

*Your submission for this tutorial must include your full name and you nine-digit student number as a comment at the top of every source file you submit. All source code files must be written using the Python 3 programming language and must run on the course's official virtual machine.*

### Exercise A: "Writing Tile Map Files"

For this exercise you will design and implement a program that creates a tile map file. Tile maps are often used to conserve resources, by loading several small images into memory (rather than a single large image) and blitting those "tiles" repeatedly to fill a large display. Your program must ask the user how image files will be named and then your program must generate enough random data for the corresponding map. An example is depicted right but you do not need to use this exact format.

tiles: desert

```
1,1,1,4,1,1,
1,1,1,1,1,2,
1,1,1,2,1,1,
1,2,3,1,4,1,
1,1,1,1,1,1,
3,1,1,1,2,1,
1,1,1,1,1,1,
1,1,3,1,1,2,
```

In order to complete this task, you will need to:

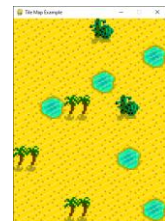
- decide how your tile image files will be named and how you will encode your data file

Your submission for this exercise:

- must be a source code file with filename<sup>1</sup> 'comp1405\_f21\_#####\_tutorial\_08\_a.py'
- must get user input using the input function and generate the required random data
- must open a file in write mode and write the data to an external file

### Exercise B: "Reading Tile Map Files"

For this exercise you will design and implement a program that reads and renders a tile map that has been specified in a file that uses the same format you designed for the previous exercise. You will need to handle any exceptions that might arise, attempting to correct any missing data instead of simply terminating or crashing.



In order to complete this task, you will need to:

- ensure you know how to load an image in pygame and find its dimensions

Your submission for this exercise:

- must be a source code file with filename<sup>2</sup> 'comp1405\_f21\_#####\_tutorial\_08\_b.py'
- must loop until the user specifies a file name that actually exists
- must terminate if the file specifies any tile image that doesn't exist
- must create a pygame window of the correct size and blit the tile images to create the result

<sup>1</sup> You must replace the number signs in the filename with your official nine-digit student identification number.

<sup>2</sup> You must replace the number signs in the filename with your official nine-digit student identification number.