In your groups, read through the following and :

1. Draw a process map of the system described (note that there's more than one process being described here)

2. Write "what if?" question(s) that captures what has been asked of you as the modeller

3. Draw up a design for a Discrete Event Simulation model, based on the "what if?" question(s) that have been asked. Indicate the generators, queues, activities, resources and sinks in the model, and list the entities, inter-arrival times and activity times that will be used in the model. Consider any attributes that your entities might have, and how they might be used. Think about what queuing policies you would have for each queue, and whether you may need to capture reneging, balking or jockeying queuing behaviours. You should also think about what outputs you would want your model to generate to answer your modelling questions. Also, remember our discussion of "scope" from the first session – you may not need to include everything from the process map of the system in your DES model design…

A local GP surgery has two receptionists, three GPs, and a nurse. The surgery is open Monday – Friday from 0830 to 1800. Patients who want to see a GP must first call into the surgery, where a receptionist will ask what the problem is, and then pass their details to a GP to call them back. Typically within a few hours a GP will call the patient and triage the patient over the phone initially. The GP may decide no further action is needed, or they may prescribe some medication for the patient, which will be ready to collect from reception within 1 hour. In some cases, the GP may decide that the patient needs to be seen in person so they can perform an examination, and these patients are asked to come into the surgery, and are seen on a first-come, first-served basis by the GP who asked them to come in. The GP may provide the patient with a prescription, which will be handed directly to the patient by the GP at the end of their consultation. If tests are required, the GP will ask the patient to speak to the receptionist on their way out to book in an appointment with the nurse to perform the test.

As well as answering calls from patients looking to make appointments, the receptionists also deal with calls enquiring about prescriptions and test results, provide prescription slips to patients, book appointments for patients with the nurse, and carry out administrative duties. The nurse, in addition to performing tests for patients, also runs a daily 2 hour weight loss clinic, providing advice to anyone who wants to speak to them. People wanting to attend the weight loss clinic simply arrive at the surgery during the time of the clinic and wait to be seen by the nurse. Tests with the nurse can be booked for any time of the day, including during the 2 hour weight loss clinic.

The GP partners have approached you as they are very pleased with how well the weight loss clinic is going, and would like to set up nurse-led quit smoking consultations within this clinic too. However, they're unsure whether the nurse they have currently has the capacity to lead these consultations, or whether they'd need

to bring in a second nurse to run a dedicated separate quit smoking clinic help to avoid lengthy waits to see the nurse for tests and clinics. They have asked you to build a model to help them better understand this.

You have 1 hour 15 minutes to complete this exercise. But first take a 5 minute comfort break.