

```
1 import numpy
2
3 hugeNumber = float("inf")
4 unused = -1000
5
6 # Initialize all needed parameters and data
7 stages = 3
8 maxCarsPerPrecinct = 5
9 carsAvailable = 5
10
11 crimes = numpy.array([[unused, unused, unused, unused, unused, unused],
12                       [ 14, 10, 7, 4, 1, 0],
13                       [ 25, 19, 16, 14, 12, 11],
14                       [ 20, 14, 11, 8, 6, 5]])
15
16 f = numpy.zeros([stages + 2, carsAvailable + 1])
17 x = numpy.zeros([stages + 1, carsAvailable + 1], dtype=int)
18
19 for t in range(stages, 0, -1):
20
21     for i in range(carsAvailable + 1):
22
23         maxCarsHere = min(i, maxCarsPerPrecinct)
24
25         value = hugeNumber
26
27         for d in range(maxCarsHere + 1):
28             j = i - d
29             moveValue = crimes[t,d] + f[t + 1,j]
30             if moveValue < value :
31                 value = moveValue
32                 bestMove = d
33         # End of d loop
34
35         f[t, i] = value
36         x[t, i] = bestMove
37
38     # End of i loop
39
40 # End of t loop
41
42 print("Optimal solution is " + str(f[1, carsAvailable]))
43 print("Car assignments: ")
44 i = carsAvailable
45 for t in range(1, stages + 1):
46     print(str(x[t, i]) + " cars in precinct " + str(t))
47     i = i - x[t, i]
48
49
```