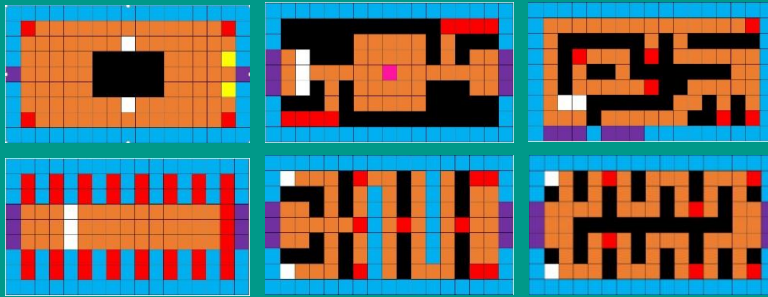


From Design to Unreal

When designing Nebula Knights' modular levels, many maps were exchanged between the team denoting different rooms colour coded to show specific tile properties. Measuring 9 x 17 tiles per room required placing over 150 tiles to see a single room in engine, and with over 50 room designs; building them, if only to visualise the design, became a daunting task. So I wrote a program that would do it for us.



The python program (top right) uses the PyGame library to create a singleton of the LevelMap class with a level map image passed in as an argument. The csv library is then used to return a .csv file of quoted integer values each corresponding to a file colour defined as a modular level piece within a key (below). Spoofing an initial line denoting the column headers results in a file that Unreal Engine can import as a data table to be interpreted and used in blueprints. Unreal Engine can only import data in the form of quoted .csv files shown in the format below, so the python program works as an adapter for these incompatible data types (maps) and interpreter (Unreal Engine).

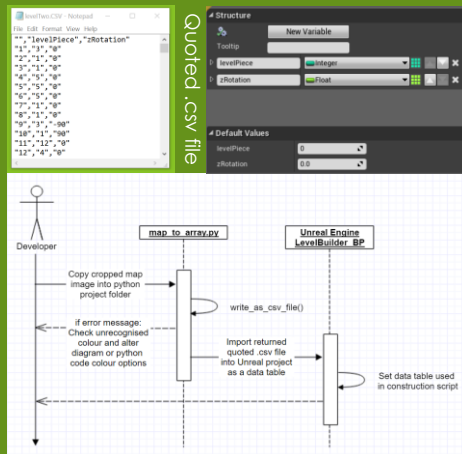
Colour code			
(337, 125, 48) = Floor	orange	0.	
(1, 176, 243) = Walls	black	1.	
(8, 0, 9) = Stone	black	4.	
(151, 40, 140) = Stone	purple	9.	
(256, 5, 9) = Empty space	red	11.	
(255, 255, 255) = Wooden	white	12.	
(220, 220, 0) = Dark element	yellow	14.	


```

def colour_to_index(colour):
    r, g, b = colour[0], colour[1], colour[2]
    index = (r * 256 * 256 + g * 256 + b) // 1000000
    return index

if __name__ == '__main__':
    # Load image
    img = pygame.image.load('level_4.png')
    # Get dimensions
    width, height = img.get_size()
    # Create LevelMap object
    level_map = LevelMap(img)
    # Get data table
    data_table = level_map.get_data_table()
    # Write to CSV
    with open('level_4.csv', 'w') as f:
        f.write('\"' + '\"'.join(str(i) for i in range(1000000)) + '\"\\n')
        for row in data_table:
            f.write('\"' + '\"'.join(str(i) for i in row) + '\"\\n')
    
```

Colour tolerances checking key



Unreal struct for importing data tables

UML sequence diagram

Python Map Reader

```

1 import sys, csv, pygame
2 from pygame.locals import *
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4 pygame.init()
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6 # ...
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8 def colour_to_index(colour):
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