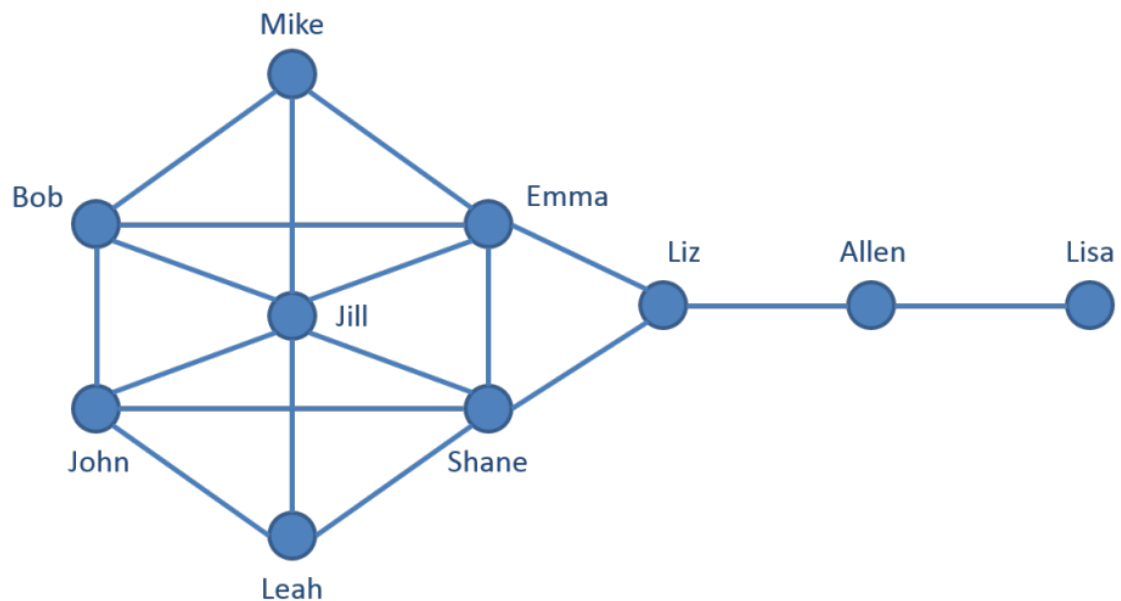


Network Visualization

1. Force Directed Layouts



- a. If we use the Reingold- Fruchterman force-directed graph layout algorithm to position the vertices of the above graph, how many forces are calculated to reposition the Jill node within a single iteration?

Attraction is calculated between neighbors.

Jill has 6 neighbors.

Repulsion is calculated between all vertices, so all 9 other vertices would exert a repulsive force.

$6+9=15$ forces

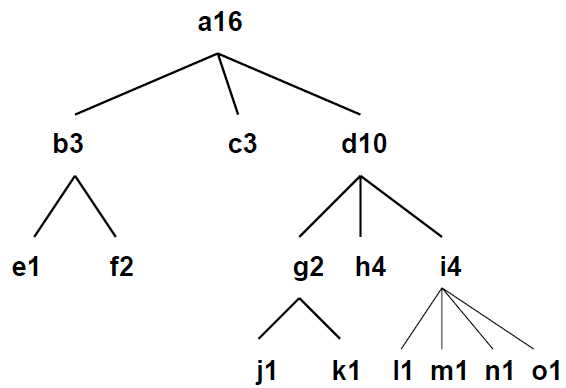
- b. How many total forces are calculated for the entire graph in an iteration?

There are 16 edges, and attraction needs to be calculated once for each edge.

There $\binom{10}{2} = \frac{10!}{8!2!} = 45$ possible pairs of vertices...each requires a repulsive force to be calculated.

$16+45 = 61$ forces

2. Slice&Dice TreeMaps



Create a TreeMap representation of the above tree using the slice and dice method dividing the vertical axis first. Make the sizes of the rectangles of siblings roughly in proportion to the number of children each parent node has.

