London Underground – A Simulation Study: Step 2

Classes have been introduced to describe the structure of the network. NetworkNodes are the common super class for all Depots, Stations, and Cross-Over Nodes. Circular Lines begin and end with a Depot Node and go clockwise as well as anti-clockwise. Linear Lines begin in a Depot, go down one direction, switch direction in a Cross-Over Node and return back to the Depot. The initialisation of Lines is done in the factory method **`allTracks().`**

A selective trace facility has been added that allows to switch trace functionality dynamically on and off:

- **`network.traceOn(line='Bakerloo')`** enables tracing all traffic on the Bakerloo line
- **`network.traceOn(train=2)`** enables tracing of all train number 2 on the Bakerloo line
- **`network.traceOn(loc='KINGS CROSS ST PANCRAS')`** enables tracing of traffic on all lines at Kings Cross/St Pancras.
- **`network.traceOn(start="06:00", stop="06:30")`** enables tracing of all traffic between 6:00 and 6:30.

and all reasonable combinations of these parameters:

- **`network.traceOn(line='Bakerloo', loc='KENTON', start='10:00', stop='11:00')`** enables tracing of all traffic on the Bakerloo line at Kenton between 10:00 and 11:00.

The selective trace facility is vital to test the behaviour of a complex system.

Beyond these code changes there are no changes to the model. We can now start checking the trace to verify the model.

Depots have not yet been integrated. Currently Trains are generated as needed and deleted at the end of the journey. The issue at hand is the capacity of the depot.

Currently the lines all start and stop at the same time and follow the same timing regime. The appropriate parameters should be stored in the dataframe describing lines.

Notes for version 3:

- The detailed name of a network node is now defined by the `__str__()` method and can hence be accessed via `str()`. Up to version 2 this was called `track()` causing some confusion.
- Some redundant code was removed.

Notes for version 4:

- The tracing interface was simplified. **`traceOff()`** has been removed. **`traceOn()`** has been renamed to **`trace()`** .