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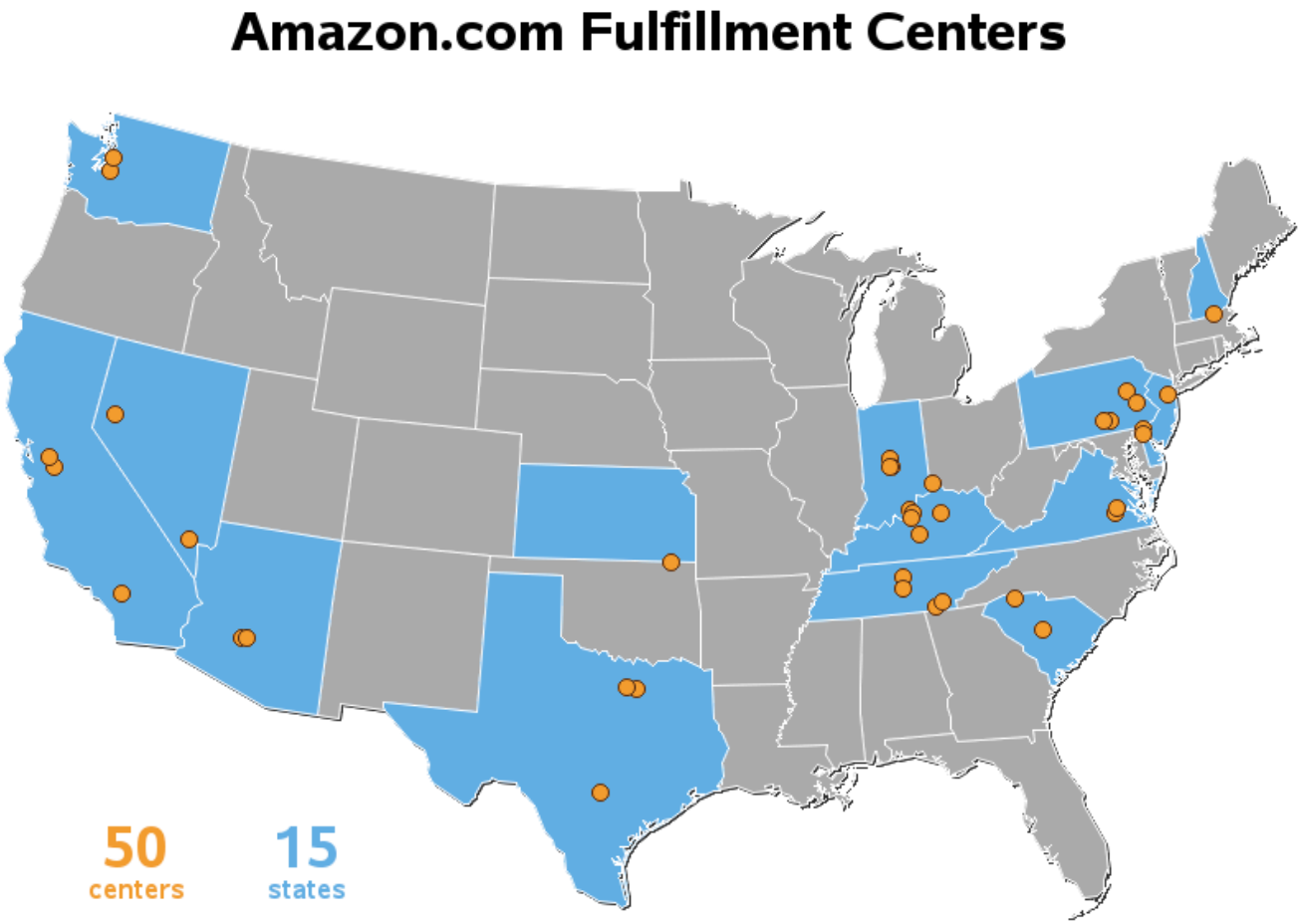
Decision Models & Analytics

Online Retailing: Designing a Supply Chain

Online retailing companies such as Amazon need to have access to a huge network of inventories in various locations in order to ship their products in a timely fashion to their customers. In the last few years, due to the expansion of the services such as (Amazon Prime) and the introduction of new services (such as Amazon Prime Now), the importance of effectively selecting the location of new warehouses and/or choosing the right local warehouse to work with has dramatically increased.



Because of the emerging demand, Amazon decided to start new warehouses in the Gulf Coast. Based on their studies, four potential locations for warehouses have been identified, each of which having a specific capacity and also a specific average cost-per-unit for shipping to any of the five Gulf Coast states. The capacity of each warehouse and its operating cost, in addition to the average cost-per-unit for shipping a product to any of the states are given in the following table.

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	TX	LA	MS	AL	FL	Ops. Cost	Capacity
WH 1	$2.00	$4.00	$3.00	$2.50	$1.50	$10,000	14000
WH 2	$3.00	$2.50	$3.75	$2.00	$1.75	$8,000	18000
WH 3	$2.75	$2.00	$3.25	$3.00	$4.00	$7,000	16500
WH 4	$1.25	$1.75	$4.00	$3.50	$3.00	$12,000	16000

The average demand for each of the states is given in this table.

	TX	LA	MS	AL	FL
Demand	8000 units	3500 units	4000 units	2000 units	7000 units

1. Consider all of the costs and demands tabulated above. What is the minimum total cost for Amazon's supply chain?
2. Which warehouses should Amazon operate to meet demand in the most cost-effective manner?