Abstract

There are various considerations or factors that affect the installation or the installation of pipes by the taps on a region or area. These factors will be separated into two types, ie the search for routes based on cost and time factors for QoS so that the optimal pipeline route can be viewed and compared based on these two types. Number of factors and the problem definitions in this case cause the searching of route result is quite difficult to solve. Therefore, the dynamic programming algorithm is used in resolving this case because the algorithm is predictable suited to solve the search PDAM optimal pipelines problem for these issues have characteristics appropriate to the problems can be solved by dynamic programming. Fairly good accuracy prediction with acceptable time complexity is still an advantage of this algorithm. The result, installation of PDAM pipelines optimization cases were resolved with 100% accuracy and computing time are quite good, the time complexity is $T(n) = (n-1)^2$ for worst case condition and $T(n) = (n-1)$ for best case. However, this algorithm still has limitations due to large memory usage.

Keywords: **algorithm , dynamic programming, factors, PDAM pipalines installation**