

TAP Flight Management

TAP Airlines wants to determine how many airline flight seats to sell at an early bird discount fare and how many airline flight seats to sell at full fare.

For long flights, the company has two Airbus A340-300, each with 274 seat capacity.

One jet originates in Porto and the other in Lisbon. The Porto and Lisbon jets can fly to Orlando and Chicago with a stop in New York. Thus, there are three possible destinations: Orlando, Chicago and New York. In Figure 1 is represented the network typology and the possible routes. A leg is a flight between two cities without a stop. Additionally, there are two fare classes: early-bird and full fare.

In conclusion, there are 8 possible routes, each with two possible fare types:

1. Porto-Orlando (stop in New York)
2. Porto-Chicago (stop in New York)
3. Porto-New York
4. Lisbon-Orlando (stop in New York)
5. Lisbon-Chicago (stop in New York)
6. Lisbon-New York
7. New York-Orlando
8. New York-Chicago

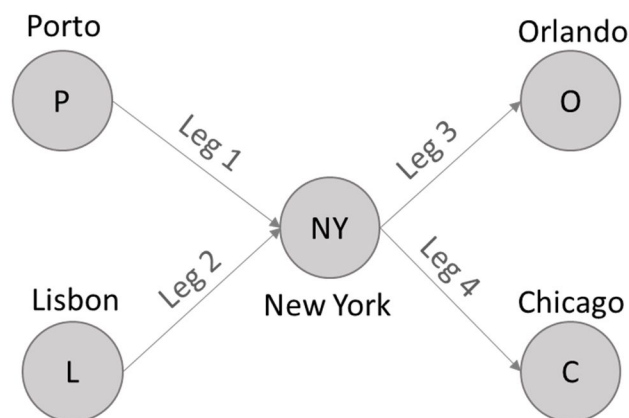


Figure 1 – Flight network

The demands and prices for each route are described at Table 1.

Table 1 - Price and demand for each combination Route/Fare.

Origin	Destination	Fare Class	Price	Demand
Porto	New York	Early bird	178 €	63
Porto	Chicago	Early bird	268 €	84
Porto	Orlando	Early bird	228 €	86
Porto	New York	Full price	380 €	31
Porto	Chicago	Full price	456 €	12
Porto	Orlando	Full price	560 €	21
Lisbon	New York	Early bird	199 €	50
Lisbon	Chicago	Early bird	249 €	107
Lisbon	Orlando	Early bird	349 €	75
Lisbon	New York	Full price	385 €	29
Lisbon	Chicago	Full price	444 €	14
Lisbon	Orlando	Full price	580 €	18
New York	Chicago	Early bird	179 €	122
New York	Chicago	Full price	380 €	16
New York	Orlando	Early bird	224 €	88
New York	Orlando	Full price	582 €	19

Determine how many seats to make available for each route and fare to maximize revenue.