

# [2 questions](https://assignbuster.com/2-questions/)

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Placement of Departments Question one Plant Capa                                                                  Next Years Demand   
Alternative   
Low   
High   
Minimum $   
Maximum $   
Do nothing   
50   
60   
50   
60   
Expand   
20   
80   
20   
80   
Subcontract   
40   
70   
40   
70   
i. Using the Maximin rule Highest minimum = $ 50; therefore we choose to do nothing   
ii. Using the Maximax rule Highest maximum = $ 80; therefore we choose to expand   
iii. Laplace method   
conditions   
Probability   
Do nothing   
Expand   
Subcontract   
High   
1/3   
60   
80   
70   
Low   
1/3   
50   
20   
40   
EMV   
36. 67   
33. 33   
13. 38   
Workings   
EMV (Do nothing)= 1/3 (60) + 1/3 (50) = 36. 67   
Others are computed in the same way.   
Decision   
We choose to do nothing since this decision maximises the expected monetary value.   
iv. Minimax Regret rule   
Alternative   
Low   
High   
Maximum regret   
Do nothing   
50   
60   
60   
Expand   
20   
80   
80   
Subcontract   
40   
70   
70   
Therefore, we choose the minimum of the maximum regret, which in this case is $ 60 (Do nothing option)   
Recommendation   
After using the four different methods to analyze the situation; expect one method (maxmax), all the others have shown that doing nothing is the best option in maxmising the value for money for the company next year. In this regard, I will advise the company to adopt this option, and ignore the one opted by maxmax method. Indeed, I will encourage the management to give maximaxi a wide berth if the company is not in a capacity to withstand extreme losses. This is specifically because the maxmax is only attractive to risk takers who are prepared to face huge losses in the event that such losses occur. Furthermore, if this business is new or small, then this method is very unsuitable. In choosing maxmin criterion, the management will be looking at the worst possible situation in all the options and then adopting the option that provides the least bad results; that is, they adopts the option that optimizes the least profits. As already discussed, this criterion will not be attractive to this particular company if its owners are risk averse decision makers because the method is based on excessive watchfulness. However, while adopting Laplace method, the management should be sure that they are not conversant of chances of different conditions and have no reason to decide otherwise.   
Question 2   
From the calculations, the most central location is B; therefore, the most frequented department (4) should be placed there. The department that makes more trips to department 4 is department 2, therefore should be placed at the locations closest, for instance A, which is 40 yards from A. Second priority should be offered to department 1, which makes 80 trips to department 4. This department should be placed at location C, which is 40 yards from location B. Automatically, the last department, which is 3, will be located at location D, which is the most distant location at 50 yards from department D’s location (Stevenson, 2008).   
Table showing the placement of the different departments, number of trips made to the different departments and the cost per trip from the different allocations of the department.   
Department 1   
Department 2   
Department 3   
Department 4   
Location C   
Location A   
Location D   
Location B   
(Trips to department 4) 80   
(Trips to department 4) 90   
(Trips to department 4) 55   
-   
(Cost per trip) $ 40   
(Cost per trip) $ 40   
(Cost per trip) $ 50   
-   
b).   
Following the revised trips schedule, minimizing travel costs will be best when the departments are placed as described below. The highest number of trips are made to department 4, therefore, it should be placed at the most central location. Therefore, taking the distances indicated in part a, department 4 should be placed at location B, which is 40 yards from location A; 40 yards from location C; and 50 yards from location D. However, priority should be given to department 3, which does 60 trips to department 4. Department 3 should be placed at either location C, then department 2, which makes 50 trips to department 4. Department 2 should be placed at location A, as the distance between the two and location B. Lastly, is department 1, which makes 40 trips to department 4. Department 1, should be placed at location D (Stevenson, 2008).   
Reference   
Stevenson, W. (2008). Operations Management. Richmond State: VA McGraw-Hill/ Irwin Publishers.