# Orange Auto Part Manufacturer (5)

The plant manager responsible for the OAPM has approached you to build a model of his current machining process. Management at OAPM is looking into adding *additional part resellers*. Before management finalizes the contracts with the new resellers, output from the OAPM auto part production facilities must meet the additional demand for orders. The plant manager has been tasked *to increase output* and would like to use the model to look for *bottlenecks* and test changes to the system.

The OAPM processes *two different auto part types*. The part types enter a drilling machine from an inventory room where they undergo several different processes before exiting the system. The time between arrivals for the first part type, a *wheel hub*, is exponential with a mean of 5 minutes. The time between arrivals for the second part type, *a brake rotor*, is exponential with a mean of 8 minutes.

Both part types then enter a drilling preparation process where they must seize one of *two operators* in order to complete the preparation process. Once the prep operator has been seized, the parts require anywhere from 2 to 8 minutes to process. *Priority is given to wheel hubs*.

After the preparation step, the parts must be machined in a drilling machine. This process takes exactly 2.5 minutes and can process one part at a time. Parts are processed first come, first served. The drilling machine must be *cleaned after 100 parts are machined*. This cleaning process can take anywhere from 5 to 10 minutes, but usually requires 7 minutes.

Once a part has been machined, a single inspector determines if the part was manufactured and machined correctly. This inspection can take anywhere from 2 to 4 minutes, but usually requires 3 minutes. It is estimated that 90% of the parts pass the inspection.

Once a part is inspected, it will exit the system.

Run the model for five 8-hour days. The base time units should be minutes.

Examine part cycle-time statistics, number in queue statistics, resource utilization statistics, and frequency statistics.