Module II. Technical

6. Info graphic course

Topic 1. Design Process and Visual Design Basics in UX

Lesson 3.
Basic Visual Elements in UX

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This lesson has been prepared to improve the knowledge of the **visual basics** for designing the graphical elements of a user interface or...
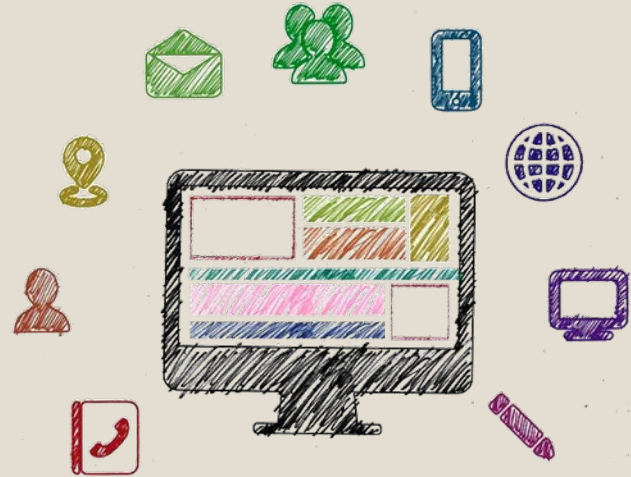
…an information visualization, in order **to facilitate the design choices** in the creation of an infographic or a website.

In this lesson, we will learn:

The Basic Visual Elements in UX, focusing on:

- **Layout**

- **Colour**

- **Typography**

Photo credits by Geralt, Pixabay

Photo credits by Andre Guerra, Unsplash

Graphical elements are used in visual design **to fulfill several objectives** such as usability, comprehensibility, originality, arousal of emotion, etc.

Frequently, designers **have to choose** what goals to focus on, while giving low priority to others.

However, it is always good to **balance** aesthetics and functionality.

The layout

Photo credits by Bernard Hermant, Unsplash

The layout is the arrangement of the visual elements in a virtual or physical environment, for example a screen or a page.

It deserves attention because it consists of a **lot of elements** that have to be **considered as a whole**.

Visual-design principles suggest that design elements such as **line, shape, colour, grid**, or **space** go together to create beautiful images.

Photo credits by Taras Shypka, Unsplash

Photo credits by Ricardo Gomez Angel, Unsplash

As we saw in Lesson 2, the modern concept of visual perception is linked to science, but also to **psychology**.

The arrangement of the elements within the screen is very important to create **a visual flow**. For example, it is useful **to align objects**, if you want to relate them to each other.

Focusing on this, means **defining rules** that give your designs a **consistent rhythm.**

A good visual flow is created by arranging elements according to the **principles of visual hierarchy**.

It means focusing on the positioning of the different design components with the intention of giving them **the proper importance.**

Photo credits by Florian Schmetz, Unsplash

Photo credits by Kseniia Samoylenko, Unsplash

The visual hierarchy is determined by **size, colour and shape** of the typeface, **distance, proportion and orientation** of the text, as well as of the other visual elements in the layout.

Within a graphic or textual composition **each element has a role** that is understood based on **comparison** with others.

For example, to indicate to users what content is **most important**, we suggest using a **larger font size**, or placing it at the **highest level** of the page.

In this figure, each element of the article is of a size equal to its importance.

In this way, the author of the flyer wants to **capture our attention** on the event (City Nature Challenge 2019) and the place of the performance (Ville de Luxembourg), which in fact are made with a **font size larger** than the rest.

Source:
https://commons.wikimedia.org/wiki/File:City_Nature_Challenge_2019_Luxembourg_flyer_front.jpg.

In this figure, we not only notice that the author of the infographic of Colosseum wants to **underline certain elements** by using a larger font, but also that many **Gestalt principles**, for example Common Region, Proximity, and Symmetry, heavily influence visual hierarchy by creating two main blocks of information.

COLOSSEUM
THE LARGEST AMPHITHEATRE IN THE WORLD

I — STRUCTURE

3 OF THE 4 FLOORS ARE SURROUNDED BY
ARCHES & COLUMNS

DORIC FLOOR I   IONIC FLOOR II   CORINTHIAN FLOOR III

THERE ARE OVER **80 ENTRANCES** AND THERE IS ROOM FOR **50,000 SPECTATORS**

165 FT   620 FT   510 FT

CONSTRUCTION TOOK **9 YEARS & 60,000 SLAVES**

II — HISTORY

ROMANS WOULD **FLOOD** THE COLOSSEUM FOR MINIATURE **NAVY SHIP BATTLES**

500,000 PEOPLE & **1 MILLION ANIMALS** WERE KILLED DURING THE **MAN VS BEAST GAMES**

ENTERTAINMENT ALSO INCLUDED **PUBLIC EXECUTIONS** DRAMAS, GLADIATOR FIGHTS, RITUAL MURDERS & SLAUGHTERING

THIS INFOGRAPHIC WAS CREATED BY SRINITHI AT SRISARTS.COM

These and other conventions should be followed in the spatial arrangement,

to avoid creating misunderstandings and dissatisfaction

in the User Experience or to allow readers to quickly define the type of content.

Source: http://www.sris-arts.com/colosseum
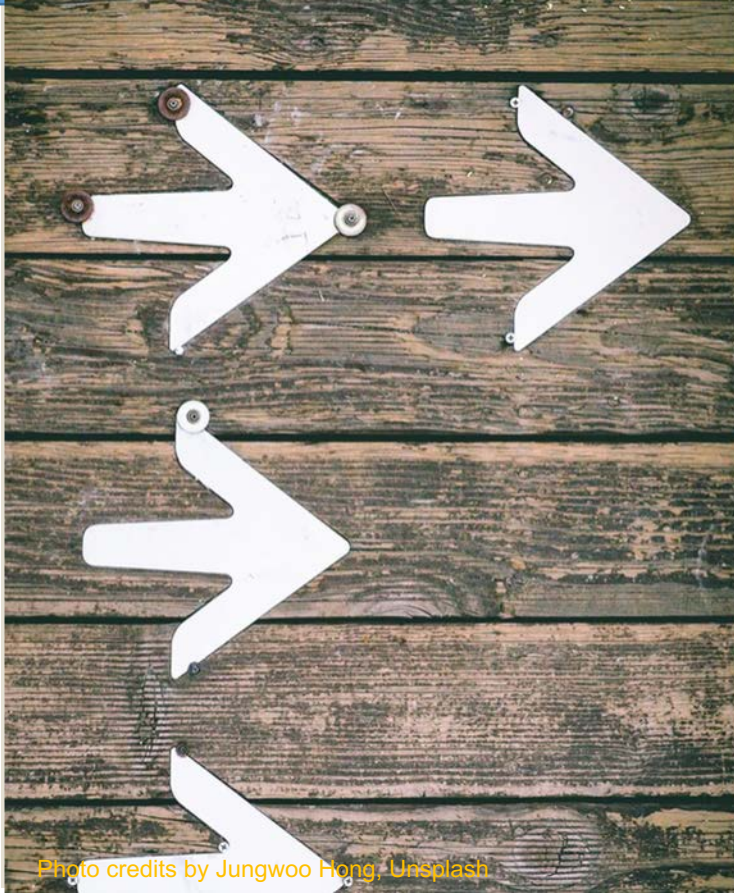
In creating a visual design, one of the most important **effects to avoid** is **clutter**.

In this sense, on each page or screen there should be the **right amount of elements with the right disposition**. To facilitate the alignment and organization of visual elements it is preferable using **a grid system** to logically and tidily organize them.

Photo credits by Jungwoo Hong, Unsplash

Let's see the following examples of grid system!

Source: https://visme.co/blog/layout-design/

Photo credits by David Pisnoy, Unsplash

The Colours

Colour is a critical part in the logical organization of a page or screen, because it **attracts attention**, sets a mood, and can be used to **influence perceptions**.

As the Gestalt laws suggest, the use of colour is helpful for correlating or differentiating elements: thus objects that have the **same colour** can be interpreted as **semantically or functionally close** (Principle of Similarity).

Photo credits by Dan-Cristian Paduret, Unsplash

Before explaining how to apply colour in visual design, let's find out more about how colour works!

Source: https://www.canva.com/colours/colour-wheel/

The main components of a colour are Hue, Saturation, and Luminance or Brightness, as the Figure shows.

Photo credits by Jess Bailey, Unsplash

- **Hue** is the pure colour.

- **Saturation** refers to the intensity or dullness of the hue. A hue can be desaturated with white (lightening the colour), grey (fading the colour) or black (darkening the colour). A full saturation of the colour is equivalent to its pure hue.

- **Luminance** or **Brightness** is the factor that indicates the amount of light in the hue. The more light there is in it, the brighter it is.

Photo credits by Fumiaki Hayashi, Unsplash

These three concepts are fundamental in the combinations of colours theorized by the **colour theory**, since colours with equal luminance and saturation are usually combined, as this creates a coherent and uniform appearance.

The colour theory is based on the **colour wheel**, invented in the 17th century by **Newton**. In detail, through a map that places colours on a circle, it is possible to establish colours that are **in harmony** with each other.

Let's look at the following figures to see how to combine different kind of colours, taking into account that:

- Combining **complementary colours** means using two colours placed opposite each other on the colour wheel.
- **A triadic colour** scheme is one that uses three colours equidistant enough to form a triangle.
- You can also combine up to five colours that are adjacent to each other (**analogous colours**) on the colour circle.
- A **tetradic colour scheme** combines one primary and two complementary colours.
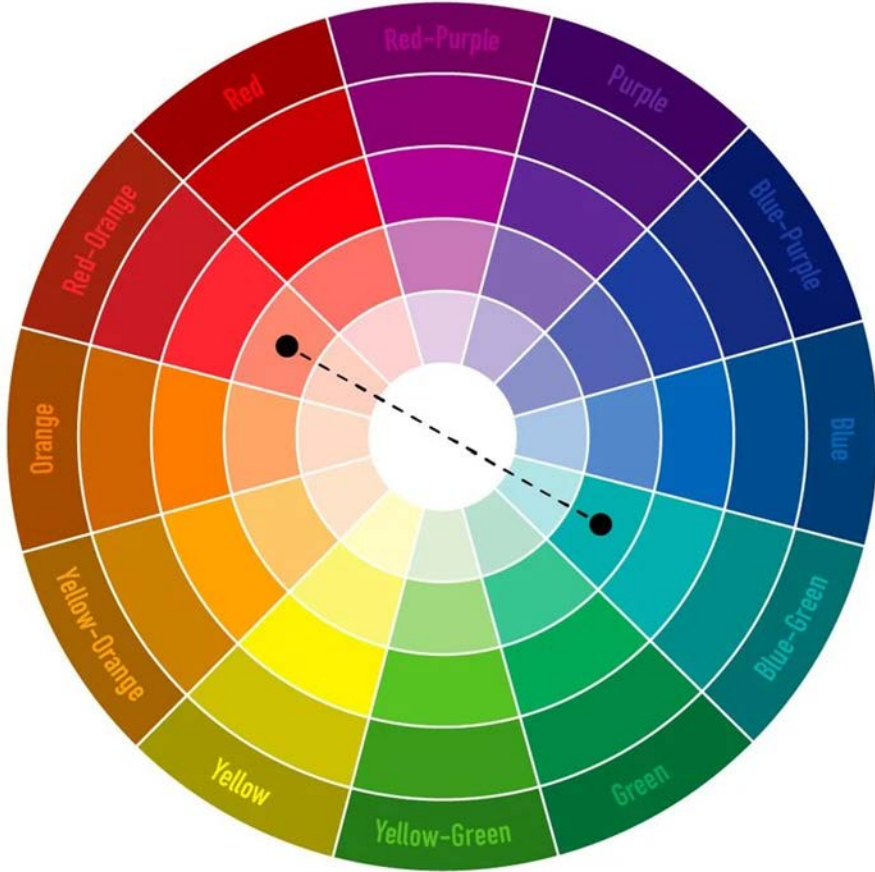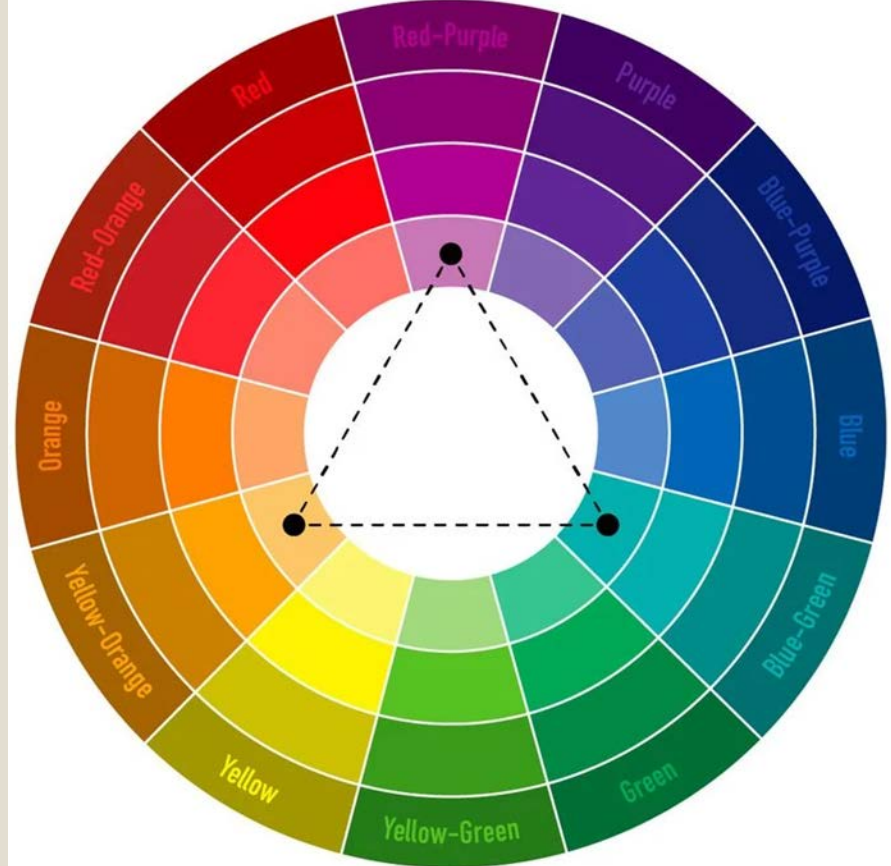
Combination of two complementary colours within the colour wheel.

Source: https://www.canva.com/learn/100-color-combinations/

Triadic colour scheme within the colour wheel.

Source: https://www.canva.com/learn/100-color-combinations/

Analogous colour scheme (combination of 2 to 5 adjacent colours) within the colour wheel.

Source:
https://www.canva.com/learn/100-color-combinations/

Tetradic colour scheme within the colour wheel.

Source:

https://www.canva.com/learn/100-color-combinations/

Photo credits by Laura Chouette, Unsplash

Photo credits by Bank Phrom, Unsplash

Another important concept about colour is the difference between colours used in the **digital world** and those suitable for **printing**, that refers to two main models: **RGB** and **CMYK**.

Photo credits by Laura Chouette, Unsplash

The **RGB model** (whose primary colours are Red, Green, Blue) is used in the digital world.

It is also called the **"additive model"** because the sum of the three colours creates white.

The colours in the RGB model are the result of transmitted light.

The **CMYK model** (whose primary colours are Cyan, Magenta, Yellow, Black) is suitable for **printing**.

It is called the "**subtractive model**" because the sum of its primary colours creates black.

In this case, the colours in the CMYK model are the result of the light absorbed or reflected by a surface.

Photo credits by Bank Phrom, Unsplash

In realizing the graphical elements of an information visualization, it is recommended to start by creating the **colour palette**, to make a consistent use of colours.

Photo credits by Ahmed Raza Kz, Unsplash

In the analogical world, the colour palette corresponds to the **set of colours** that the **painter** finds on his/her painting palette.

The following pictures show you the **combinations of colours** that compose two specific images by representing them in a palette, i.e. the range of colours used in the image.
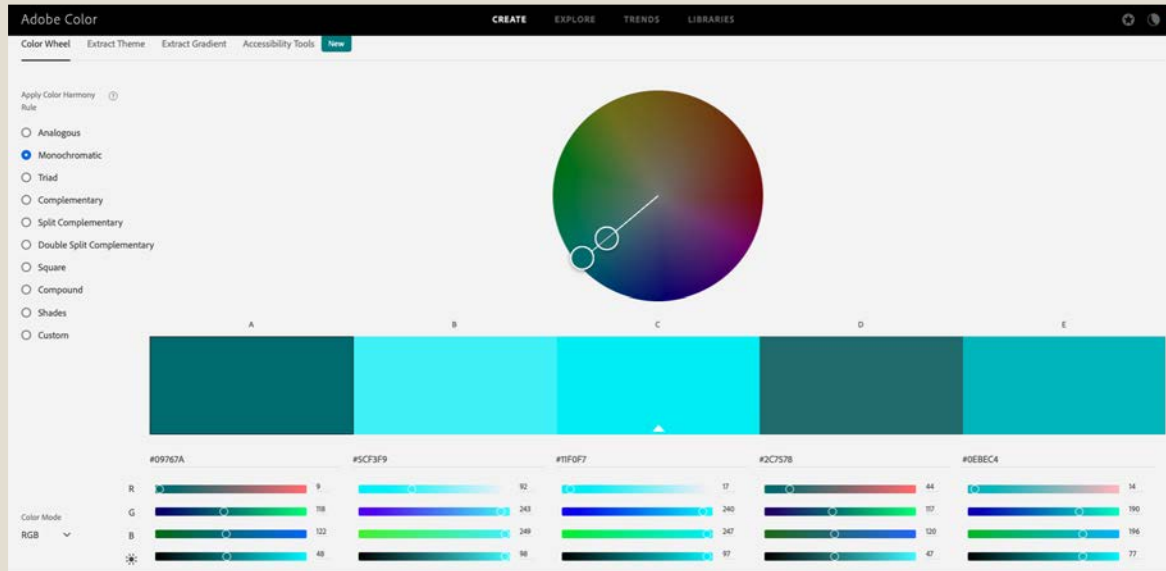

Source: https://www.canva.com/learn/100-color-combinations/
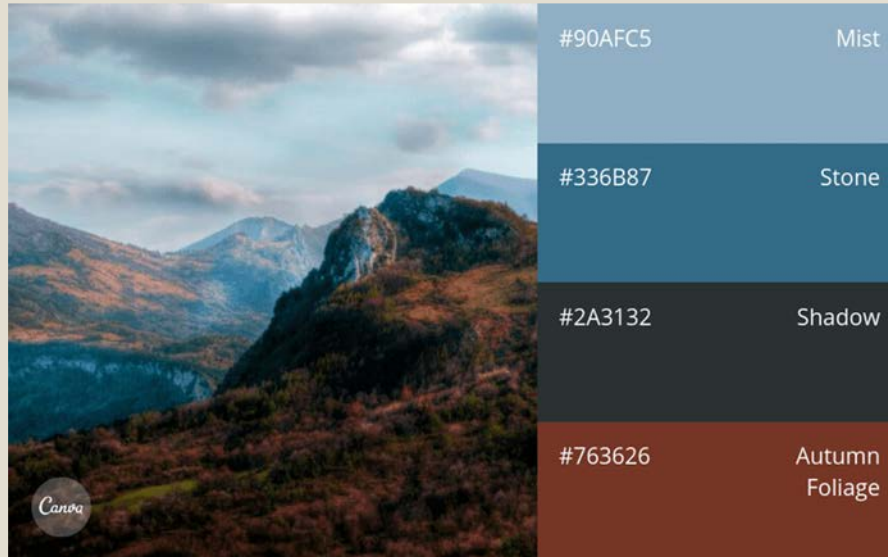
Source:https://visme.co/blog/colour-psychology-in-marketing-the-ultimate-guide/

You can find a lot of **free online tools** and resources that can help you in the choice of colours, since they suggest **different combinations** according to the colour wheel or automatically generate colour palettes.

For example, you can use this one to play with the colour wheel with the aim of **generating a colour theme** and then saving it to create the colour palette for your project.

Source:https://colour.adobe.com/it/create/color-wheel

Alternatively, this website allows you to figure out how to apply a specific colour palette on a **User Interface**, as it creates a preview according to the selected colour theme.

Source:
http://colormind.io/template/paper-dashboard/
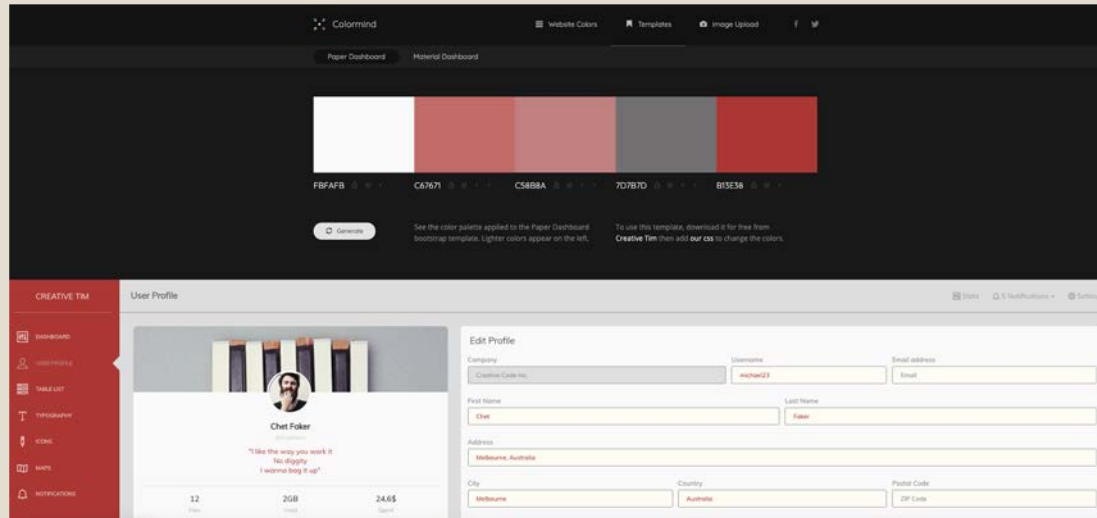
Let's push the button "generate" and see how the visual aspect of the **user profile** changes!

Photo credits by Sebastian Herrmann, Unsplash

The ability to combine colours does not matter only for aesthetic reasons, but also because of **usability**!
In choosing the colours of your UI or information visualization, be sure to avoid generating any **problem related to sight**.

Even if here we will not deal with colour vision deficiencies or special needs, remember to always consider **who users are** and what the context of use is.

As a general rule, it is preferable to use a **light background** with **text in contrasting colours** with the background. It is also possible to use white text with dark writing.

The important thing is to achieve a **sufficient contrast** between the background colour and the foreground one.

Photo credits by Philippe Leone, Unsplash

Source: https://webdesign.tutsplus.com/articles/why-you-should-avoid-vibrating-color-combinations--cms-25621

Pay attention that the use of **backgrounds with textures** that hinder the reading of the text should be rejected.

Even the so-called **chromostereopsis**, which occurs when two colours placed side by side **seem to vibrate** (such as blue text on a red background), must be avoided.

You also have to consider that colour can recall **cultural conventions**.

In this sense, colour is very often used as a sign to **convey some shared meaning** and can help in communicating a message to the viewer.
In a User Interface, red can be used to communicate an error and green to confirm an action.

Source. https://coloursandmaterials.files.wordpress.com/2014/11/culture.jpg

RED — MEANS: passionate, **active**, EXCITING, **bold** energy, youthful, **physical**, PIONEERING, leader willpower, confidence, ambition, **POWER**. BRANDS: Kellogg's, Virgin, LEGO, Coca-Cola, Nintendo, Red Bull

PINK — MEANS: love **calm**, respect, **WARMTH**, longterm, feminine, intuitive **care**, assertive, sensitive, NURTURE, **possibilities**, UNCONDITIONAL. BRANDS: three, Barbie, COSMOPOLITAN, VICTORIA'S SECRET

PURPLE — MEANS: **DEEP**, creativity, unconventional, original, **stimulation**, individual, WEALTH modesty, **compassion**, DISTINGUISHED, respectable, **fantasy**. BRANDS: Cadbury, YAHOO!, Hallmark, Milka, Zoopla.co.uk

NAVY — MEANS: trust **order**, **LOYALTY**, **sincere**, authority, communication, confidence, **PEACE** integrity, control, responsible, **success**, CALM masculine. BRANDS: f, Reebok, t, GAP

GREEN — MEANS: BALANCE, **growth**, **restore**, sanctuary, EQUILIBRIUM, positivity NATURE, **generous**, clarity, prosperity, good judgement, safety stable. BRANDS: bp, Holiday Inn, tic tac, LACOSTE

BLUE — MEANS: **spirit**, perspective, **CONTENT**, control, **rescue**, determination, self-sufficient, modern **goals**, aware PURPOSE, **OPEN**, ambition. BRANDS: intel, Blu-ray Disc, skype, W

ORANGE — MEANS: **INSTINCT**, WARMTH, **gut reaction**, optimistic, spontaneity, **extrovert**, social NEW IDEAS, **FREEDOM**, impulse, motivation. BRANDS: Fanta, orange, Penguin, MasterCard, bitly, B

boutique

Moreover, the use of colour is often based on **psychological factors**, other than on cultural and experiential ones.
To sum up, we can say that to create a well-defined and **consistent model** for the use of colours in visual design,

it is important both to know their meanings and how to properly combine them.

Source: https://www.pinterest.de/pin/418905202812234097/

Photo credits by Alexander Andrews, Unsplash

The Typo graphy

Typography deals with the **arrangement of type** in a way that makes text legible, clear and appealing for the reader.

Following a few basic considerations about the main aspects of typography. Let's start from the fact that, when designing a written content, first of all, you need to **select a typeface**.

Typeface or font family is a set of fonts that share the same design rules.

Font families can be classified into **two main classes**: **serif** and **sans-serif.**

Photo credits by Kristian Strand, Unsplash

- Serif, are all those fonts that **have a small decorative stroke** (called serif) attached to the end of the character. They are often rich in detail and are not always suitable for quick viewing of digital content. On the contrary, they make more readable **printed content** and **large texts**, such as books.
Serif typefaces are considered **classic and formal**.

Source: https://it.wikipedia.org/wiki/File:Confronto-caratteri-con-grazie-senza-grazie-serif-sans-serif.jpg

- Sans-serif, are fonts that do **not have the small decorative stroke** (from the French "sans" meaning "without") attached to the end of the character. Sans-serif typefaces are more suitable for **small texts**, **web content** and the text used for **UI elements**, such as icons and UI controls (e.g. a button), since they are perceived as more instantaneous. They are considered **simple and modern**.

Source: https://it.wikipedia.org/wiki/File:Confronto-caratteri-con-grazie-senza-grazie-serif-sans-serif.jpg
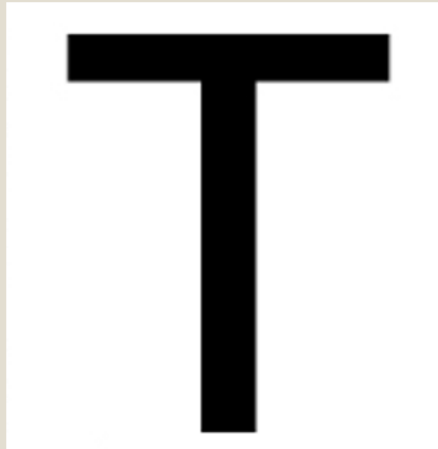
Arial Regular

Arial Italic

Arial Bold

Arial Narrow

Arial Black

Arial Nova

Arial Nova Light

Arial Nova Condensed

Arial Nova Condensed Light

Arial Rounded MT Bold

A typeface comprises **a set of related fonts** with different weights, widths, and styles, e.g. light and bold, regular and oblique (or italic), etc., as you can see in the figure.

In general, **bold fonts** have more visual weight and are more appropriate for headlines or content with little text. In contrast, light or **thin fonts** are appropriate for body text, as they flow more smoothly when viewed in quick succession.

Moreover, thin fonts are often chosen because they convey elegance.

Photo credits by Steve Johnson, Unsplash

Recommendations:

- **Size**: Better to use a standard size for text and increase the size for labels and titles. Don't use uppercase only, which slows down readability.

- **Alignment**: A left-hand alignment with an irregular margin is more readable. Usually only text with a long line length is justified.

- **Leading**: The vertical space between each line of type should be 20% larger than the font size.

- **Italics and underline**: In general, this combination should be avoided. It is good to use underline only when necessary (e.g for websites).

Let's see some possible ways to adequately associate different fonts based on the contrast their **combination** creates.

In design, **contrast** is a powerful rule; it adds focal points and keeps things from looking boring.
Elements such as different colours, typefaces, as well as even sizes and shapes, can be used to achieve this goal.

However, you need to be careful **not to overdo it.** Otherwise you will generate disorder and confusion. Using, for example, a **lot of different fonts** and inserting them in the text at random, i.e. without the purpose of finding a coherence with the kind of content,

is a **frequent mistake** among people who are not expert in graphics.

Source: https://www.pinterest.it/pin/713468765949554984/

In conclusion, the use of typography helps in creating **visual flow and hierarchy,** but can also be used to **give personality** to a written content or visual element by building recognition for the related subject.

You can see an example of how a font **can harmonize** with the tone of an infographic.

Source:
https://collagevintage.com/2019/01/travel-guide-from-kyoto-to-tokyo/

In this sense, fonts are not just designed for readability. Each of them can **communicate something**. That's why we can talk about "**font psychology**". It refers to the kind of characters you decide to use in your graphic design, taking into account that fonts have specific characteristics associated with them that can **evoke some meanings**.

In this picture, you can see how font psychology was used by **Netflix**.

Source: https://venngage.com/blog/font-psychology/
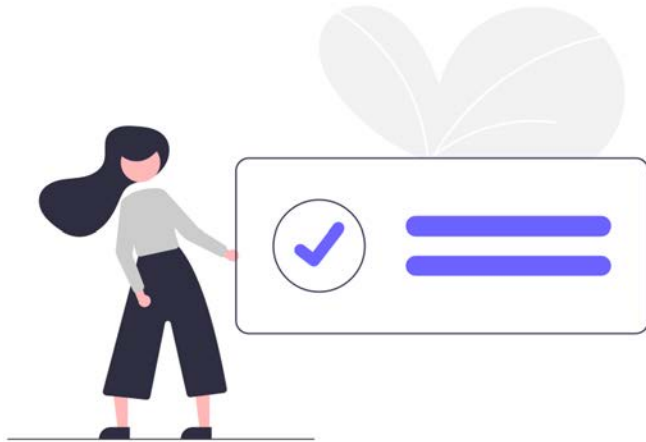
Conclusions

The knowledge acquired with this lesson will allow us to design and implement User Interfaces and information visualizations that are **usable and pleasant** in layout, colours, and typography choices.

Thank you for your attention!

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