UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

AIRCRAFT BOARDING STRATEGY BASED ON MIXED INTEGER LINEAR PROGRAMMING APPROACH

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ABSTRACT

There is a lot of competition in the airline industry, which is trying to improve efficiency and customer satisfaction for passengers while also making more money and improving its own systems. One way to reach these goals is through the boarding process, which adapts to changes. Commercial airlines try to cut down on boarding time, which is one of the longest parts of a plane's turn time, so that the plane can fly for longer. In order to cut down on boarding time, it is important to make sure that passengers don't bump into each other too much. This can be done with a boarding policy that controls the order in which people get on the plane. Here, the passenger boarding problem and the different ways people board a single-aisle plane and how that can cause problems has been figured out. Mixed integer linear programming was used to cut down on the time it takes for passengers to board is being offered. In this study, the way people get in each other's way and slow down boarding times on a single-aisle plane is being observed. It gives a new mixed-integer linear programme to reduce these conflicts as much as possible. Then, some mathematical models are being used to look at a short-haul Boeing 737-800 (738). The results suggest that the window-to-aisle boarding pattern with 4 groups of passengers should be used because it has the lowest total seat interferences and objective function value.