

For both problems, use C. Also, use linked lists for implementation (**this is important**).

1. Design a DP algorithm (pseudocode) for finding the maximum length palindrome in a string. For example, in the string *badsasdar*, the palindrome of maximum length would be *adsasda*. The algorithm should output the length of such a string, as well as the string itself.

Input: a string of letters from a-z or A-Z (to be implemented as a linked list internally)
Output: maximal length palindromic subsequence or error message if invalid input.

10 marks

2. A railway track is being laid to serve n towns located along a line. A station can service a town if it is located within d km distance on the line. We have to decide locations for a minimal number of stations along the line such that all towns are serviced. Design a greedy algorithm to find these locations on the railway line.

Input: a sorted sequence of towns on a number line and d the tolerance distance
(to be implemented as a linked list internally)
Output: optimal placement of the stations or error message if invalid input.

10 marks