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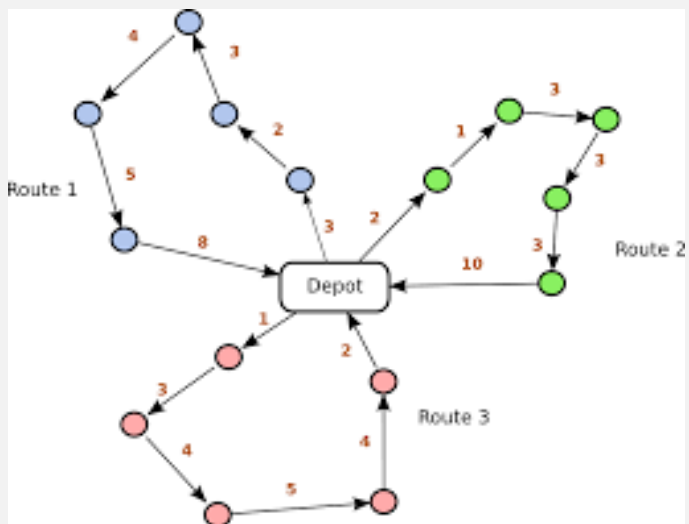
Keywords: Mathematical Programming and Combinatorial Optimization, Transportation Planning and Logistics, Production and Inventory Planning

Optimization under Uncertainty

Transportation Planning and Logistics



- Particularly focusing on vehicle routing problems and inventory routing problems
- Fleet may include fossil-fuel vehicles and electric vehicles
- Customers provide delivery time windows and possibly several delivery points including parcel lockers (flexible delivery)
- Uncertain times (e.g., traveling, service) and/or uncertain customer demands
- The service provider aims to determine the delivery plan that minimizes the total cost including many components (fuel/energy, early/late deliveries, vehicle rental, and so on)



Production Planning



- Production planning using capacitated machines
- Several different items can be produced in the same period
- Uncertain setup and production times
- Obtaining an optimal plan specifying the timing and the corresponding level of production

Operating Room Scheduling

- Allocating surgeries to available operating rooms
- Multi-period problem with uncertain surgery durations
- Efficient scheduling for patients, surgeons and OR staff

