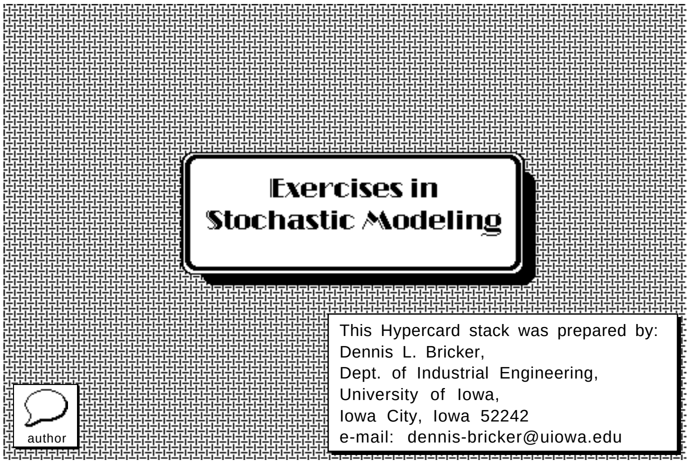

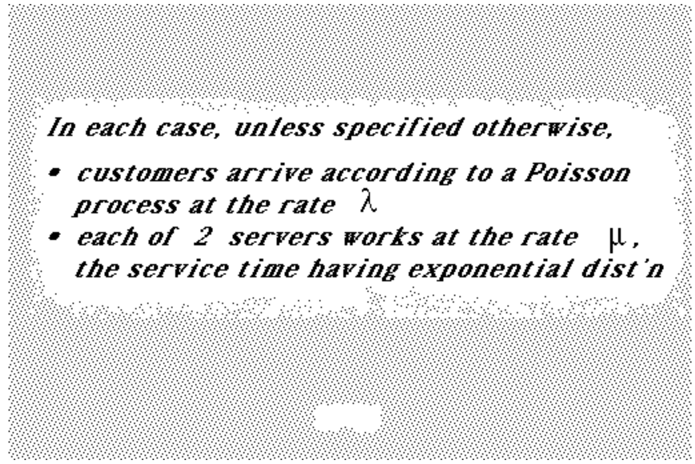

If a customer arrives and finds both servers busy, there is a 25% probability that he departs without entering the queue.

If a server finishes a customer and no customers are waiting, but the other server is busy, he helps out, reducing the mean time required for the job by 25%.

Arrivals are according to a Poisson process, but each arrival consists of either 1 or 2 customers, with probability 75% and 25%, respectively.

A waiting customer may get discouraged and leave the queue at any time-- the length of time which he will wait has exponential distribution with mean $1/3\lambda$.

One-third of the customers require only a minor service, requiring only half the time of a regular service.

Server B works at half the rate of server A. When both servers are idle, an arriving customer selects server A, and if a customer is being served by B when A becomes free, he immediately switches to A.

Server B works at half the rate of server A. When both servers are idle, an arriving customer selects server A.

A customer may not switch servers once his service has begun.

There is a ten percent probability that service of the customers is done improperly, in which case the customer re-enters the queue to be served again. (Mean service time in this case is the same as the original mean service time.)

Two types of customers arrive at a single-server queue, each according to a Poisson process:

VIP's with rate λ_1 and
NB's (nobody's) with rate λ_2.

The VIP's have complete priority over NB's.
If a NB is being served when a VIP arrives, he is "dropped" immediately.
His service then resumes when when no VIP's are in the system.
Service rates are μ_1 and μ_2, respectively.

Each service operation for a customer consists of 2 separate tasks, each requiring a time having an exponential distribution with mean $1/2\mu$.

There is a single server. When he becomes idle, he takes a break until 3 customers have arrived and wait for service.

Again, there is a single server, who takes a break when he becomes idle. In this case, the length of the break is exponentially distributed, with mean 15 minutes.

At any time, a "catastrophe" may occur, and all customers in the queue immediately depart. The time between such events is exponentially distributed with mean 5 hours.

At a taxi stand, taxis looking for customers and customers looking for taxis arrive according to Poisson processes, with rates λ_1 and λ_2, respectively. A taxi will always wait if no customers are at the stand. However, an arriving customer waits only if there are 2 or fewer customers already waiting.

Four customers circulate between two single-server systems, i.e., all customers leaving server #1 enter the queue of server #2, and vice versa.
Server #2 works at half the rate of server #1

Customers arrive one at a time at a single-server queue, but the server processes the customers two at a time, unless only one customer is in the queue when time to begin the next service, in which case only one customer is served.
If a single customer is being served and a new customer arrives, the new customer must wait until service is completed.