Therefore, total expected time complexity of 2781 9172 Probability of a node being at level 1<>1 Someh? PK-1 (1-P) (N9 + 2)0 If p is the probility of having level KHI with for a skip list. > Since all nodes at least have level o, we don't calculate probability for the given level. > so expected value of a nodes lively is + ? () = 1 1+ (blop) 0 + war Ron + 2 bay = 7 > Expected time complexity for search sque a tot sall This can be calculated as expected length of search path.
This starts at the top left node whose level (1) = list. maxlevel
It ends it If ends at a goal node of level K >0 below e. > we split the path starting from the good woods into two INH elon in the path to the top level sit stabular sour of the path connecting the top left note and first top hade the gottin revorse. Let L(K) be expected length of first path! So for a node & levels below top we got backerup one level with probability por more left with probability 1-p. L(K) = 1+ pL (K-) + (17) L(K) (1-4) Td +1 = (4) Td - Uruper of woods noise core give colitation + fer Esparen Since L(0)= 0 (already at toplest) we get med Search & O(ag =) (1)] we know the probability of a nocle being it level K so it moderne expectatopolerel tod contain aptilo-pln and publicano no cles

Therefore, total expected time complexity of the 9142

Search; 1 >) bool to priso about to prison as to published any $O(\frac{2}{p} + p^{2}n)$ of $\{p\}$ is the probibited of having level 1941 with for a skip list.

Skip list.

Skip list. Since all nodes at least have lived 0, pe depet of the given (thes) and = 1 > So expected value of a nodes living pol + 2, pol = 1 l = log c + log in E O (log n) +1 The total expected complexity will be logarithinic if we set I to logarithm of n. or total hodes livel should be of the order of logarithm of It and of a goal node of land K > 0 before &. AVL Trees: (Balanced Search Trees) "ty and tilgs on > We calculate the balance factor for each node by Subtracting height of right subtree from height of left subtree parpus botsogno od (1) 1 to) > (bahance factori) < 120 ou got wald shoul & show Since height of an Avi tree is of the porder

(tog (Na)) - () N. - number of -4129 +1 = (4) No - number of nodes > so worst case time complexity for search is traversing log(n) levels (+)= god to plants) == (0) 1 solis Search + O(cog n) In conclusion skip lists provide almost the same search complexity as balanced AVL trees, but without the added complexity of rotations during inscrtion and deletion.