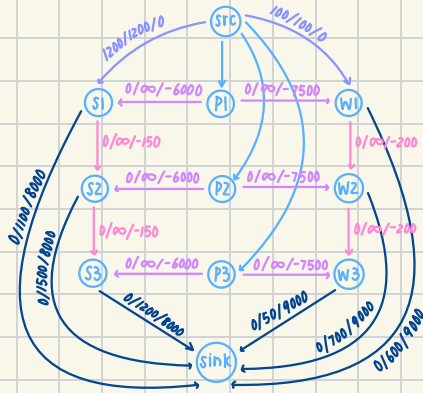1. Price for manufactures sedans and wagons. The number of vehicles that can be sold each of the next 3 months are shown below. Each sedan sells for $8000 and each wagon for $9000. It costs $6000 to produce a sedan and $7500 to produce a wagon. Every vehicle in inventory at the end of the month incurs an inventory charge, $150 per sedan and $200 per wagon. During each month at most 1500 vehicles can be produced. At the beginning of the first month 1200 sedans and 100 wagons are available.

Month	Sedans	Wagons
1	1100	600
2	1500	700
3	1200	50

All blue arcs $0/1500/0$

Max revenue = $ 1.747×10^7

2. You are the engineer of a Power-generation company owns 3 hydro-electric power generation stations: A, B and C. The stations are located at reservoirs with dams across the Pristine River. Station A is located 10 Km upstream from station B, and station B is located 20 Km upstream from station C. Water is measured in units of ML and electricity in units of MW. The only entry of water into the Pristine River is at station A, 100 ML in each hour. Water travels down the river at an average speed of 10 Km/hr. For each hour the station manager has to decide how much of the water arriving at the station is: a) "used" to generate electricity and then allowed to proceed downstream, b) "spilled" to proceed downstream without producing electricity, and c) "stored" in the reservoir for later use or spill. Each plant has a different generating efficiency determined by the drop in elevation at each plant; the larger the drop, the larger the efficiency. The generating efficiencies at A, B, and C, are respectively 1.5, 4.2 and 8.5 MW/ML. Each plant also has a different maximum capacity determined by the size of the generating units at each plant. The maximum capacities at A, B, and C are respectively 50, 100 and 150 MW of electricity for each hour. ABC's hourly revenue is calculated as the product of the hourly MW production at each plant times the hourly price of electricity (λ_i). As a matter of policy ABC always returns each reservoir by the end of the planning horizon to the same volume it had at the beginning of the planning horizon. Formulate the problem of determining the generation and water release policy that maximizes the revenue over an 8-hour planning horizon.

All pink arcs 100/100/0

All purple arcs 0/∞/0

$E_A = 15$, $E_B = 4.2$, $E_C = 8.5$

Max revenue = $ 41 275.7

(Network diagram with nodes: src, A1–A8, AB1–AB7, B2–B8, BC2–BC6, C4–C8, Csink4–Csink8, Bsink1, Bsink8, Asink8, sink, and various arcs with labels such as $0 / \frac{50}{E_A} / \lambda_1 E_A$, $0 / \frac{100}{E_B} / \lambda_2 E_B$, $0 / \frac{150}{E_C} / \lambda_4 E_C$, etc.)