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Question 2

Let X_{ij} be the network flow from node i to node j, where $i, j = 1,2,3,4$

Objective: $Maximize\ X_{41}$

Constraints:

$$X_{ij} \geq 0\ for\ all\ i, j$$
$$X_{41} - X_{12} - X_{13} = 0\ (node\ 1)$$
$$X_{12} - X_{24} = 0\ (node\ 2)$$
$$X_{13} - X_{34} = 0\ (node\ 3)$$
$$X_{24} + X_{34} - X_{41} = 0\ (node\ 4)$$
$$X_{12} \leq 50$$
$$X_{13} \leq 200$$
$$X_{24} \leq 100$$
$$X_{34} \leq 35$$