

Transshipment

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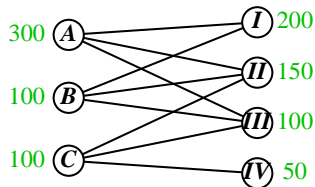
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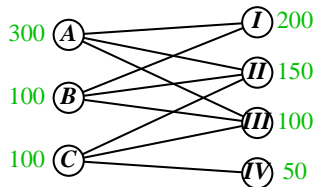


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Q: Is there a transshipment that satisfies all the suppliers?

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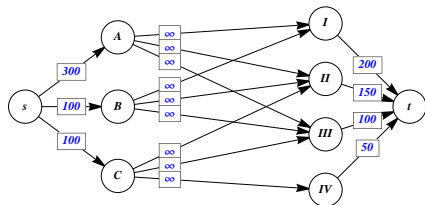
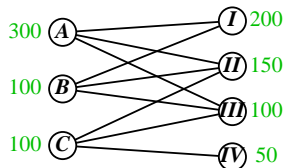
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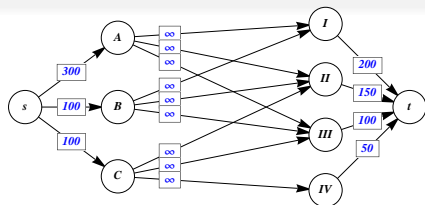
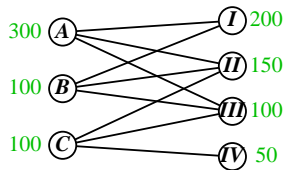
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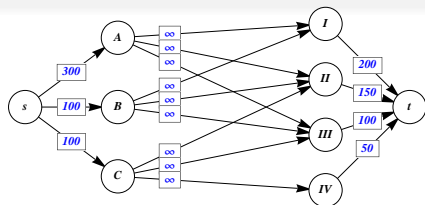
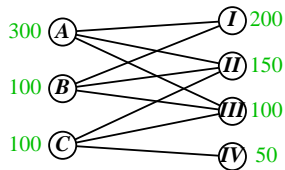


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Important: a transshipment in $G \iff$ a flow in \hat{G} .

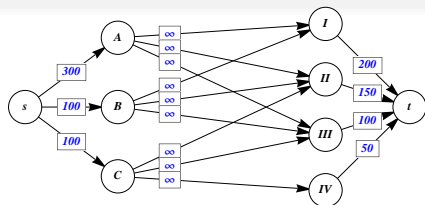
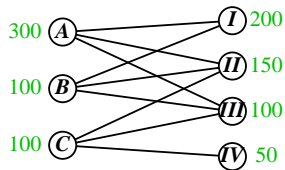
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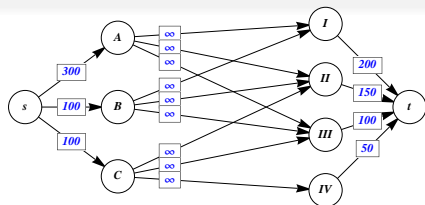
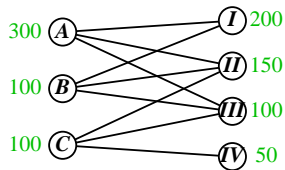


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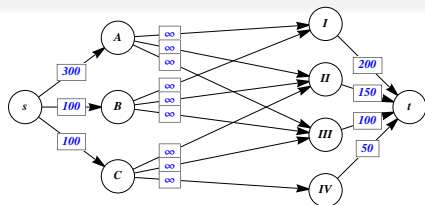
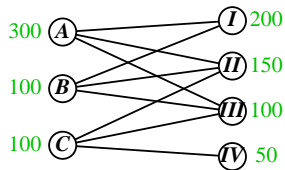
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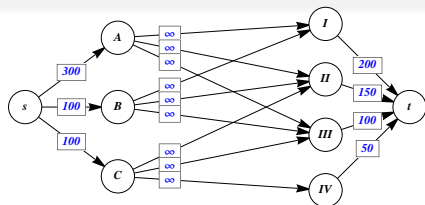
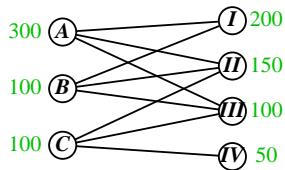
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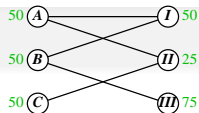
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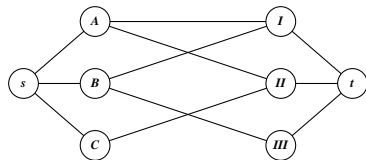
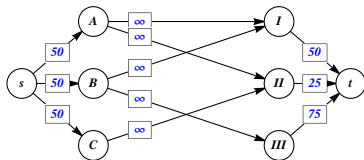
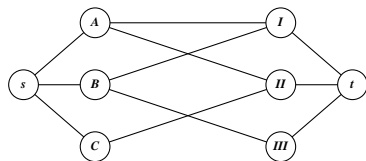
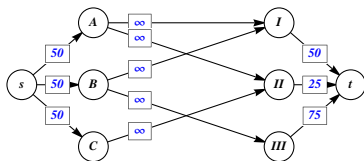
If you are customer-centric, orient the edges from right to left.

Gives a set of customers who can not be satisfied by their suppliers.

Transshipment Example

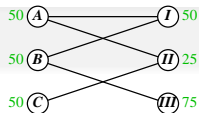


Supplier-centric:

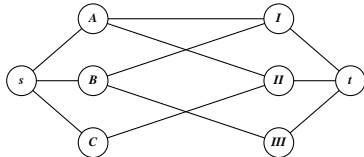
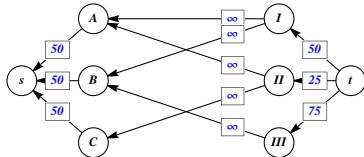
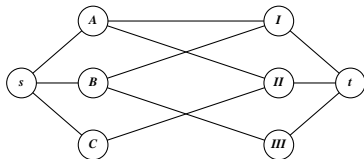
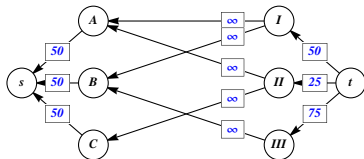


Problem:

Transshipment Example



Customer-centric:



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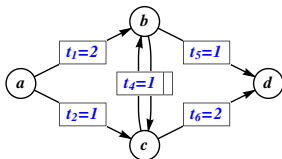
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Example. Consider four cities with warehouses (a , b , c , and d) such that one truck per day can leave along any route, and the travel time for each route is given by:

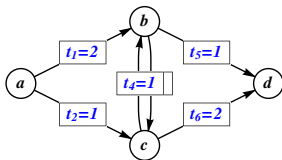


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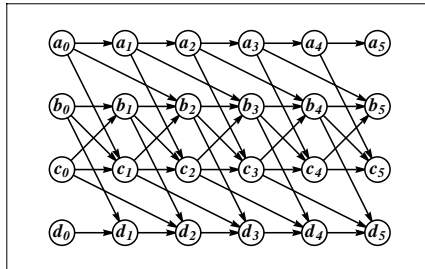
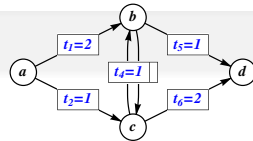
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We wish to determine the maximum number of shipments which can make it from city a on day 0 and arrive at city d by day 5.

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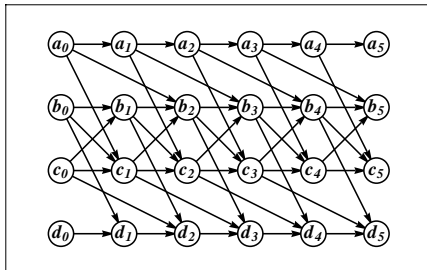
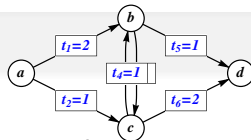
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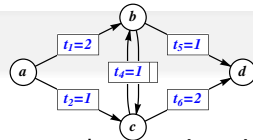
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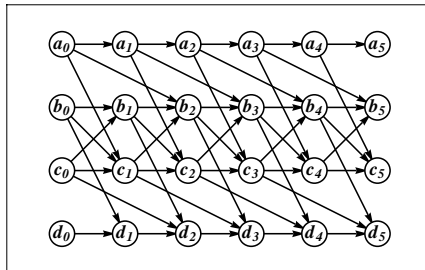


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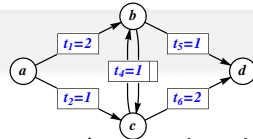


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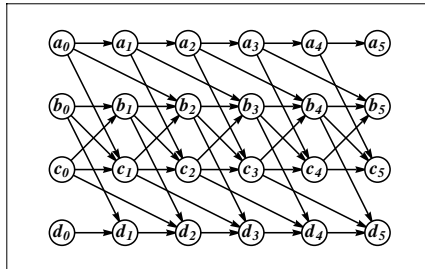


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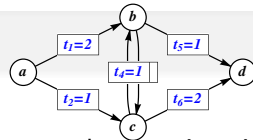


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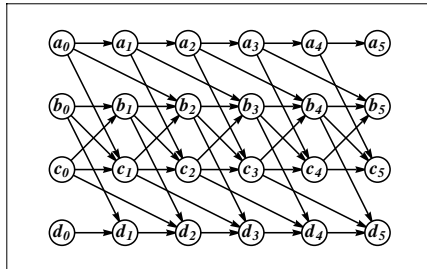


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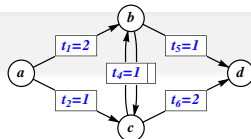


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Example. In the graph below, calculate the max flow from a_0 to d_5 .

