983 Minimum Cost For Tickets

dp[x] be min cost to travel for 1 .. x

dp[0] = 0

n = (max(days) + 1)

if particular day have to be travelled we will purchase pass to minimize cost but if we dont have to travel on that day then

dp(x) = dp[x-1]

if we have to travel on that day

dp(x) = min [dp[x-1] + costs[0], dp[x-7] + costs[1], dp[x-30] + costs[2]]

basic formula

```
for x in range(1, len(dp)):
    if x in days:
        if x >= 30
        dp[x] = min(dp[x-1] + costs[0],
                    dp[x-7] + costs[1],
                    dp[x-30] + costs[2])

        elif x >= 1 and x < 30:
        dp[x] = min(dp[x-1] + costs[0],
                    dp[x-7] + costs[1],
                    costs[2])

        elif x >= 1 and x < 7
        dp[x] = min(dp[x-1] + costs[0],
                    costs[1],
                    costs[2])

    else:
        dp[x] = dp[x-1]
```

we can just purchase a full month pass if its cheap and span on all days

Basically

subproblem is find min cost for

1..1
1..2
1..3
1..n

} all are subproblems

dp(2) represents 1..2 } days

dp(3) represents 1 2 3 } days

∴ dp(3) = min (dp(2) + cost of 1 day ticket,
cost of 7 day ticket,
cost of monthly ticket)