Stage1: No transction

Stage2: buy one stock

Stage3: sell one stock

Stage4: buy second stock

Stage5: sell second stock

class Solution(object):

def maxProfit(self, prices):

"""

:type prices: List[int]

:rtype: int

"""

length = len(prices)

f = [[i for i in range(5)] for i in range(length+1)]

f[0][0] = 0

for i in range(1,5):

f[0][i] = float("-inf")

for i in range(1,length+1):

for j in range(1,5):

cost1=cost2=0

if j in [2,4]:

cost1 = f[i-1][j]

cost2 = f[i-1][j-1]+prices[i-1]

if i-2>=0:

cost2-=prices[i-2]

else:

cost1 = f[i-1][j-1]

cost2 = f[i-1][j]+prices[i-1]

if i-2>=0:

cost2-= prices[i-2]

f[i][j] = max(cost1,cost2)

#print(f)

return max(f[-1])