QUEUE LENGTH AND WAITING TIME DISTRIBUTIONS IN A SYSTEM OF *M* DEPENDENT QUEUES

SOO HUEI CHING

FACULTY OF SCIENCE
UNIVERSITY OF MALAYA
KUALA LUMPUR

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SOO HUEI CHING

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INSTITUTE OF MATHEMATICAL SCIENCES
FACULTY OF SCIENCE
UNIVERSITY OF MALAYA
KUALA LUMPUR

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ABSTRAK

Pertimbangkan sebuah sistem M giliran Hypo(2)/Hypo(2)/1 dengan hubungan kebersandaran ditetapkan melalui suatu skim interaksi. Dua jenis skim interaksi dikaji. Kita mencadangkan satu kaedah untuk menerbitkan taburan panjang giliran pegun tercantum, dan taburan masa tunggu pegun bagi pelanggan yang meminta perkhidmatan dalam suatu giliran yang tertentu. Kaedah yang dicadangkan juga telah diubahsuaikan untuk mencari taburan panjang giliran pegun tercantum dalam suatu sistem bersandar yang terdiri daripada dua giliran Hypo(2)/Hypo(2)/c/c. Didapati bahawa keputusan berangka yang diperoleh dengan menggunakan kaedah yang dicadangkan adalah secocok dengan hasil berdasarkan simulasi.

ABSTRACT

Consider a system of M Hypo(2)/Hypo(2)/1 queues of which the dependence relation is specified via an interaction scheme. Two types of interaction scheme are considered. We proposed a method for deriving the stationary joint queue length distributions, and the stationary waiting time distribution, of a customer seeking service in a given queue. The proposed method has also been adapted to find the stationary joint queue length distribution in a system of two dependent Hypo(2)/Hypo(2)/c/c queues. The numerical results found by using the proposed method agree well with those based on simulation.

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