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Assembly Line Algorithm

Generally assembly line problem can be solved using recursive method which gives you running time of O(n2) however better methodology to solve this problem is using dynamic programming which solves the problem in O(n) time.

Dynamic programming solve the problems through following steps:

1. Characterize the structure of an optimal solution
2. Recursively define the value of an optimal solution
3. Compute the value of an optimal solution in a bottom up fashion
4. Construct an optimal solution from the computed information

In Assembly line problem we were given two assembly lines having n stations each. Each line possesses some entry and exit time, each station has some processing time and each transfer from one assembly line to another assembly line takes some time. Our task is to find the fastest way to complete the assembly process passing through each station.

Solution of Assembly Line problem is obtained by Fastest Way Algorithm, which works on the principles of dynamic programming i.e. solving dependent sub-problems, storing the result and reusing the result to solve greater problem. In the end, resulting the shortest path through the assembly process with the minimum cost.

JUnit Test Case

Test case is created to test the assembly line algorithm; it is tested against different inputs to ensure the correctness and completeness. Moreover it is also tested for the errors such as if number of entry lines and exit lines are same or not etc.

Github

[http://www.github.com/hunainarif/](http://www.github.com/syedaunn/interpreter-java)assemblyLineProblem