

Abstract

Combinatorial auction is an auction method that is suitable for auctioning items which complement each other. Combinatorial auction advantages that guarantees the bidder to get only the combinations of item which they want, making this auction became an important and interesting topics in economist research. But, there is a lack of combinatorial auctions because the difficult of winner determination. In the world of computer programming, this problem is included in the NP-complete problem, meaning there is no algorithm that can solve this problem in polynomial time. Therefore, we use dynamic programming to develop an accurate alternative algorithm with good time complexity. The result, this algorithm can solve the combinatorial auction problem with 100% accuracy and computing time are quite good although it is still likely to be exponentially dependent on the conditions of entry bid. Also this algorithm is still have a problem with the need of large memori.

Keywords: combinatorial auction, dynamic programming, algorithm, winner determination.