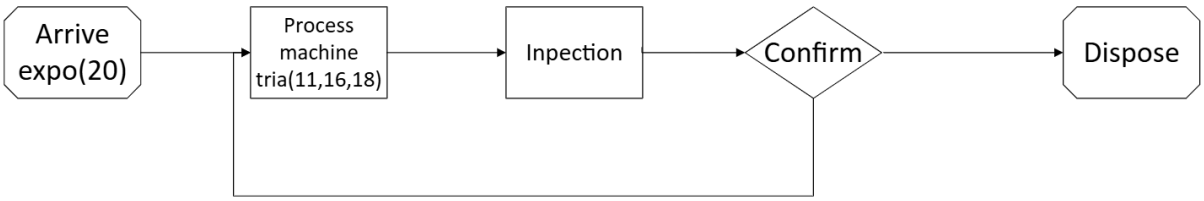
Lab2 simulation

4-13 Parts arrive at a single machine system according to an exponential interarrival distribution with mean 20 minutes; the first part arrives at time 0. Upon arrival, the parts are processed at a machine. The processing-time distribution is TRIA(11, 16, 18) minutes. The parts are inspected and for each part there is a 0.24 probability that it will need to be sent back to the same machine to be reprocessed (same processing-time distribution but a fresh draw from it, and all send-back decisions are independent of each other). There's no limit on how many times a given part might have to go through the machine for processing/reprocessing. Run the simulation for a single replication of length 20,000 minutes to observe the average and maximum number of times a part is processed, the average number of parts in the machine queue, and the average part cycle time (time from a part's entry to the system to its exit after however many passes through the machine system are required). Add an appropriate Resource animation.



4-27 An acute-care facility treats non-emergency patients (cuts, colds, etc.). Patients arrive according to an exponential interarrival-time distribution with a mean of 11 (all times are in minutes). Upon arrival they check in at a registration desk staffed by a single nurse. Registration times follow a triangular distribution with parameters 6, 10, and 19. After completing registration, they wait for an available examination room; there are three identical rooms. Data show that patients can be divided into two groups with regard to different examination times. The first group (55% of patients) has service times that follow a triangular distribution with parameters 14, 22, and 39. The second group (45%) has triangular service times with parameters 24, 36, and 59. Upon completion, patients are sent home. The facility is open 16 hours each day. Make 200 independent replications of 1 day each and observe the average total time patients spend in the system. Put a text box in your Arena file with the numerical results requested.