

ABSTRACT

Queuing theory, often known as waiting line theory, is a theory that deals with the process of a customer arriving, queuing to be served, being served, and being sent off at a service facility. Queue occurs when there is a mismatch between the number of customers who will be served and the quantity of services provided, like at Bank X's Pematang Siantar Sub-Branch Office. This research aims to determine the characteristics of the queue system which then to optimize the number of server in term of aspiration. The result showed that the 2 teller queuing model used at BankX's Pematang Siantar Sub-Branch Office is Multi Channel-Single Phase by applying the First In First Out queuing discipline, can be represented by $(M/G/2):(FIFO/\infty/\infty)$, where the arrivals are Poisson distributed while the service time is following Normal distribution. The probability of idle teller is 2,47% of the working time, the average number of customer in the queue is 18 customers, the average number of customer in a system is 20 customers, the average time of a customer spent in the queue is 18,54 minutes, the average time a customer spends in the system is 20,48 minutes, and the probability of waiting in queue is 92,8%. The waiting time in the queue that customers expect is 5 minutes. The optimal number of tellers is 3 servers, where the probability of idle teller is 12,72% of working time, the average number of customers in the queue is 1 person, the average time spent by a customer in the queue is 0,7 minutes, and the average time customers spend in the system is 2,64 minutes.

Keywords : Queueing Theory, Queueing System, Manpower Planning, Multi Channel-Single Phase, Kendall-Lee Notation