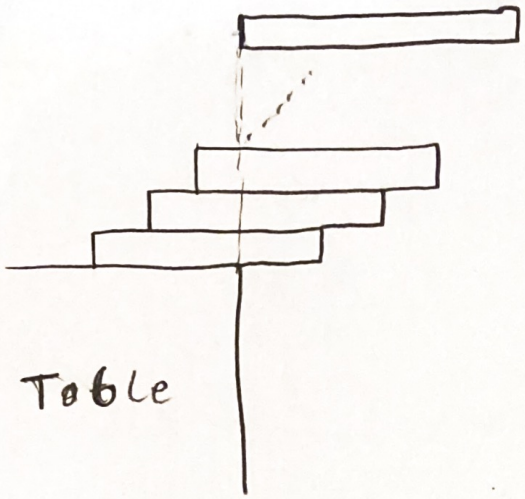
Lec 13- Sums and Asymptotics

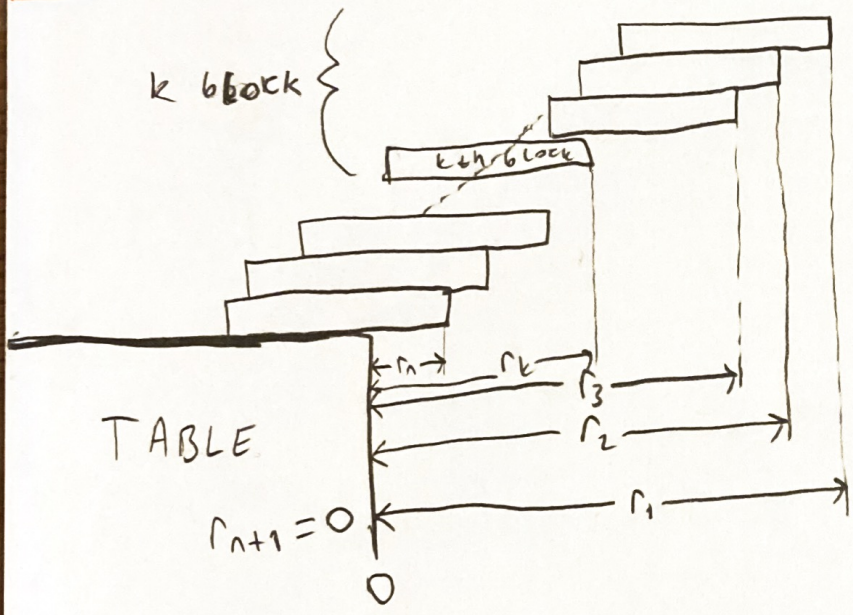


consider the problem given in the left. Purpose here is to stack up the wooden blocks on the table so that left end of top block will be aligned with the edge of the table, Which strategy can be used for this purpose?

Greedy ~~Algorithm~~ Strategy

Given: n blocks of length 1.

Def: r_i = amount by which ith block extends beyond the table



Stability Constraint: The center of mass C_k of the top k blocks must lie on the $(k+1)$st block.
(table = block $n+1$)

For Greedy Stacking, $C_k = r_{k+1}$
The center of mass of kth block is at $r_k - 1/2$
" " " " " the top k blocks is C_k

$$C_k = \frac{(k-1)*C_{k-1} + 1*(r_k - 1/2)}{k-1+1}$$

$$= \frac{(k-1)*C_{k-1} + r_k - 1/2}{k}$$