

Sample Dynamic Programming Problem

A group of Vegas businessmen is considering the establishment of a gaming house. They've already purchased a building with 25 square yards of floor space. Four types of gaming tables are under consideration. The space required for each, and the estimated value per table is given below.

Table		Profit Added Per			
Type	Space	Table One	Table Two	Table Three	Table Four
Blackjack	4	10	7	4	1
Poker	5	9	9	8	8
Craps	6	11	10	9	8
Roulette	3	8	6	4	2

Clearly, the businessmen realize that marginal returns decrease as more tables are added for each type of game. This reflects the fact that customers may fill, say, one blackjack table all the time, but a second blackjack table may sit idle part of the time.

How many tables of each type should be installed in order to maximize profits?