Overlapping Subparablems: A very subjection that a problem can be indication that a problem can be to Optimal solus to the subperablems load to the optimal solu the Regd. condition for a perophem to be solved (LP) ving DP Justall Problem. LongestRodh (0,2) 2) - 0-21-)2 LP(0,1) + LP(1,2)1707372 0-3-3-2-7)
4-4--8 Memo ADH SI- ABC DG/1 SI- ABCDGM SZ= AEDFMR AMDY SZ = A E MFD R Common Subsequences: "1, A, AD, ADH)
D, D11, H, AH (LCS(51, 52) = 1+ L(S(BCDGH, EADFIR)) LCS(BCDGH, EDFHR) = max(LCS(CDGH, EDFHR)) LCS(BCDGH, DFHR)if 51(i) =+ (i+1, j+1) (i,j) $max \left( \left( \frac{1}{1}, \frac{1}{1}, \frac{1}{1} \right) \right)$ o therwise  $\int_{i+1}^{n} \frac{1}{m^{2}} \left( \frac{i}{i}, \frac{j}{j} \right) \left( \frac{i}{i}, \frac{j+1}{j+1} \right) \left( \frac{i}{i+1}, \frac{j+1}{j+1} \right) \left( \frac{i}{i+1}, \frac{j+1}{j+1} \right) \left( \frac{i}{i+1}, \frac{j+1}{j+1} \right)$  $TC = O\left(\frac{2^{\max(r,m)}}{2^{\max(r,m)}}\right)$   $AS = O\left(\frac{2^{\max(r,m)}}{2^{\min(r,m)}}\right)$ T( 8) Tol-Down DR approach! ) Find the no. of distinct he coursive stades possible. -> 7 2) Find the time taken by the function assuming generally to be o(1) 3) Ownall TC = O(xy) TC: 0 (nm) SI= ABCDG17 52- AEDF1122 3 4 5 6 APCID [i] = LCS (SI[0...i-1], SZ[0...i-1]) JP[i][i]= / 1+ JP[i-1][v-1] SI(i-1) = = SZ[i-1]L(S(A,AE) = max(L(S(-,AE),L(S(A,A)) - max (dPCi-1, i) d ( [ [ ] , j - / ] vals = [60, 100, 120] W15 = [10, 20, 30] W = 50 100 + 120 = 220. max Value (i, w)

ship the ish
item

vols[i] + c

max Value (i+1, w-wis[i])

max Value (i+1, w)  $mv(i, w) = max \left(vals(i) + mv(i+1, w - wts(i))\right)$   $mv(i, w) = max \left(vals(i) + mv(i+1, w)\right)$ vals: [10, 20, 30, 40] Lusent abac Delete abab Replace \* - Antihuman Anshuman