(Fitzsimmons and Allen) Based on Fitzsimmons and Allen (1983). The State of Texas frequently audits companies doing business in Texas. Because these companies often have headquarters located outside the state, auditors must be sent to out-of-state locations. Each year, auditors must make 500 trips to cities in the Northeast, 400 trips to cities in the Midwest, 300 trips to cities in the West, and 400 trips to cities in the South. Texas is considering basing auditors in Chicago, New York, Atlanta, and Los Angeles. The annual cost of basing auditors in any city is $100,000. The cost of sending an auditor from any of these cities to a given region of the country is given in the file P06\_71.xlsx. Determine how to minimize the annual cost of conducting out-of-state audits.



**Discussion: -**

This is like Easting house problem. We must decide on the city, whether to use it as a base for auditor or not and decide on the regions covered by auditor based of a particular city.

**Mathematical Model: -**

*Parameters (Inputs):*

*Decision Variables:*

*Objective:*

*Constraints:*

Constraint 1 will make sure that company is providing services to all the regions.

In constraint 3, if we don’t multiply the decision variable with constant on R.H.S of the constraint, as it is a minimization problem, our optimal solution will make sure that there is no Annual fixed cost by consider all the binary decisions as Zero (0).

*Excel Implementation:* Please find the attached spreadsheet for solution.



