts can make a big difference in how quickly you can get things done—and if the hotkeys you need aren't available, it's not difficult to create your own. Whether you need to launch a specific application regularly or  have a folder you need quick access to, or want to enable a particular service, you can set up a keyboard combination to ease your work. Keyboard shortcuts are one of the fastest ways to increase your PC productivity. Being able to simply click a button or two and get the results you need reduces your dependence on your mouse, which increases the amount of time you have to do what's most important.

## IV. CONCLUSION

Based on the findings from this research, it can be concluded that depending entirely on the mouse can increase user efficiency and also greatly reduce the risk of wrist injuries and developing carpal tunnel syndrome. The usage of above mentioned tools and resources can prove beneficial to every type of user in boosting their productivity. An infographic by American Express Open Forum states that "an average person loses 2 seconds per minute of work" just by switching back and forth between the mouse and the keyboard. This finding can be used to prove the fact that depending entirely on the keyboard can save a lot of time.

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