Project 2: Facility Layout

ISE 453: Design of PLS Systems **Fall 2018**

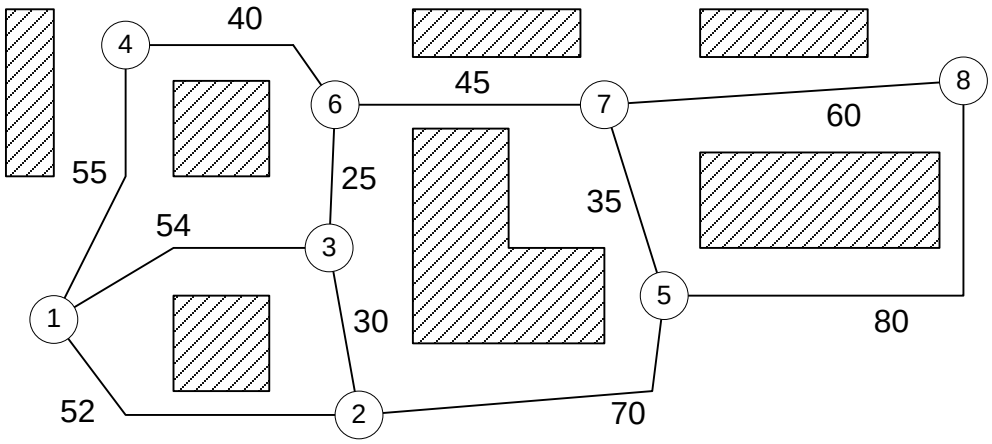
Assigned: Thu, 8 Nov (Groups of 4) Due: Thu, 20 Nov

Part 1: SDPI for Machine Layout

Products A, B, C, D, E, and F are to be produced using eight different machines, Machines 1–8. The products will be transported between the machines using totes; thus, the handling effort of each product is expected to be proportional to its volume. The routings are as follows:

A: 3–6–5–8–6–4	C: 8–4–2–6–5–3–1–7	E: 5–8–2–6–5–3–1–7
B: 5–3–4–1–7–5	D: 6–1–4–7–3–5–8–2	F: 7–6–4–6–4

Assuming there is no scrap, that 242, 472, 351, 82, 118, and 735 units of A, B, C, D, E, and F, respectively, are to be produced, and that the dimensions of each unit of A, B, C, D, E, and F is $4 \times 2 \times 1$, $12 \times 8 \times 5$, $6 \times 3 \times 4$, $8 \times 3 \times 4$, $15 \times 5 \times 3$, and $15 \times 10 \times 4$, respectively, determine a machine layout using the Excel function `sdpi` that minimizes the total cost for the following site locations:



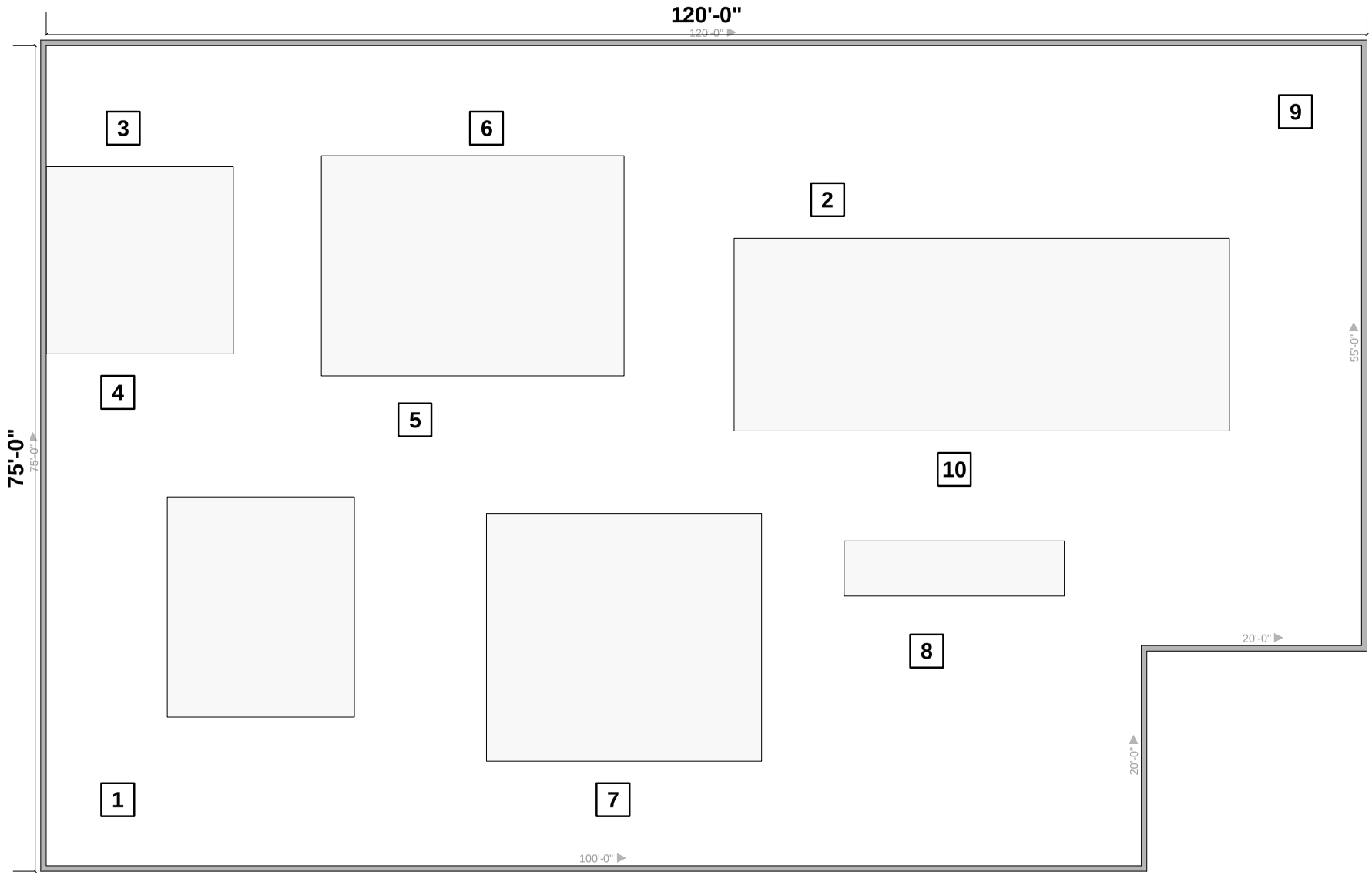
You can indicate (by drawing a square) the site each machine is assigned to in the best layout found from multiple runs (at least 10) of `sdpi`.

Part 2: Visio Tutorial

Complete the Visio Tutorial (see course webpage for link) and submit via Wolfware the layout created.

Part 3: Distance Matrix Calculation

Use the Excel function `dijk` to determine a 10×10 distance matrix for the 10 site locations shown on the figure below. Indicate and label on the figure all of intersection nodes that you added to the figure (the first intersection node added is Node 11, etc.) and the distance of each arc.


120'-0"
120'-0"
75'-0"
75'-0"
55'-0"
20'-0"
20'-0"
100'-0"
1
2
3
4
5
6
7
8
9
10