Linux Terminal Colorization and Colorization for the Colorblind

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I. Introduction

The predetermined Linux terminal is simply white text on black background. Given the amount of time the average programmer spends staring at lines of monochromatic text, discomfort, and disinterest is inevitable. This can be averted by adding color to these lines of text and thus making the colorization of the Linux terminal not only aesthetically beneficial but also critical to the comfort and productivity of its users. There are a variety of options that can be accessed from the Preferences window. In the global tab, there's a Terminal Title Bar section in which the color of the font, as well as the background, can be changed according to the user's taste.

Colorization has become such a prominent tool for many people in battling the dread of working long hours on a terminal. With the correct combination, colors can reduce eye strain and save energy consumption, bringing comfort for terminal users. The contrast between the colors also become an excellent highlighter for scanning errors or essential information when working with a log or config file (Netherland, 2012). Colors can also convey meaning depending on the context; red is for errors, green for passes, yellow for warning, etc. (Netherland, 2012). Allowing for the distinctive association of commands and texts with color that is unavoidably psychologically affiliated.

Color psychology is the effects of electromagnetic radiation of light on human mood and behavior, in which not heavily influenced by culture, gender, and age. Color psychology is often described as color symbolism. There are four primary psychological colors, red, blue, yellow, and green. All of those colors respectively related to the body, the mind, the emotions, the essential balance of all three. These associated perceptions of colors are unconsciously taken into consideration when user choose their color schemes.

Red is a powerful color. Even though it is not the most visible, but it has the property to appear to be closer than it is. It stimulates the viewer and raises the heart rate. Red can be lively, and friendly, but can also be perceived as aggressive and demanding. Blue is inherently soothing and affects the viewer mentally. Soft blues will aid concentration and calm the mind, while strong blues will stimulate clear thought. Blue can be perceived as mentally calming and serene, but can also be regarded as cold, unfriendly, and unemotional. Psychologically, yellow is the strongest color. With the right yellow color, it can produce a warming effect that arouses cheerfulness, generates muscles energy, and stimulates mental activity. With the wrong tone of yellow, it may have a disturbing effect, such as rising a level of anxiety and fear and also plummeting self-esteem. Green is the color of nature and balance that symbolizes growth, harmony, trust, loyalty, freedom, and sincerity. The green color is strongly associated with tranquility and calmness. It also has a strong correspondence with safety. If green colors were incorrectly used, it may indicate stagnation and be perceived as too bland.

Color, evidently has a significant impact on perception and identification. Knowledge of that begs to question the feasibility and positive benefits of Linux terminal colorization for those who are color blind. Color blindness, also referred as color vision deficiency, is a condition that affects the way a person perceives color due. This is due to there being “tweaked” hardware in their retina, causing them to be unable to deliver the proper wavelengths of color to the brain (Porter, 2015). This condition was first known in the 18th century. The reason why such a common abnormality could go unnoticed is the fact that perception of color is subjective. The person that suffers from this deficiency is the only one who can detect the condition. The other reason is the concept of color itself. For trichromats, the idea of color is not hard to grasp, but for dichromats (peoplewith the deficiency), colors are unnecessarily complicated. Cases of acquired color vision deficiency were also part of the obstacle of the recognition of this abnormality (Lanthony, 2013).

When people talk about color blindness, they usually refer to red-green color blindness, as this is the most common form of the condition. The other kinds of color blindness are blue-yellow and complete color blindness. Among the three types of this deficiency, total color blindness is the rarest.

II. Linux Terminal and Colorization

The usage of Linux terminal is not dependent on color. Meaning people can still do their work normally even if they have a hard time differentiating certain colors or shades. However, it would be much more helpful for color-blind users to have some available alterations in Linux terminal that considers their condition. Although it is difficult, given that the degree of color deficiency varies amongst those with the mutation as well as having individual user preference. Some solutions to this are to have a color-blind type-specific color scheme that avoids the usage of the main colors that the said user is unable to differentiate. The idea is to cater to the three main types of color-blind; red-green blindness, blue-yellow blindness, and total color blindness. Whereas to solve the issue with varying degrees of deficiency, several shades and combinations of colors the user can distinguish can be used to make a variety of color-blind type-specific color scheme per type. This allows for greater freedom of choice to the color-blind.

Another option would be to create a color blindness simulator by creating a command line from the terminal itself to turn on the simulator. One example of those simulators include Color Oracle, which allows color-blind users to select their colors and build their own preferred color schemes, and integrate it onto on Linux terminal. As a final resort, if all fails, color-blind users can utilize EnChroma glasses. These special glasses have a unique optical filter that filters out wavelengths that cause there to be misinterpretations by the brain (Porter, 2015), enhancing vibrance and saturation of colors.

The colorization of the Linux terminal is known to reduce eye strain, enhance its aesthetics, increase unctionally and eventually productivity. The perception of colors on a colorized Linux terminal may convey the meanings of certain commands or text. Allowing for easy recollection and distinction. However, these colors are not perceived the same way by

color-blind users. This does not mean the color-blind cannot have the opportunity to customize the terminal for better functionality and aesthetics effectively. However, they do need additional external means beyond the ordinary to satisfy the customization. The possible solutions for the color-blind users include creating color vision alterations which can be customizable depending on the users themselves, making a specific color scheme per color blind type, Color Oracle, and Enchroma glasses. Through these proposed solutions, the color-blind can potentially have an equally satisfying experience working on the Linux terminal.

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