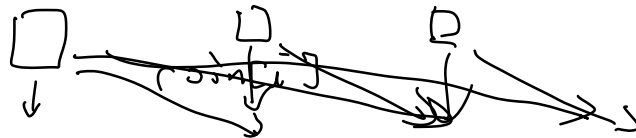


$dp[i][amt]$

	0	1	2	3	...	amt
⋮						
⋮						
⋮						
$[i-1]$						
$[i]$						



$dp[4][100]$   
 $coins[4] = 6$

$dp[4][94]$

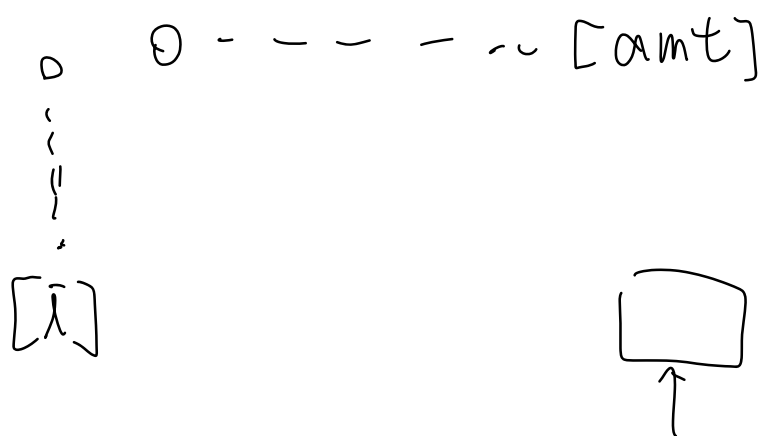
Recursion

$$dp[i][amt]$$

$$= dp[i][amt - coin[i]] +$$

$$dp[i-1][amt]$$

Assume: all the subproblems are correct



When we are at  $(i, amt)$

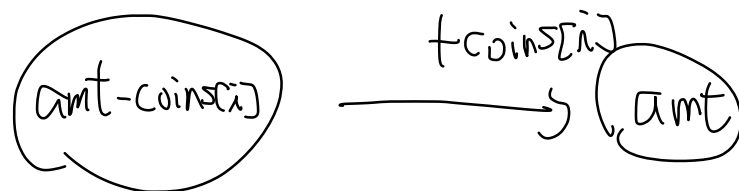
the # of ways to make up 'amt'

= ① we don't use  $\text{coins}[i]$  at all  
 $\Rightarrow \text{dp}[i-1][\text{amt}]$

② we use  $\text{coins}[i]$

$\Rightarrow \text{dp}[i][\text{amt} - \text{coins}[i]]$

NOTE:



because: coins have unique values.  
If we already know how many number of ways to make up ' $\text{amt} - \text{coins}[i]$ ' we know that each combination can only append a  $\text{coins}[i]$  to reach  $\text{amt}$

Ex. coins = [1, 2]

