CSL333 : Assignment 1

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1 Algorithm 1

We used A* search for this part.

- States : Each state is a node that contains address of the parent state and k characters each denoting the end character of corresponding string and the cost required to reach that particular node
- Initial State : Parent node pointing to null and cost equal to zero
- Actions : Retrieve the top of the priority queue based on the total cost function (sum of heuristic + cost of the node) and generate its descendants
- Goal Test : This state is attained when heuristic reaches zero value
- Heuristic Function : First we initialize the Dynamic Programming (DP) Matrix for each pair of string.Each entry in the matrix corresponds to the optimal cost of the respective pair.For the present state we sum the DP matrix values of each pair of strings for the respective lengths not covered so far.

2 Algorithm 2

For the second part, we divided the strings into blocks of strings and then tried to find the best value using beam search to limit the priority queue size and then push all its descendants into the queue. We then appended all the blocks to get a descent initial state for local search algorithm.We then performed local search on the initial state we obtained defining the neighbourhood as swapping the dashes with characters.We terminate the algorithm at the time limit given in the input file giving the output.

3 Acknowledgement

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