**Integer Programming.** A pizza restaurant is considering a delivery service in three communities by arrange 4 delivery men: Blvd 1900, Vertex, and Pala Mesa. Each employee could delivery maximum 45 orders per week. The weekly fixed salary for hiring A person is 90$ per week and for B person is 80$ per week and for person C is 82$ and person D is 88$ per week. Community Blvd 1900 requires 26 order per week, Vertex requires 30 units per week, and Pala Mesa requires 28 units per week. The costs of sending one order from a person to a community are shown below since different people has different vehicle. The company wants to meet weekly demands at minimum cost, subject to the preceding information and the following restrictions: ■ If the Person A is hired, then the person B must be hired. ■ At most two people can be hired. ■ Either person D or person B must be Hired.

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|  | Blvd 1900 | Vertex | Pala Mesa |
| A | 2$ | 1.6$ | 2.4$ |
| B | 1.4$ | 2.3$ | 2$ |
| C | 2.1$ | 1.7$ | 1.9$ |
| D | 1.8$ | 2.5$ | 1.8$ |

**Discussion.**

This is an example of an integer programming model to minimize total cost. We must decide the person that needs to be hired and the amount that needs to be delivered from each person. In line with the usual integer programming models, we must ensure that nothing is being delivered from person that are not hired, for this purpose instead of using a large number, here we choose the upper limit of the orders from a particular person to be the maximum capacity of person. We must also ensure that the demand of each community is being satisfied. The additional constraints we add are due to the conditions explicitly mentioned in the question.