动态规划

1.基本思想

Dynamic Programming　　DP

求最优解

方法：大问题 → 子问题 → 子问题答案

↓保存

数组

再需要求时查找

空间换时间

Step

① 分析最优子结构性质（递推关系）

② 递归定义最优值（核心）

③ 自底向上计算最优值（递推）

④ 构造最优解

Example 1 Fibonacci

Use Array to store the answer

Example 2. numbers triangle

Q a group of island

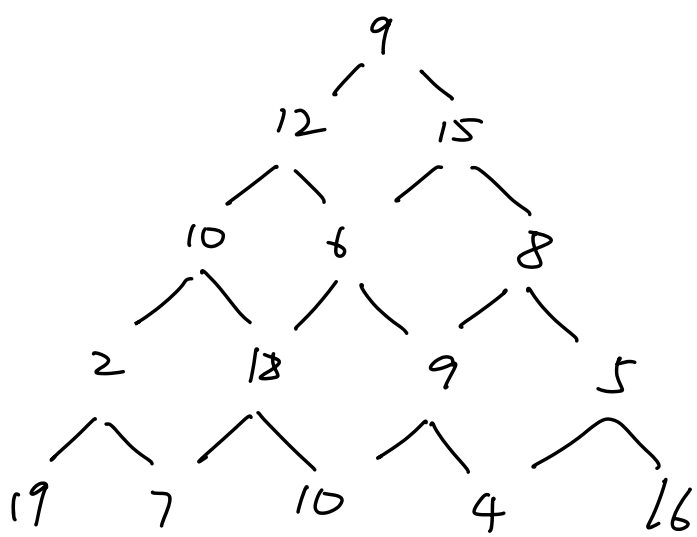
n layer has n islands

each island has it's Integer value

input from 1 layer, output from n layer

can't retreat

Max value ?



Solution ① store in 2D array

num	0	1	2	3	4
0	9				
1	12	15			
2	10	6	8		
3	2	18	9	5	
4	19	7	10	4	16

② Compare greedy algorithm

9 + 15 + 8 + 9 + 10 = 51

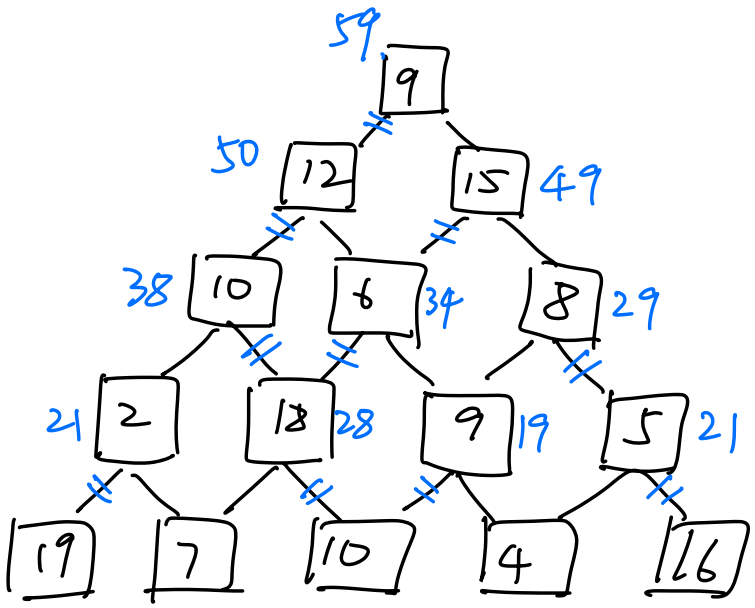
It isn't optimal, top to bottom

It only can choose the most valuable road.

based on current situation

③ Dynamic Programming: bottom to top

like System Analysis decision tree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