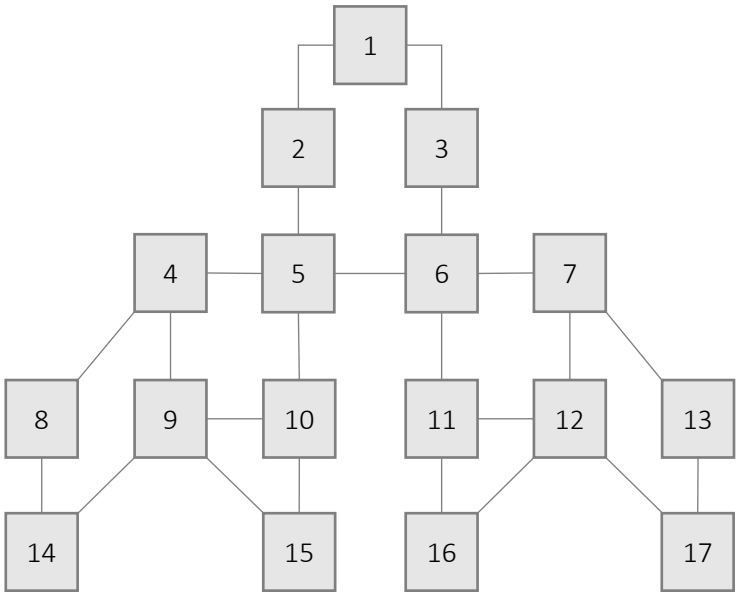
STAGE 1 – CREATING THE SPACE STATION

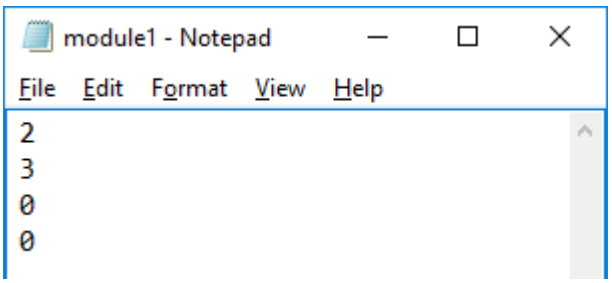
The station is a set of interconnecting modules. Each module can have up to four doors that lead to other modules – this can be illustrated as follows:



In this example, module 1 has two doors connected to modules 2 and 3, while module 5 has four doors connected to modules 2, 4, 6 and 10.

This station is represented in 17 text files named: module1.txt, module2.txt, etc.

At least one module must have fewer than three connections to other modules for the queen alien to become trapped. Ideally, it should be more than one – otherwise, the game may be too difficult.



Each file has four items of data stored in it, representing connections. A zero indicates that the door is not connected.

This is the text file for module 1, which is connected to modules 2 and 3 with no other connecting doors.

Note: Each file must have four items of data, or the program will not work.

The program will work with any configuration, as long as there are at least 10 modules:

- One for the player to spawn in (module 1)
- One for the queen alien to spawn in (random)
- Three for the information panels (random)
- Two for the ventilation shafts (random)
- Three for the worker aliens (random)

Investigate T I M E

ITEM 	Identify the data type used to store a module number in the text file.
STRUCTURE 	Explain how and why abstraction has been used to construct the space station.
PURPOSE	What is the purpose of storing zeros in a module file? For example, module 1 is storing the data `2, 3, 0, 0` but only 2 and 3 are useful.
REASON 	How does the number of modules and the connections between them affect the game?
RELATION 	Using the visualisation of the space station layout, show what the data file would look like for module 11.
APPROACH 	What are the advantages and disadvantages of storing the layout in text files?

Make TIME

1 point
Create the 17 text files required to represent the space station. Be very careful to ensure that:

- Each text file is named correctly – no spaces in the filename.
- Each text file has four items of data.

Put the text files in a folder named `Charles_Darwin` – note the underscore in the folder name.

2 points
Create your own space station so the game can be played on a different level – maybe a simple tutorial level or a very challenging one.

Evaluate TIME

1. Why is it important that each module has the same number of items of data even though not all the doors are connected? In other words, why bother with the zeros?
2. Consider the layout of the Charles Darwin compared to your own space station. Which is more difficult to play and why?