A stochastic model for job assignment problem with random arrivals and processing time

WebEx - Researcher Catch up

We consider a stochastic assignment problem in which requests or jobs arrive randomly. Due to the nature of jobs, the processing times follow a known probability distribution. This type of assignment problem may arise in hospitals where patients must be assigned to the next and best available beds. We construct a Markov decision process to model this problem. We formulate a dynamic program recursion to optimise an objective function and calculate the optimal decision variables and discuss simulation techniques that are useful when the size of the problem is too large. We illustrate the theory with some numerical examples.

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