TABLE A.1: Linear Programming Applications

PROBLEM TYPE	LP APPLICATION
Crew scheduling	To determine an optimal schedule for airline pilots and ground personnel
Financial planning	To determine the optimum investment portfolio that will achieve certain returns while minimizing investment risks
Diet	To determine the best combination of food items (such as in hospital and school cafeterias) that will meet all nutritional requirements at the minimum cost
Production planning	To determine the supply of resources (labor, machines, etc.) needed to meet demand for the intermediate time frame at the minimum cost
Assignment	To determine optimum assignment of jobs to machines or workers
Vehicle routing (traveling salesperson)	To determine the shortest route from a source to destination (such as the shortest route for FedEx* and UPS** to deliver packages)
Transportation	To determine the shipment of goods from multiple sources to multiple destinations (such as shipment of crude oil from different oilfields to different refineries) to minimize transportation costs
Call routing	To determine the best way to route telephone calls (such as from Chicago to New York or from Seattle to Houston)
Product mixture	To determine the optimum mixture of products to produce either to maximize profits or minimize costs, given resource constraints

* FedEx (FedEx Corporation, Memphis, TN).

** United Parcel Service, Inc. (aka UPS, Sandy Springs, GA).