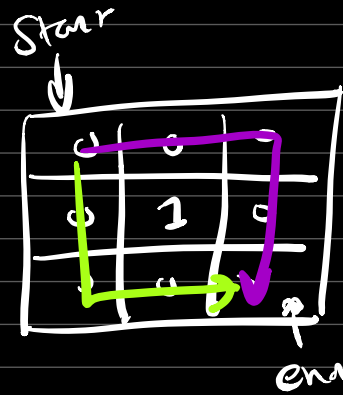


# Dynamic Programming

## Unique-paths II

grid with obstacles



2 paths

Approach 1. memorization (Topdown)

$paths(start, end) =$

$paths(A, end) + paths(B, end)$

$paths(C, end) + paths(D, end) + paths(D, end) + paths(E, end)$

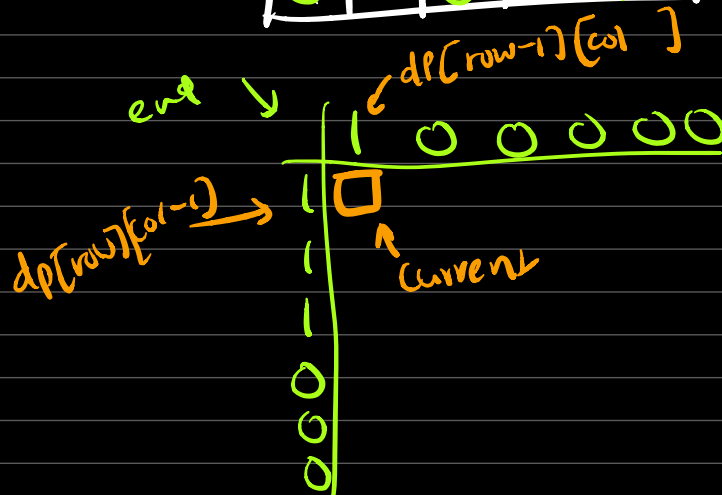
Common

Start	B	E	I
A	D	H	
C	G		
F			

Top-down

75	32	11	4	4	4	0
43	21	7	0	X	3	0
22	14	7	X	4	2	X
8	7	7	4	2	1	1
1	X	3	2	1	X	1
0	0	0	0	X	1	1

end



start

→

9	7	5	3	1
2	2	2	2	1
0	0	X	1	0

.	-	.	.	.
-	.	-	-	.
.	.	1	.	.

1 1 1 1 1  
 1 2 3 4 5  
 1 3 0 4 9

