EXPLORE AI ACADEMY

Design for impactful communication

An introduction to design

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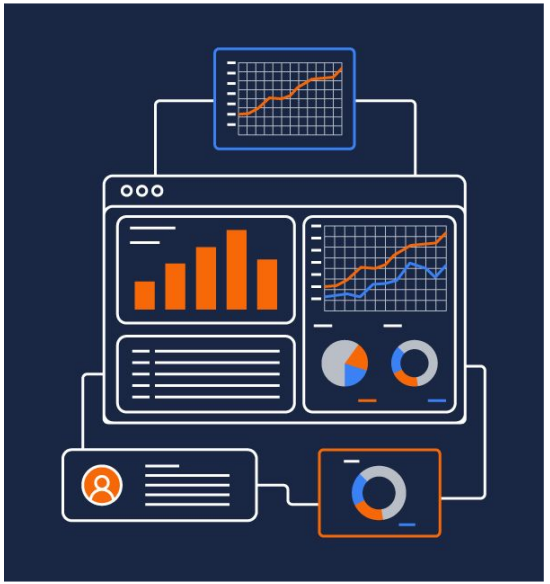
> In the world of data, design skills are becoming increasingly important. We regularly need to design visually appealing dashboards and visualisations to communicate our complex data findings to non-technical stakeholders.

These design skills equip us with the necessary tools needed to create **visually appealing** charts, graphs, and dashboards that are easy to understand and help us make our data-driven decisions **more accessible** to a broader audience.

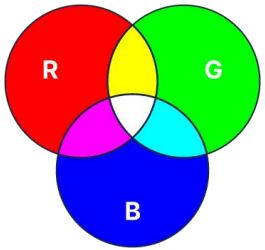
In this deck, we will discuss **composition, layout** and **colour theory**, as well as the key differences between **RGB** and **CMYK** colour models.



Intro to colour mixing models

RGB (Red, Green, Blue)

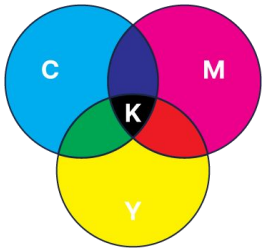
RGB is known as the **additive colour model** and is primarily used when **mixing light**. This means that anything **emitting light** will use the RGB mixing method. RGB is most commonly used in screens of televisions, computers, and smartphones.



The additive model focuses on **adding light** to colours in order to make them brighter. If we mix **all three the primary colours** of light, the result would be **pure white** light.

CMYK (Cyan, Magenta, Yellow, Key)

CMYK is known as the **subtractive colour model** and is primarily used when **mixing** colours **on a surface**. CMYK is most commonly used in colour printers, because it allows them to print a greater variety of colours than RGB would.



As most of our work will be on **screens**, we'll be focusing primarily on the **RGB colour model**.

Hue, value, and saturation

> When working with colour digitally, it is crucial to understand that **colour can be described using three primary characteristics**: hue, value, and saturation.

01. Hue

- **Hue** refers to the type of colour and is generally referred to as the **name of the colour**, such as red, green, or blue.
- When a colour is at its brightest, it is referred to as a **pure hue**.

02. Value

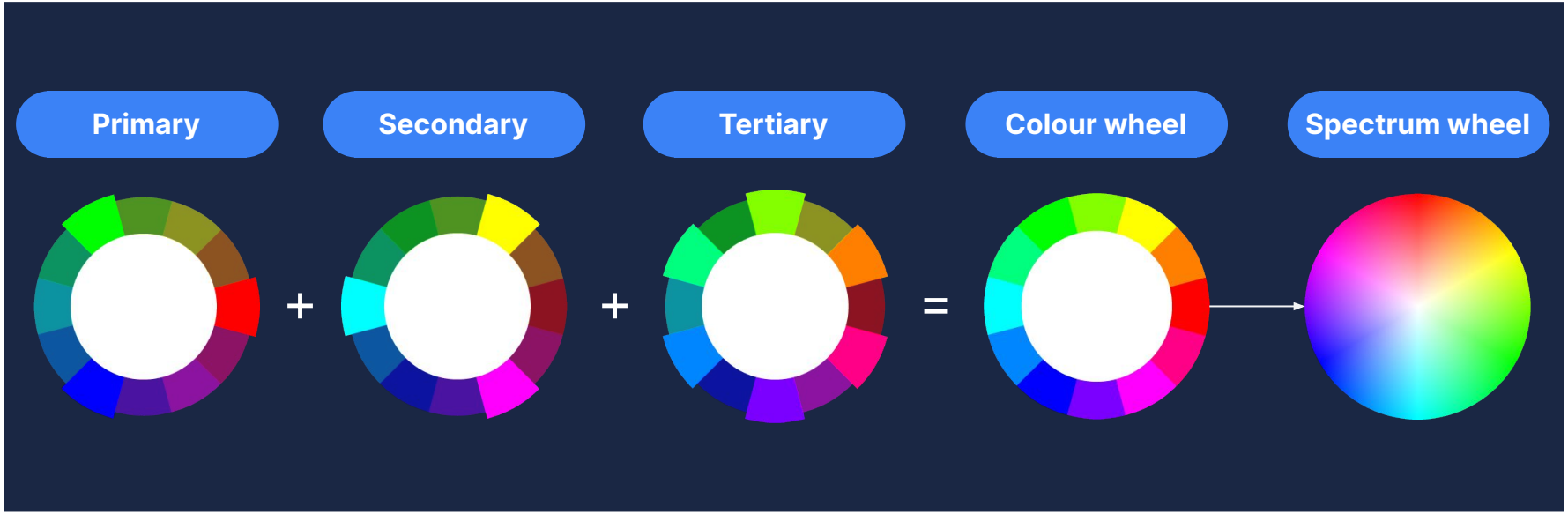
- Value refers to the **lightness or darkness** of a colour. It is often described as how close a colour is to pure black or pure white.
- Value can also be referred to as the **brightness of a colour**.

03. Saturation

- Saturation can also be known as **the purity or intensity** of a colour.
- A **fully saturated** colour is the most **intense** or **pure** version of that colour, whereas the **least saturated** version would be closer to a **shade of grey**.

The colour wheel

These colours are the bare minimum needed to create a **basic RGB colour wheel**. It can however become much more complex due to colour being a **spectrum** of many different **hues, tints,** and **saturations**. This is known as a **colour spectrum wheel**. A normal colour wheel is made up of three different colour categories; **primary**, **secondary**, and **tertiary** colours.

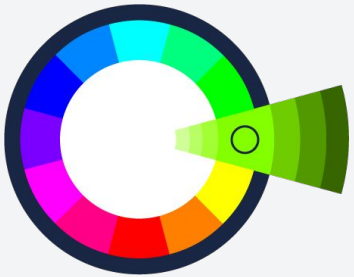


Basic colour harmonies

It is important to understand the colour wheel before deciding which colours to use, because it shows us which **colour harmonies** would work well together. Colour harmonies refer to the use of **specific colour relationships** or **arrangements** to create **visually pleasing** and **balanced** colour combinations in various design contexts. Understanding these harmonies is essential to achieving a well-balanced design.

Monochromatic

This harmony uses **variations** of a **single colour** by **adjusting** its **value or brightness**. It creates a simple, harmonious, and calming effect.

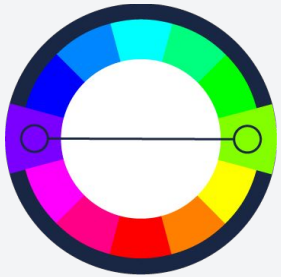


Analogous

This harmony uses colours that are **next to each other** on the colour wheel. For example, we might use bright green, lime green, and yellow together.

Complementary

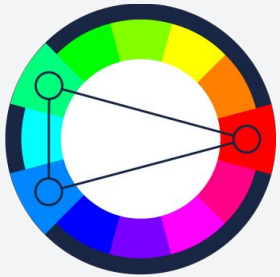
These colours are located **directly opposite each other** on the colour wheel. For instance, lime green and purple, or red and cyan.



Additional colour harmonies

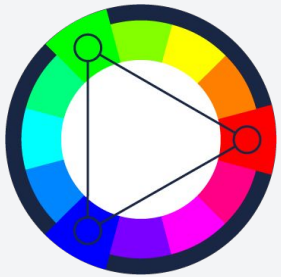
Split-complementary

This harmony uses a **base colour** and the **two colours adjacent to its complementary colour**. It creates a softer and more harmonious contrast.



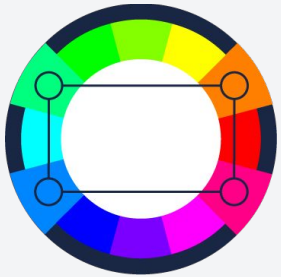
Triadic

This harmony uses **three evenly spaced colours** on the colour wheel. For example, red, blue, and yellow.



Tetradic (Double complementary)

This harmony involves **two sets of complementary colours**, creating more complexity and contrast. They can be challenging to balance but offer a **wide range of possibilities**.



Hex codes

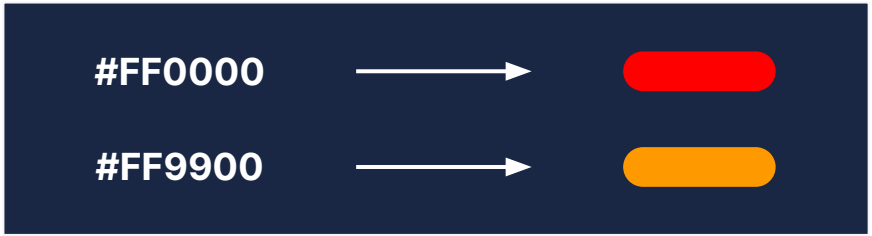
> Hexadecimal is a numbering system that uses **16 different characters** to represent values from **0 to 15**. These characters include the **numbers 0 to 9** and the **letters A to F**. In the context of hex codes. The letters **A to F** represent values **10 to 15**, respectively.

Format

A hex code is typically written with a **"#"** symbol followed by **six digits** and is most frequently used to represent colours in the **RGB colour model**. In this model, each colour channel (R, G, and B) is represented by two numbers, ranging from 00 (minimum intensity) to FF (maximum intensity).

The hex code for pure red would be #FF0000. This shows that red is at maximum intensity and green and blue are at minimum intensity of 0.

Hex codes are vital when **transferring colours** between **programs or mediums** to make sure that the colour we are using **stays consistent** and we don't need to guess if a colour is similar enough or not.

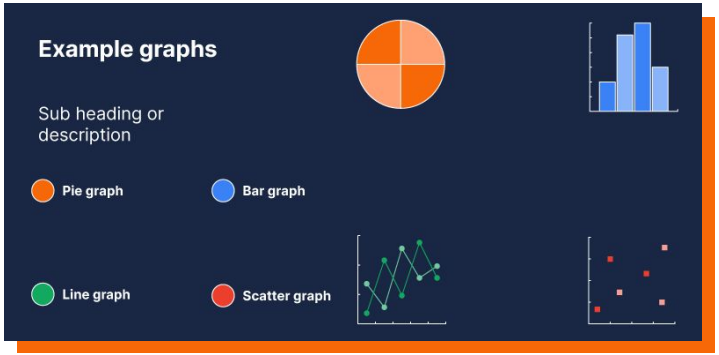


Proximity

> Proximity refers to the **visual** and **spatial relationship** between elements on a page or screen. Proximity involves placing **related elements closer** to each other while **separating unrelated elements** to establish a clear and intuitive layout.

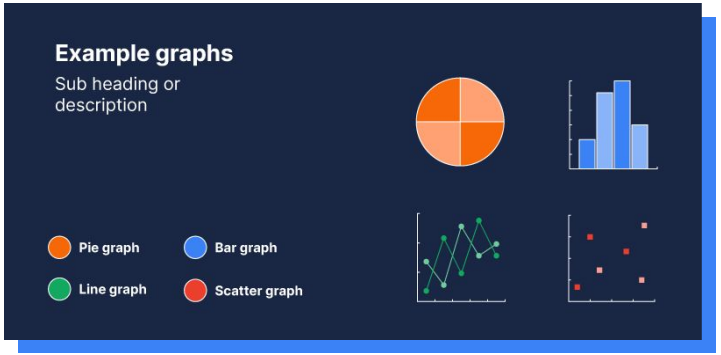
Bad proximity

- None of the elements are really grouped together.
- Challenging to decipher and understand the design.



Good proximity

- Elements are divided into related groups.
- Clear that the colours and text in the bottom left serve as a key for the graphs on the right.

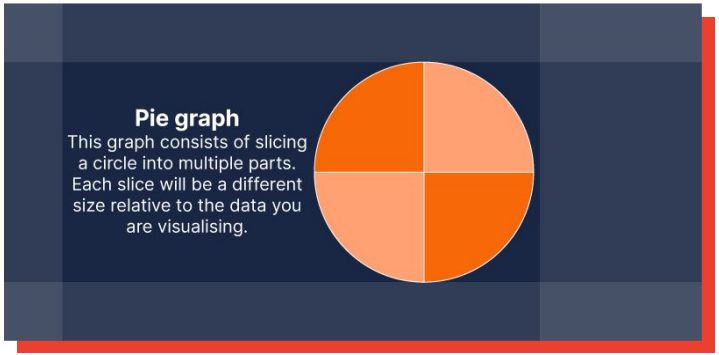


White space

White space, also known as "**negative space**," refers to the **empty** or **unused space** around and between elements in a design. Whitespace is not necessarily white, as it refers to the **absence** of **content, text,** or **graphics** rather than the actual colour on screen. It plays a fundamental role in design aesthetics, usability, and communication.

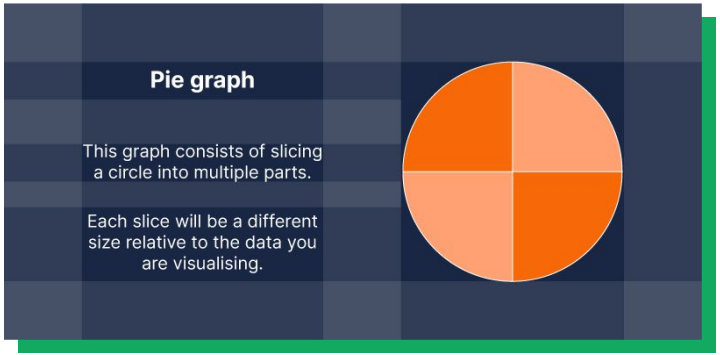
Bad white space

- The only white space is on the edges of the design and uneven.
- The result is cramped and unbalanced.



Good white space

- The white space is evenly distributed throughout the design.
- More breathing room and balance in the design.

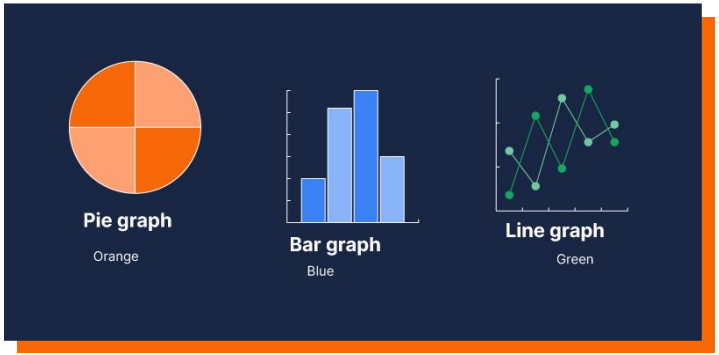


Alignment

Alignment refers to the **arrangement of visual elements** in a layout to create **order, cohesion**, and **clarity**. It plays a crucial role in ensuring that a design is **visually appealing, easy to understand**, and **effectively conveys its message**. Aligning objects or text by hand can be quite a challenge, so it is recommended to use **guides** and **grids** in order to align everything perfectly.

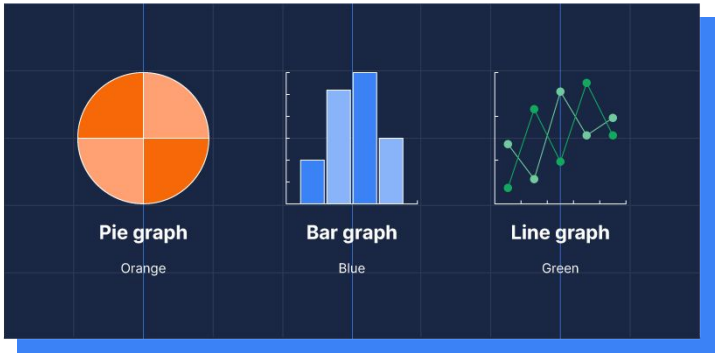
Poor alignment

- Objects aligned by sight, rather than with guides or grids.
- Our scene is inconsistent and difficult to interpret.



Good alignment

- The guidelines and grid help our alignment.
- Evenly spaced text and visualisations.
- Resulting in a consistent and cohesive design.



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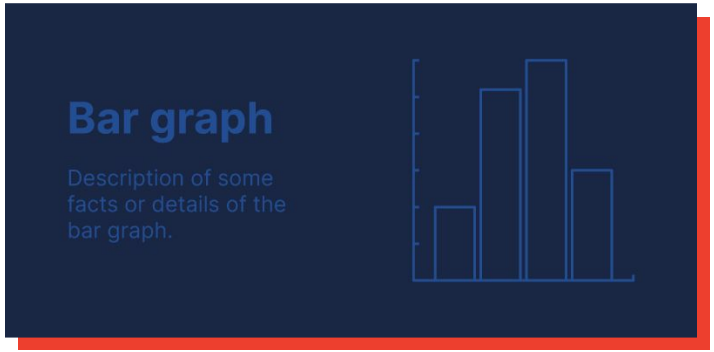
Contrast

Contrast involves creating **distinctions** or **differences** between visual elements within a design. It is used to add **structure** and **separation** in the design and makes the design more **legible** and **accessible** to a variety of users.

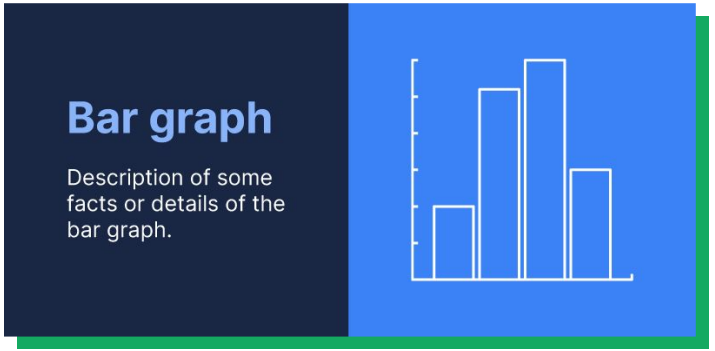
Poor contrast

- Extremely difficult to navigate or read the design.
- Everything looks equally important.
- Difficult to see or read elements.



Good contrast

- The design is much more legible and accessible.
- The contrast helps separate the graphic from the text and results in a more balanced design.



Hierarchy

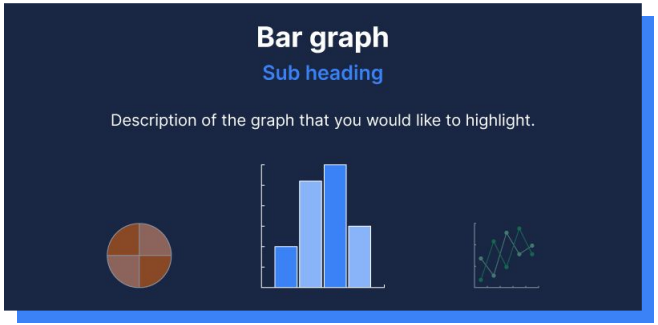
Hierarchy is used to **organise** and **prioritise** visual elements to **guide the viewer's attention** and **understanding** of a design. By using all of the design concepts we've learned, we can make some elements on screen **more interesting** than others. This shapes a clear path throughout the design to help the viewer **digest** and **navigate** it with ease.

Poor hierarchy

- All text has the same size and formatting.
- The graphics all have a similar contrast and size.
- Impossible to know what information is most important.

Good hierarchy

- Heading is the largest text on screen and bold.
- Low contrast of the other graphs and increasing the size of the bar graph.
- Easy to understand and navigate.



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Repetition

Repetition focuses on **repeating** certain **design elements**, such as **shapes** or **colours**, in order to create cohesion and maintain relationships across multiple designs. The key difference between repetition and the previous design principles is that repetition applies to **multiple designs within the same project** and not just a single design on its own.

Examples

In the example below, the repetition of colour and position is used to maintain relationships across the two designs. Even though we don't use any labels or text to explicitly state that there is a link, the matching colours and positions of the elements illustrate it clearly enough for the viewer to follow along.

Table 1	
1	25%
2	25%
3	25%
4	25%

Table 2	
Bar A	2
Bar B	5
Bar C	6
Bar D	3

Table 3	
(1;1)	(1;4)
(3;7)	(3;2)
(5;4)	(5;8)
(7;9)	(7;5)