

1. You won't learn much from reading a summary that I have written and you will probably never be asked to do this in an assessment setting again so I'm not going to provide a model solution. I will write some general feedback when I have seen your submissions.

2.

- (a) Definition 6 – Absorbing state
- (b) Lemma 7.3 (The Thinning Lemma)
- (c) Definition 4 – Transition matrix
- (d) Theorem 5.2
- (e) Definition 14 – Communicating class (or intercommunicates)
- (f) Theorem 7.1 and Theorem 7.4
- (g) Theorem 4.8
- (h) Theorem 3.1
- (i) Lemma 2.1

3.

- (a) For a Poisson Process of rate λ
 - Waiting times should be $\text{Exp}(\lambda)$
 - Increments should be constant 1. In other words, they should follow the random variable N with $\mathbb{P}(N = 1) = 1$.
- (b) We can model customers arriving in groups rather than individually.

Please let me know if you have any comments or corrections

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