**Problem Statement:**

In a manufacturing system parts are being made at a rate of one every 6 minutes. They are two types A and B and are mixed randomly with about 10 percent of type B. A separate inspector is assigned to examine each type of parts. The inspection of a part takes a mean time of 4 minutes with a standard deviation of 2 minutes, but part B takes a mean time 20 minutes and a standard deviation of 10 minutes. Both inspectors reject about 10% of the parts they inspect. Simulate the system for total of 50 type A parts accepted and determine, idle time of inspectors and average time a part spends in system.

**Solution:**

**Added assumptions:**

* Let arrivals follow Poisson distribution. Therefore, the inter-arrivals time will be exponentially distributed with mean 6 mins.
* Let service time for each part follow normal distribution with respective mean service time and standard deviation as given in the question.

**Working:**

* since two types A and B and are mixed randomly with about 10 percent of type B., random value rv

0 <= rv <= 0.9 implies type A generation

0.9 < rv <= 1 implies type B generation

* inspectors reject about 10% of the parts they inspect  
   0 <= rv <= 0.9 implies acceptance

0.9 < rv <= 1 implies rejection

**Pseudocode:**

while (num of acceptance of A < 50)

{

1. Check for any event if a new arrival has occurred or a server has completed its task
2. Check if any task is pending in any server. If the sever is not busy, run the server.

}