

Universiti Teknologi MARA

**The Discrete-Event Simulation (DES)
Model for Hospital Admission and
Discharge Process**

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STUDENT'S DECLARATION

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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ABSTRACT

Hospital crowding has turned into a noteworthy boundary to have an appropriate emergency care. Patients who always go to hospital need to wait for a long time for them to be treated by the specialist. The individuals that require admission need to wait much longer in order to get a bed to be admitted to the hospital. Plus, sometimes there is also congestion upon admission because of the patient need to pay the payment deposit in order to get admitted. Patient who pays the bills using cash usually does not bring a lot of money upon admission. Hence, this will lead to congestion in the hospital and increases the patient waiting times. The objective of this study are to identify the method to reduce patient waiting times, to ascertain patient waiting times if a counter was added and to determine patient waiting times if no deposit was imposed. The work involves the development of a simulation model that characterizes the current situation (actual data) and the new proposed scenarios (scenario 1 and scenario 2) for the patient admission and discharge process. These models are created in ARENA simulation tool which is a discrete simulator. The model is then used to evaluate and compare the different scenarios in order to decide the best one. The results of the simulation show that the scenario with three counters with deposit imposed is the best. So, the patient admission and discharge waiting time will be reduced by adding the number of counters with deposit imposed.

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