

COMP1022Q
Introduction to Computing with Excel VBA

RGB


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Outcomes

- After completing this presentation, you are expected to be able to:
 1. Explain the RGB system for representing colour
 2. Change the appearance of cells using RGB

Using Colour in VBA

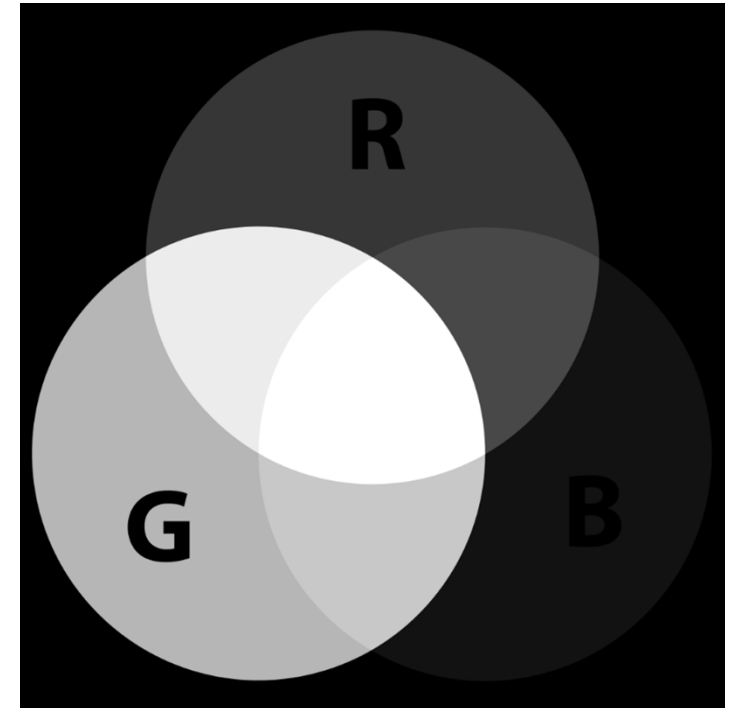
- There are different ways to use colour
 1. Using a simple number
 2. Using the RGB method
 3. Using colour names
- The second method is the most powerful, because you can ‘design’ any colour you want



*We have seen
these before*

The RGB System

- A colour can be created by a combination of quantities of red (R), green (G) and blue (B) light
- Computers let you use three numbers (one number for each of the RGB light) to represent one single colour
- By varying the numbers, you can create any colour



Using RGB in VBA

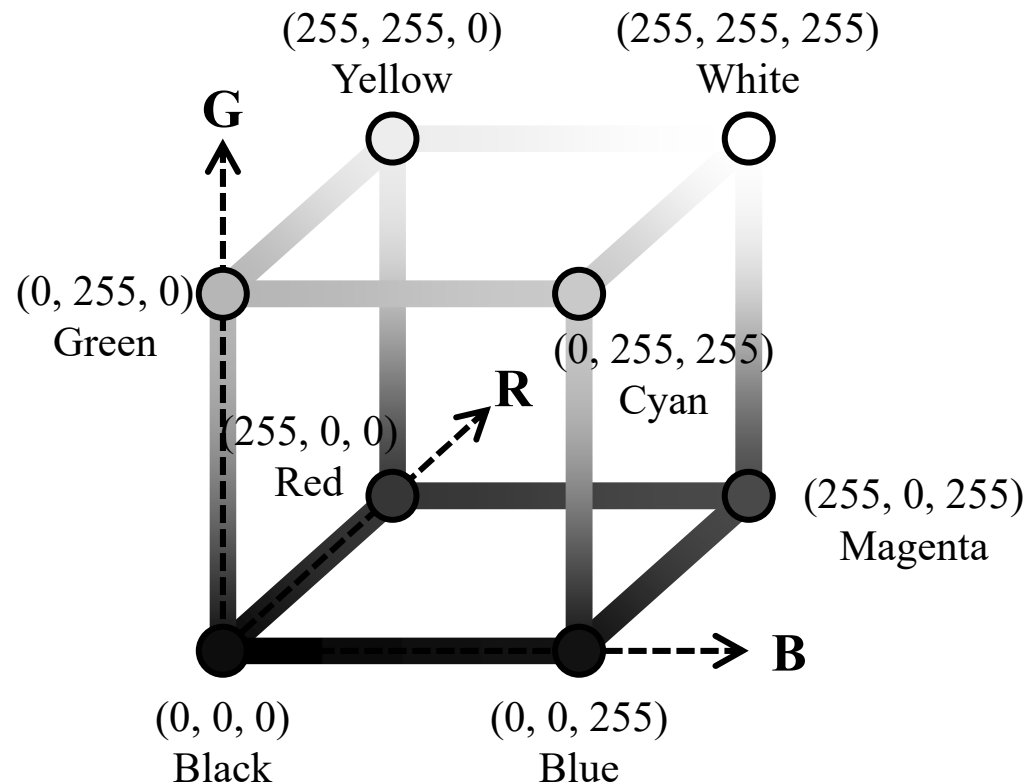
- In VBA, we use the RGB function to create a colour, like this:

RGB (*Red* , *Green* , *Blue*)

- Each of the three numbers has the range 0-255
- The total number of colours that you can make is then $256 \times 256 \times 256 = 16.8\text{M!}$
- To better understand RGB it is useful to think of the 3 numbers as (x, y, z) and then plot colours on a 3D cube

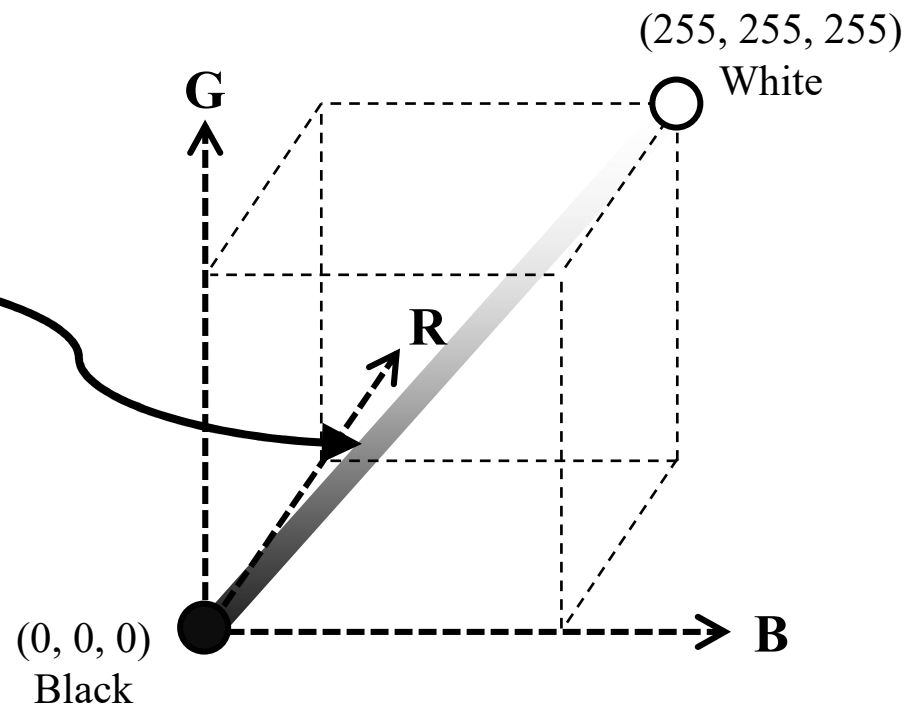
The RGB Cube

- In this diagram the colours at the corners of the cube are listed
- You should know them very well as they are the colour names that you have used before, i.e. vbWhite, vbBlack, vbRed and so on



The Grey Line

- If the values of red, green and blue are the same, i.e. $\text{red} = \text{green} = \text{blue}$, you get a line between black and white
- On that line, you get different levels of grey



An Example Using RGB

The image shows an Excel spreadsheet with columns B, C, and D, and rows 4 through 8. Row 4 has headers 'Red', 'Green', and 'Blue' under columns B, C, and D respectively. Row 5 contains the values '255', '0', and '0' in cells B5, C5, and D5. A thick black border is drawn around these three cells. Row 7, column C (cell C7) is shaded dark grey. A bracket is drawn under cells B5, C5, and D5. An arrow points from this bracket to the code block below. Another arrow points from the text 'set to this RGB colour' to the 'RGB' function in the code block.

	B	C	D
4	Red	Green	Blue
5	255	0	0
6			
7			
8			

- In this example, three cells (B5, C5 and D5) contain the red, green and blue numbers
- If the numbers are changed the colour of cell C7 will be set to the RGB colour specified by the above cells using the following code:

```
Red = Range("B5").Value  
Green = Range("C5").Value  
Blue = Range("D5").Value
```

The colour of cell C7 is
set to this RGB colour

```
Range("C7").Interior.Color = _
```

```
RGB(Red, Green, Blue)
```


More RGB Colours

Red	Green	Blue
255	255	0

Red	Green	Blue
128	128	128

Red	Green	Blue
0	255	255

Red	Green	Blue
0	0	180

Red	Green	Blue
255	140	240

Red	Green	Blue
0	0	0

A Summary

- In VBA, you can specify simple colour using any of these code

- For example, this line of code:

- `Range("A1").Interior.ColorIndex = 4`

- is equivalent to this line of code:

- `Range("A1").Interior.Color = vbGreen`

- and it is also equivalent to this line of code:

- `Range("A1").Interior.Color = RGB(0, 255, 0)`

- For more variety of colours, you will need to use the RGB function then