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DEPARTMENT OF COMPUTER SCIENCE

COLLEGE OF SCIENCE

CSC406 ASSIGNMENT

1. What is color harmony?

color harmony refers to the property that certain aesthetically pleasing color combinations have. These combinations create pleasing contrasts and consonances that are said to be harmonious.

2. Discuss why colour harmony is important in HCI

Color and accessibility are indelibly linked to one another, bad color combinations create bad user environments. The right colors can show users that they are doing the right thing or the wrong thing. Color can be used as a grouping method or to draw attention to certain aspects of the system. There are several traditional color schemes known to enhance usability including but not limited to: monochromatic, analogous, complementary, triad and split complementary. Some common issues with color use are: too many colors, complementary colors placed too close together, excessive saturation, inadequate contrast and inadequate attention to color impairment. Color can be used to create images that appear 3-D and is one of the most effective tools a developer has in their arsenal.

Color schemes have a large impact on human-computer interaction, color can greatly improve user interfaces if used correctly, but can also reduce the functionality of the interface if used inappropriately. Important factors of designing color interfaces include simplicity, consistency, and clarity. Firstly, you want to keep the color scheme fairly simple. Simplicity can be achieved by using the four primary colors, which are red, green, yellow, and blue.

Consistency is also another important factor when designing an interface. Colors should be assigned to a particular type of concept or to help classify information. This technique helps users to retain more information in their short term memory. Clarity and the concise use of color aids in helping users identify items more efficiently.

3. Explain the following using examples

(a)component of colors; As we now know all perceived colors can be represented by three independent variables, either the LMS responses, or the tristimulus values under the primaries of a given color system, such as RGB or XYZ. In many situations (e.g., computer image processing), it is more convenient to represent a color by a different set of three independent variables HSL (or HSI, HSV). These are defined as components of color.

Hue is what most people think of when using the term 'color.' It corresponds to its position in the spectrum. Examples of hues are: red, orange, yellow, green, blue, violet.

(b)Primary colors; First and foremost, the Primary Colors, **Yellow**, **Red** and **Blue**, are at the top of any color structure. That's because you can think of the three Primaries as the original parents of all the future generations of colors. In this example, if you want to mix a rich Purple instead, use a **cool pure Red** such as Quinacridone Red. That's because this pure pigment **leans away from Orange** and mixes **harmoniously with the cool pure Blue**.

(c)Secondary colors; Next come the three Secondary colors, Orange, Purple and Green. Think of the Secondary colors as the children of the three Primaries as shown above. These are examples of secondary colors:

- Yellow + Red = **ORANGE**
- Red + Blue = **PURPLE**
- Blue + Yellow = **GREEN**

(d) Tertiary Colors; Finally the remaining six colors are referred to as the Tertiary Colors. Think of these as the **six grandchildren of the Primary Colors**. Again, Color Theory teaches us that each Tertiary color is the result of **one Primary Color mixed with one of its nearest Secondary colors**. Therefore we end up with a new color somewhere in between.

- **Yellow + Orange = YELLOW/ORANGE**
- **Red + Orange = RED/ORANGE**
- **Red + Purple = RED/PURPLE**
- **Blue + Purple = BLUE/PURPLE**
- **Blue + Green = BLUE/GREEN**
- **Yellow + Green = YELLOW/GREEN**