Prims and Kruskal Graph Tracing

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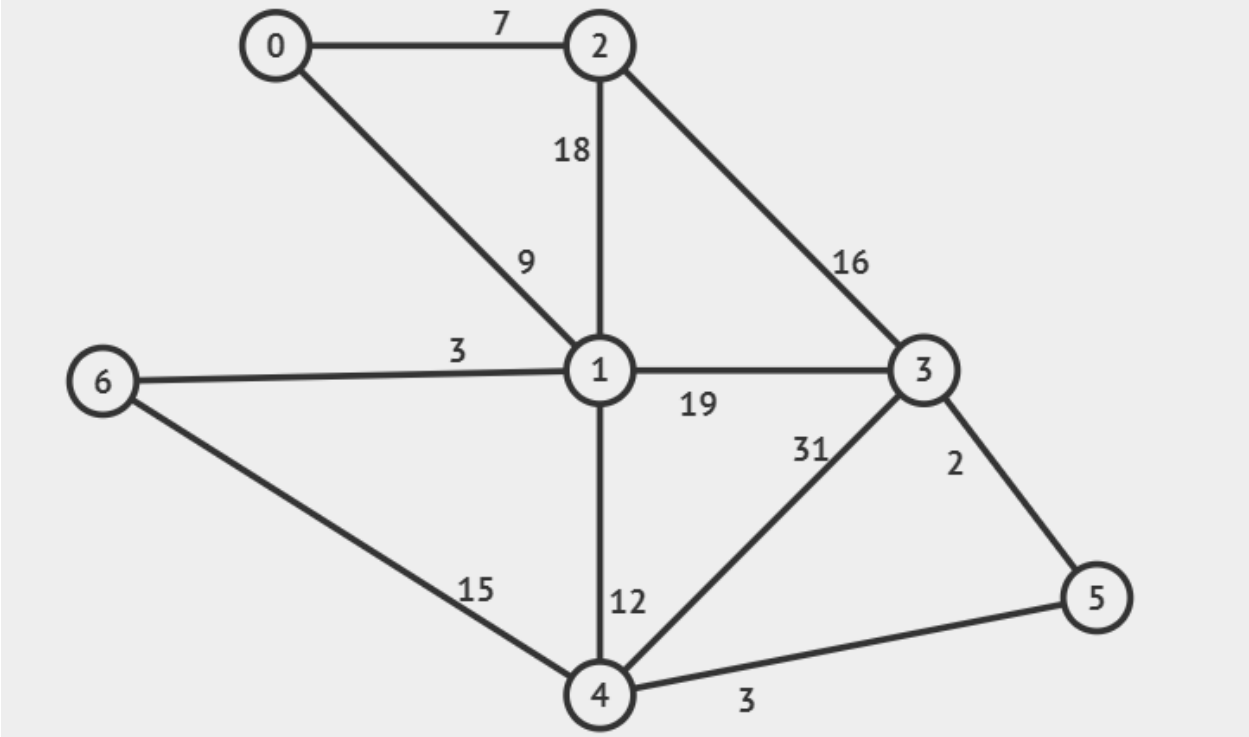
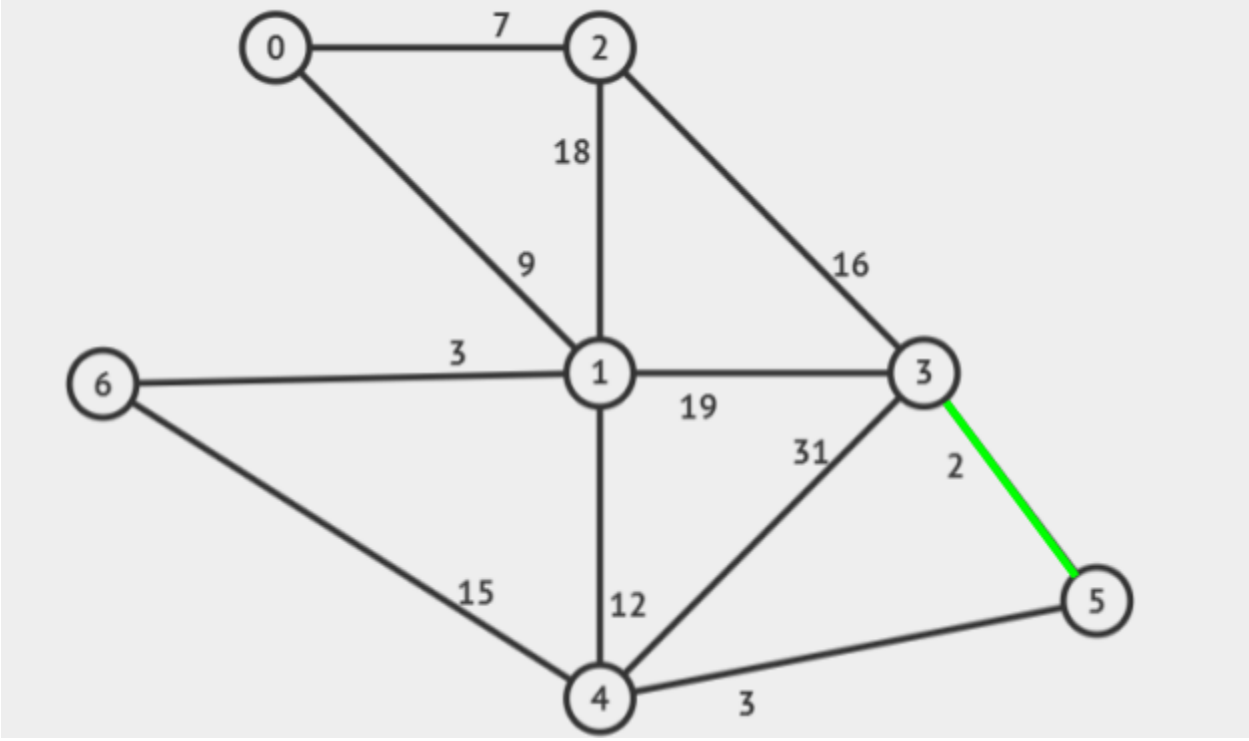
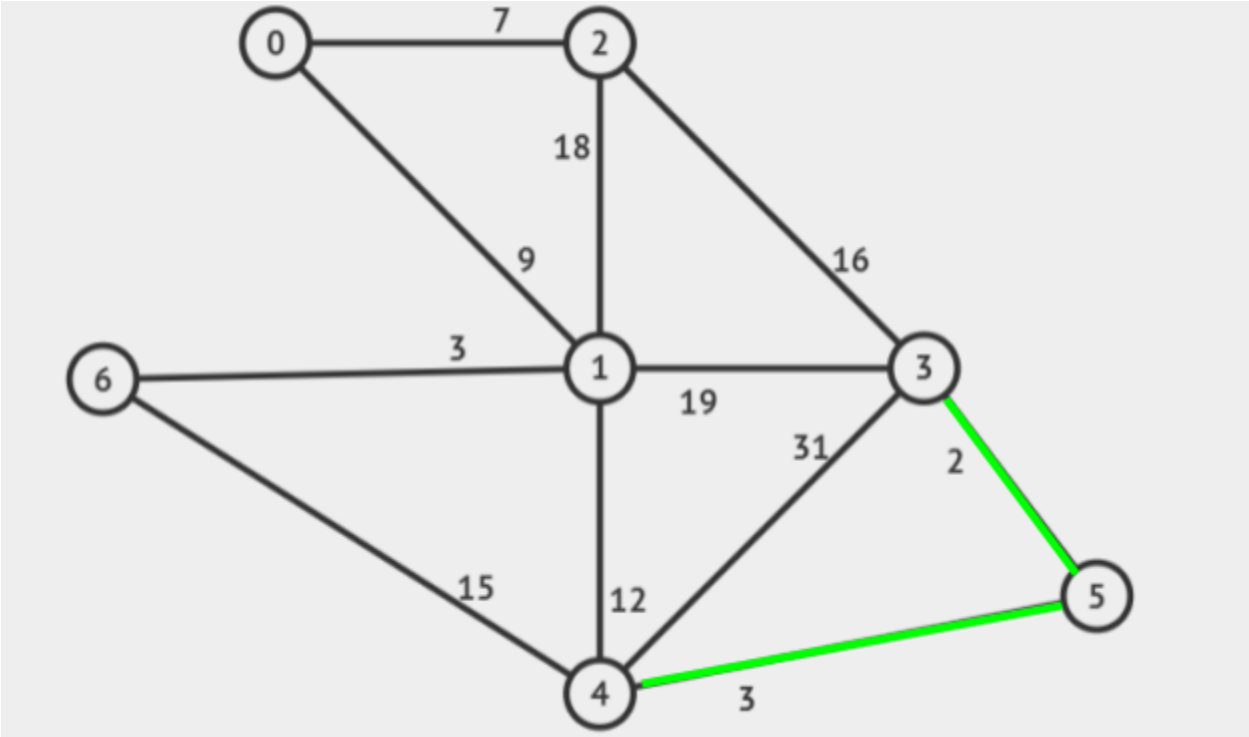
Graph:



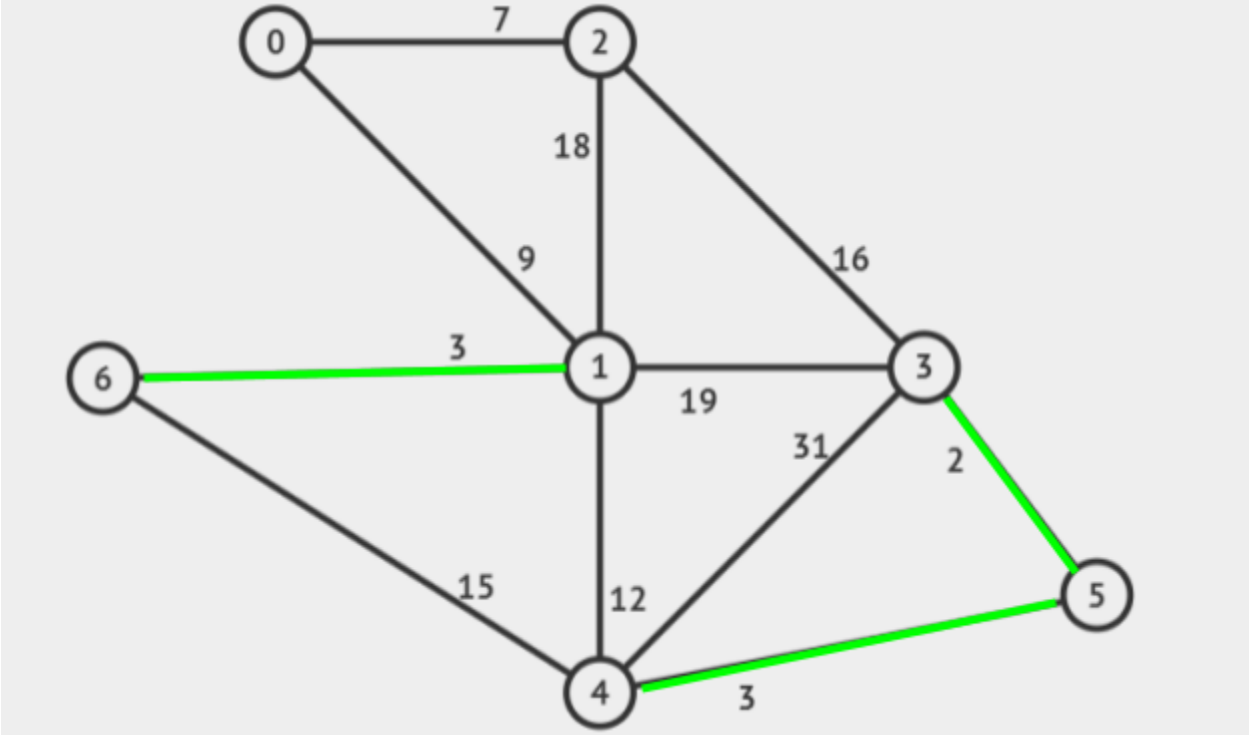
Kruskal:
Kruskal's algorithm has a list of the weights of each edge, and we pick the minimum that doesn't create a cycle. It's helpful to create a sorted list of each edge and cross them off one by one until all vertices are visited
Weights sorted: 2, 3, 3, 7, 9, 12, 15, 16, 18, 19, 31



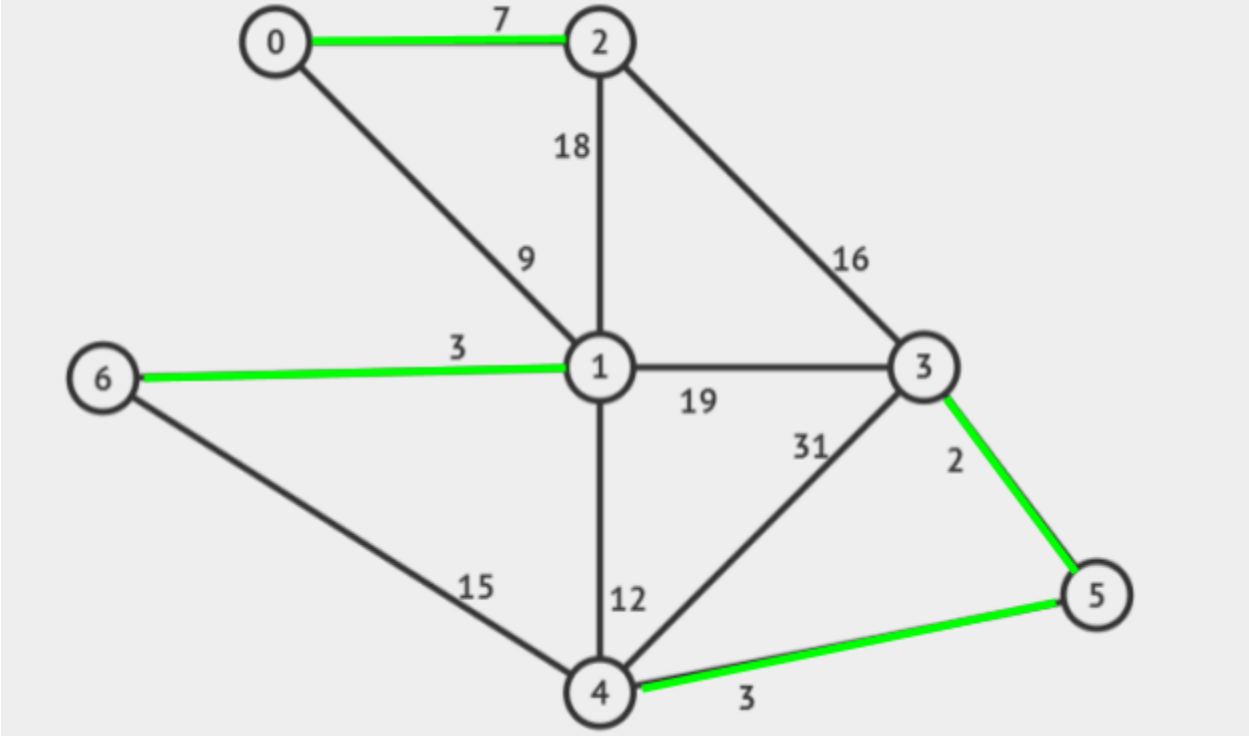
Delete 2 from our edge weights list.
Weights sorted: 3, 3, 7, 9, 12, 15, 16, 18, 19, 31



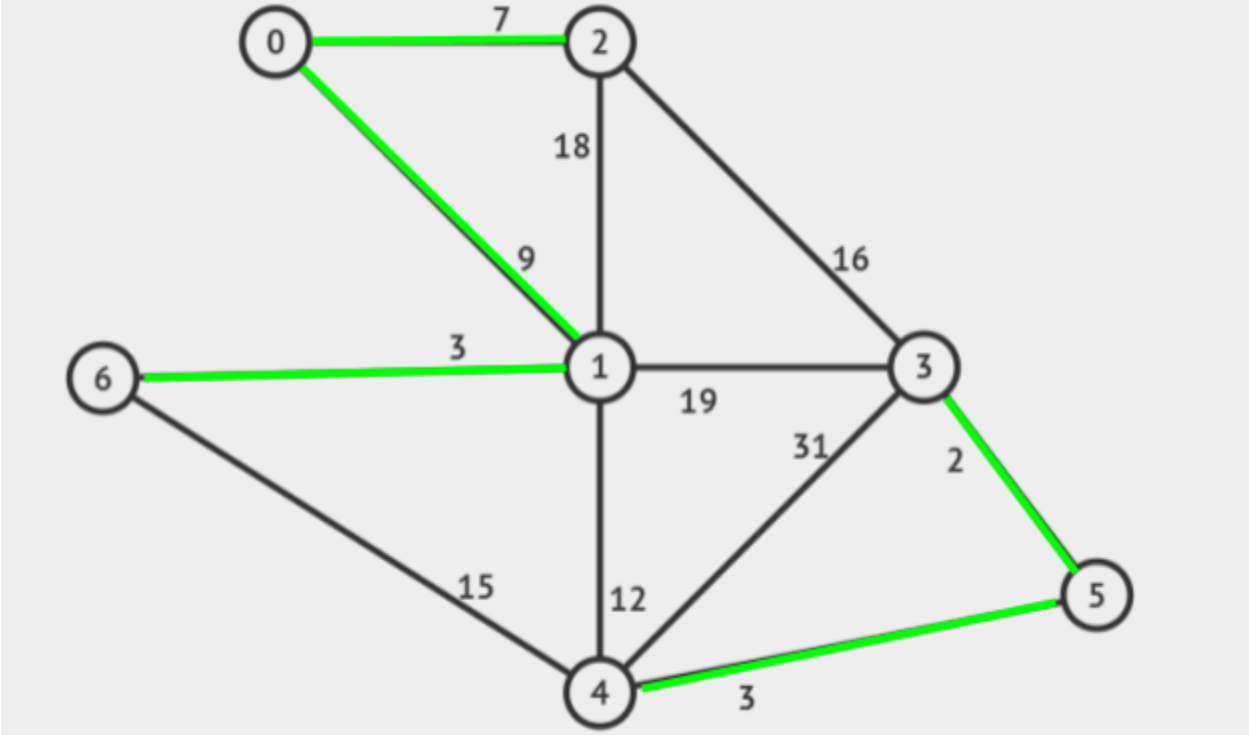
Delete 3 from our edge weights list.
Weights sorted: 3, 7, 9, 12, 15, 16, 18, 19, 31



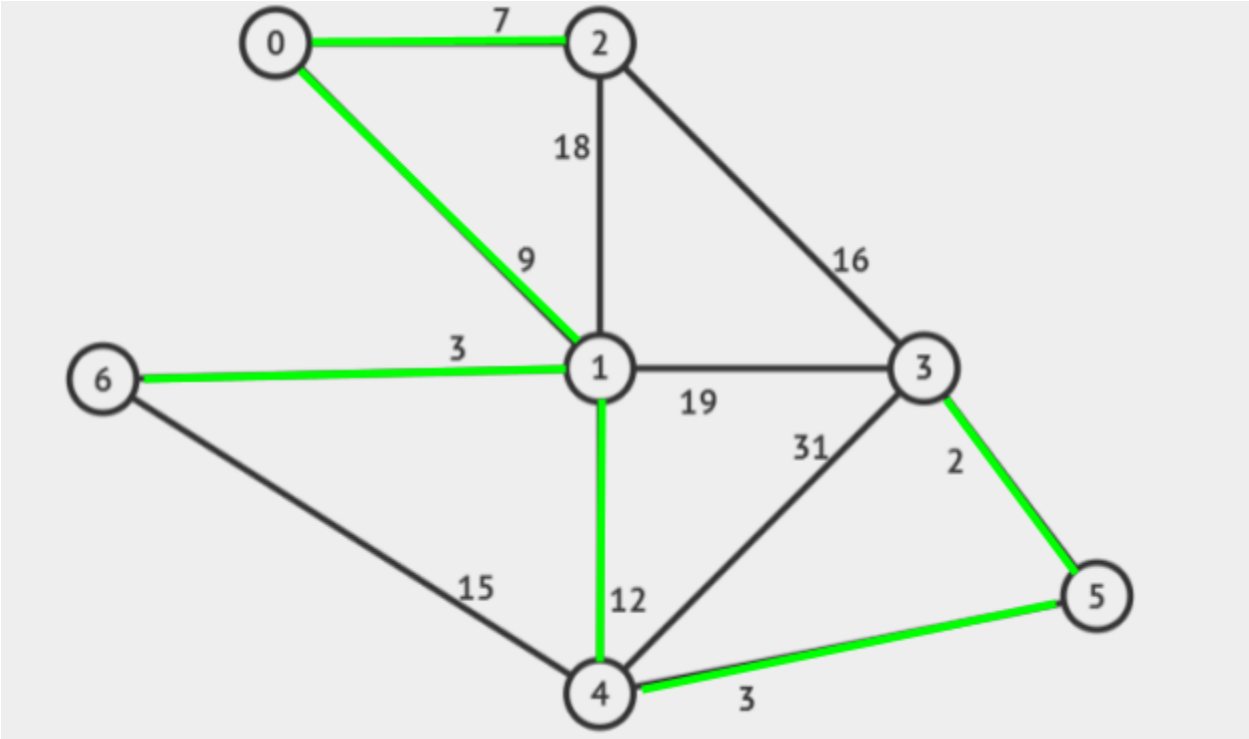
Delete 3 from our edge weights list.
Weights sorted: 7, 9, 12, 15, 16, 18, 19, 31



Delete 7 from our edge weights list.
Weights sorted: 9, 12, 15, 16, 18, 19, 31

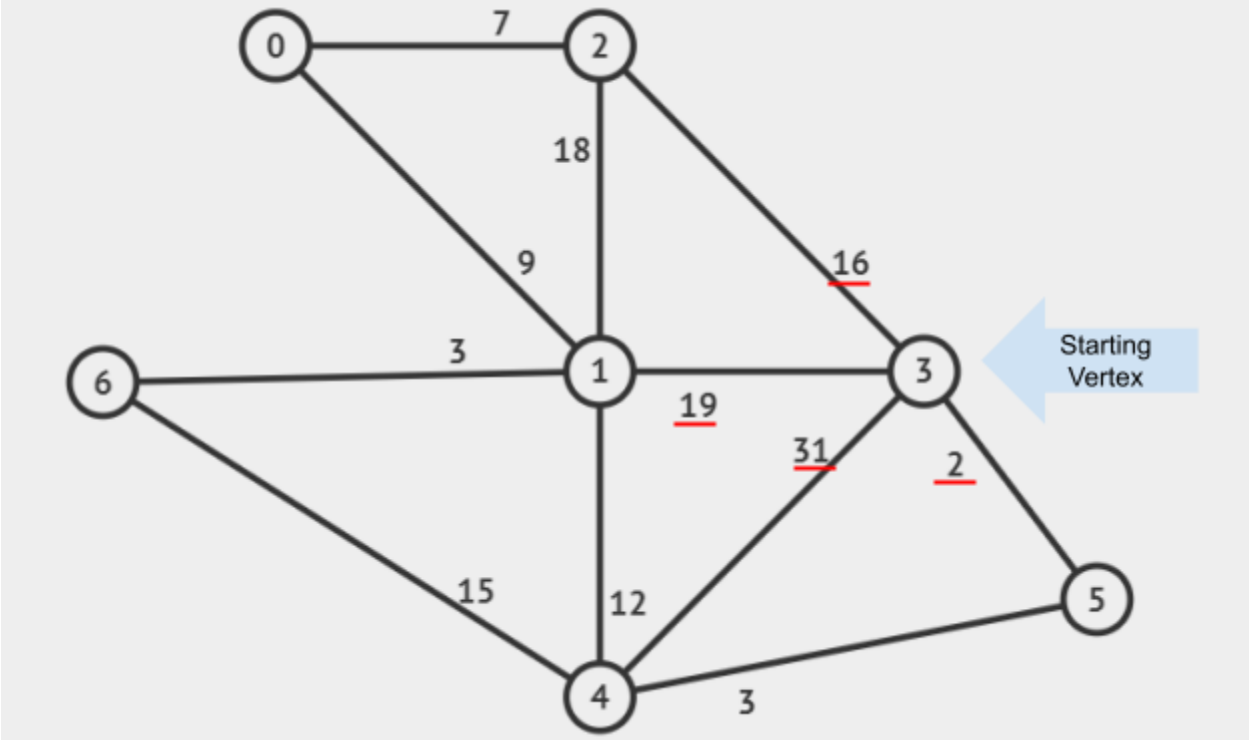


Delete 9 from our edge weights list.
Weights sorted: 12, 15, 16, 18, 19, 31

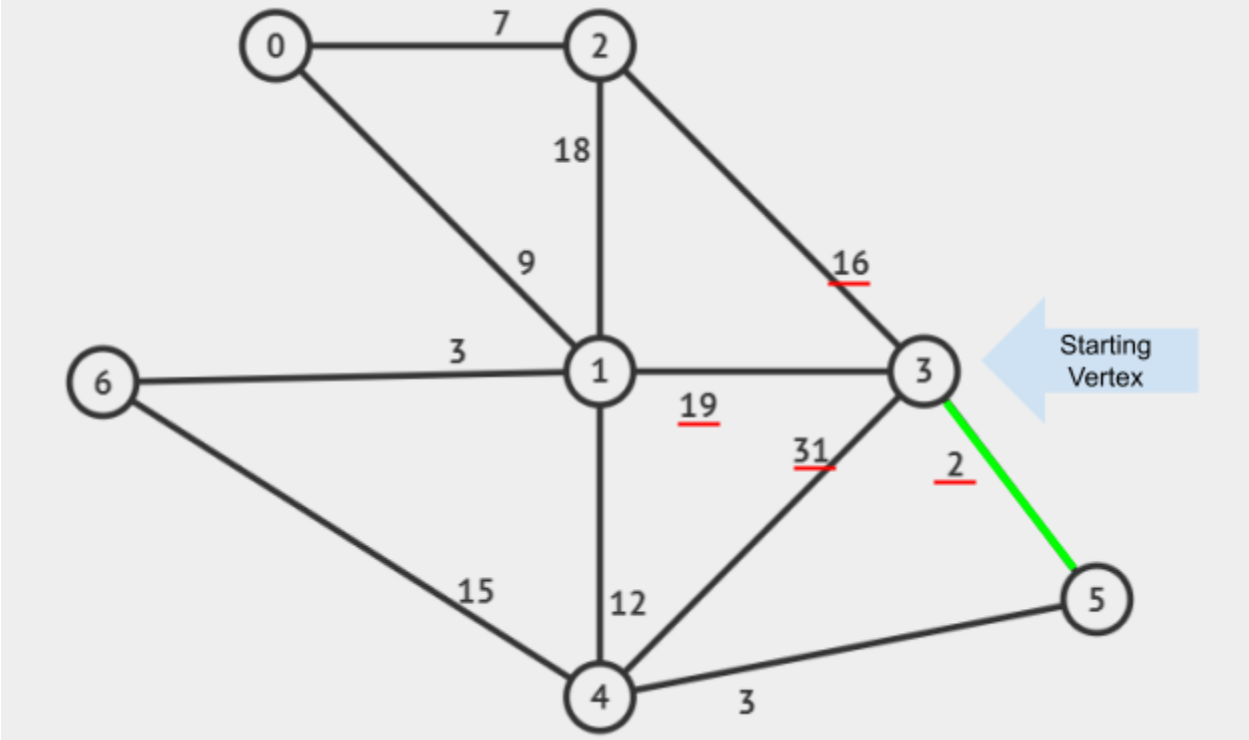


All vertices are visited, so the edges in green are in our minimum spanning tree

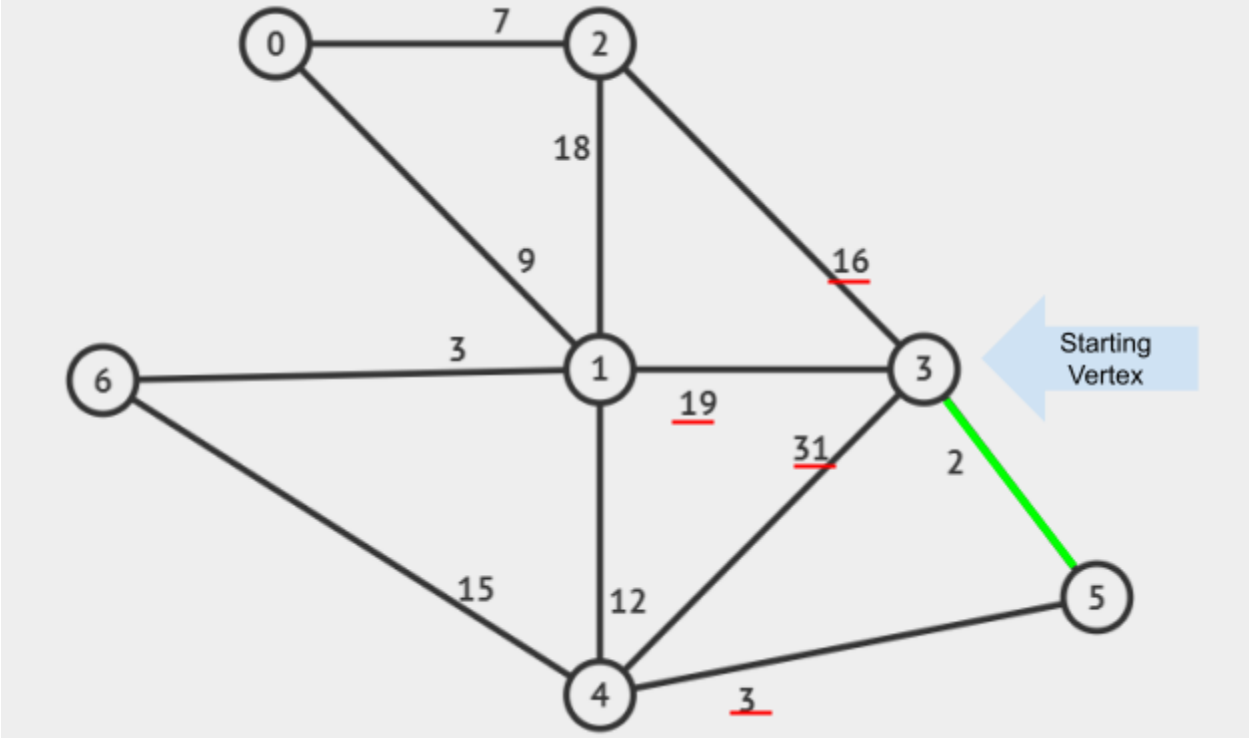
Prim's:
Prim's Algorithm relies on having a starting vertex, which is usually given. For the sake of this question, we'll choose starting vertex 3. We add all the edges associated with this vertex and pick the minimum one that doesn't create a cycle. We keep adding vertices that correspond with the next minimum weight until all vertices are visited.
Add vertex 3
Edge Weights: 2, 31, 16, 19
The edges underlined in red are the ones we have in our list



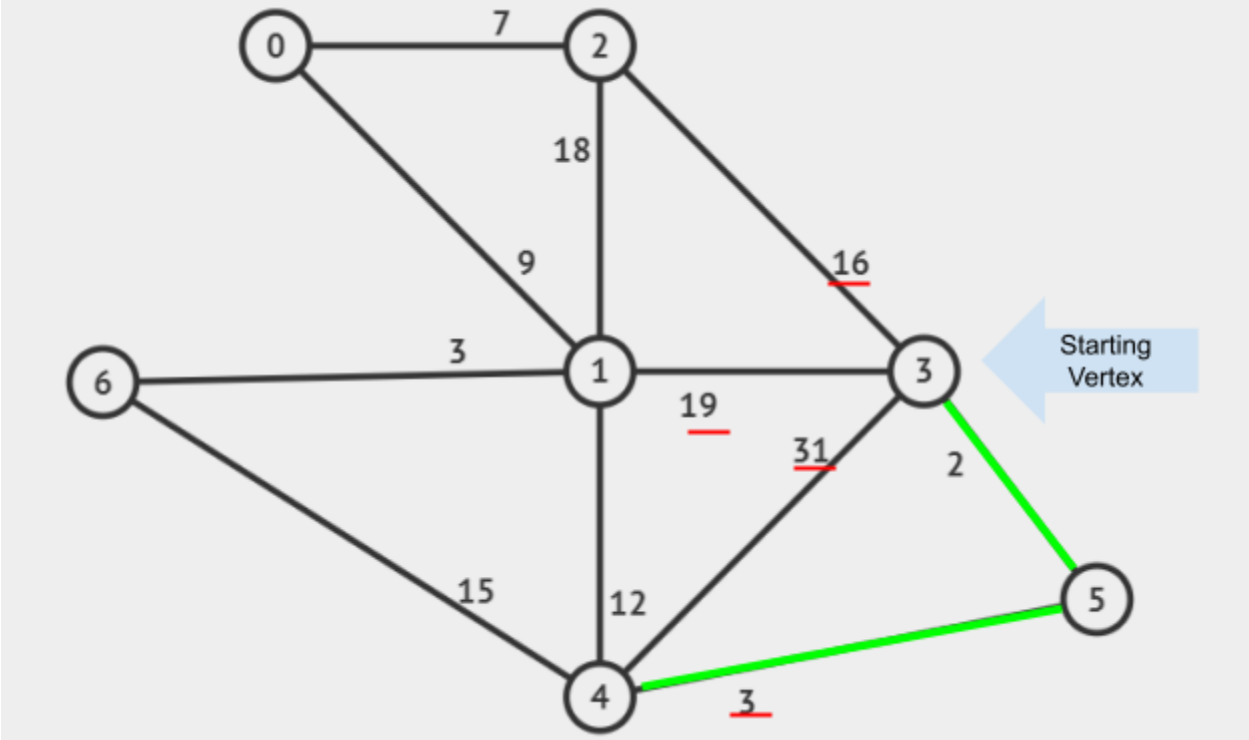
Select edge 2 to add to our minimum spanning tree



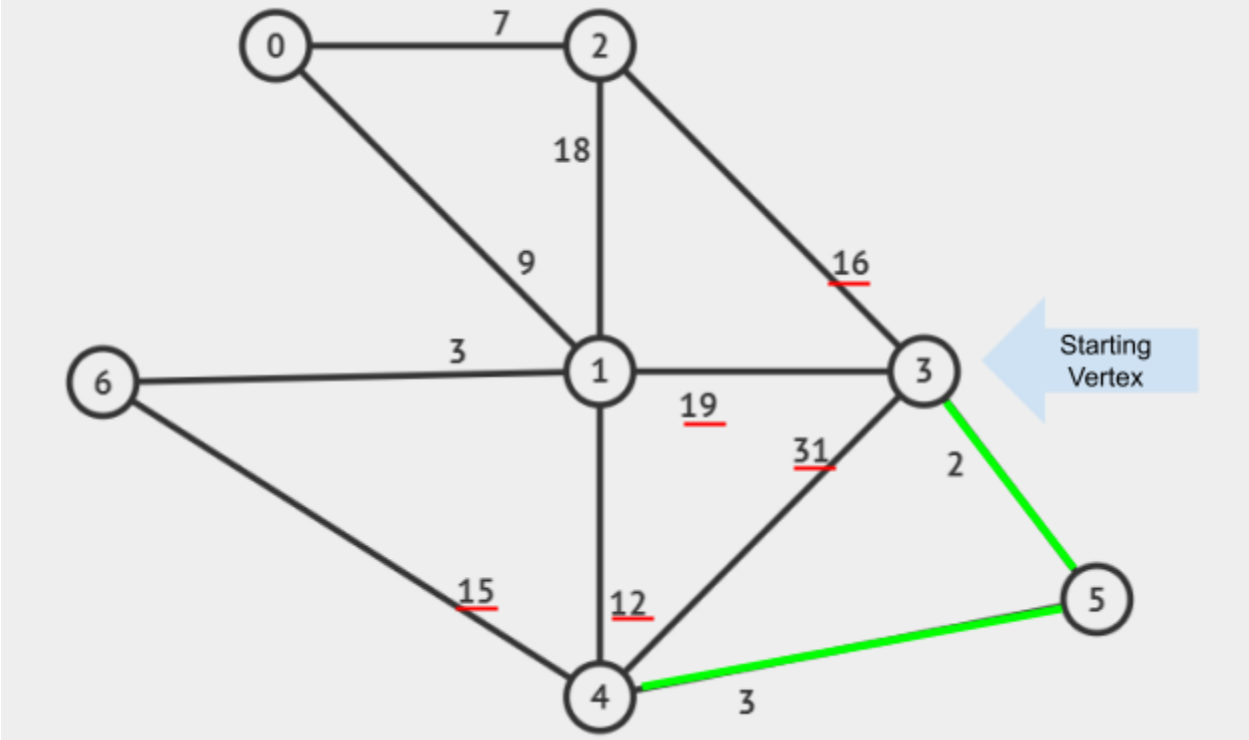
Remove 2 from our edge weights list as we have already used it
Add vertex 5
Edge Weights: 31, 16, 19, 3



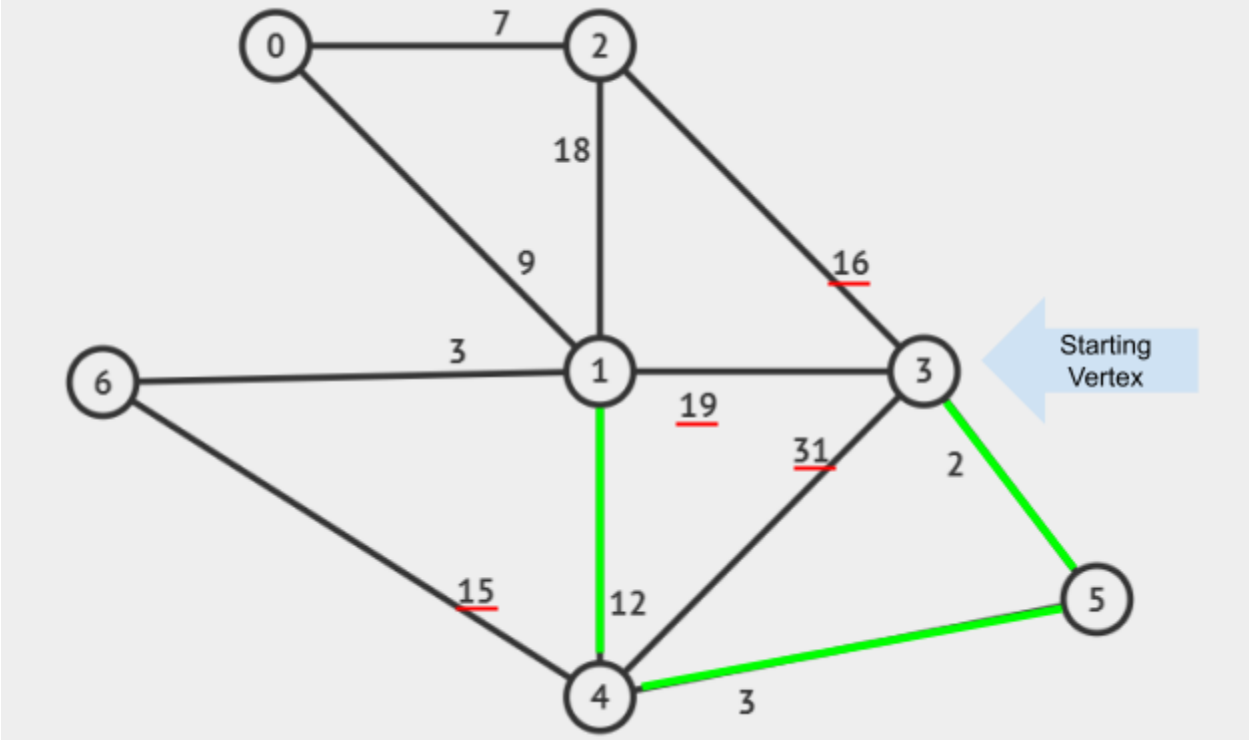
Select edge 3 to add to our minimum spanning tree



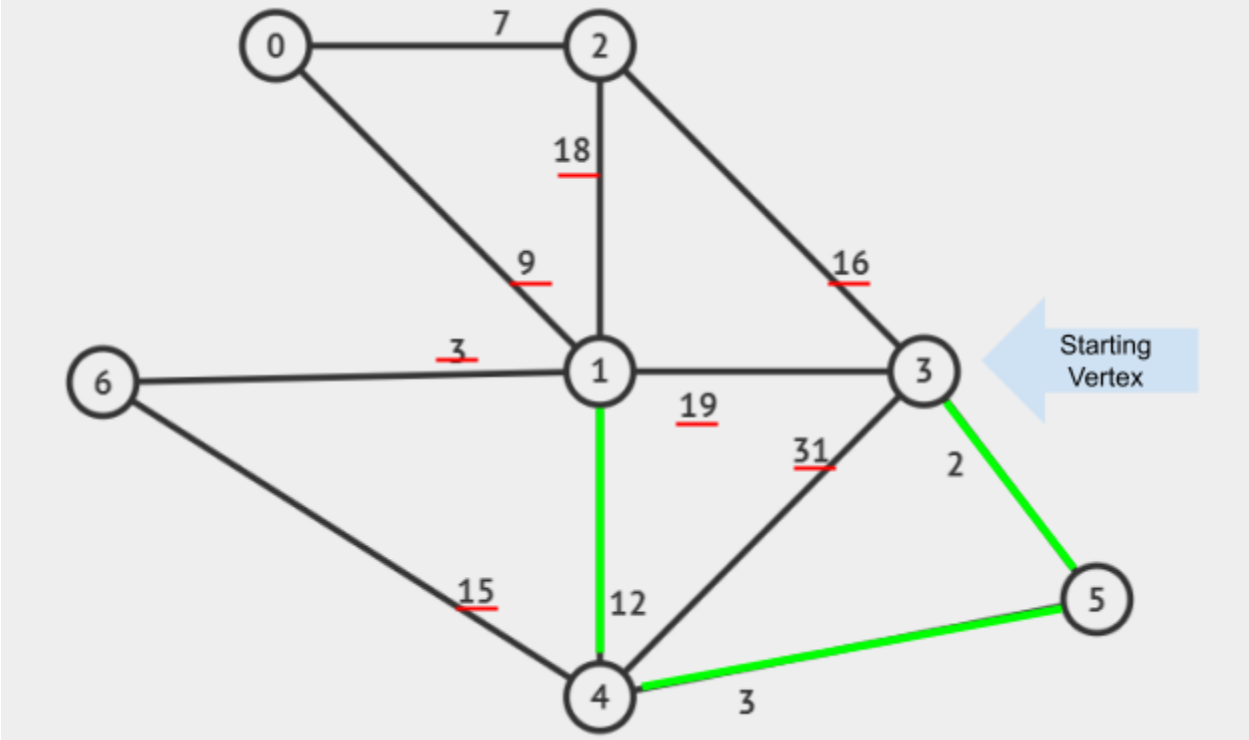
Remove 3 from our edge weights list as we have already used it
Add vertex 4
Edge Weights: 31, 16, 19, 12, 15



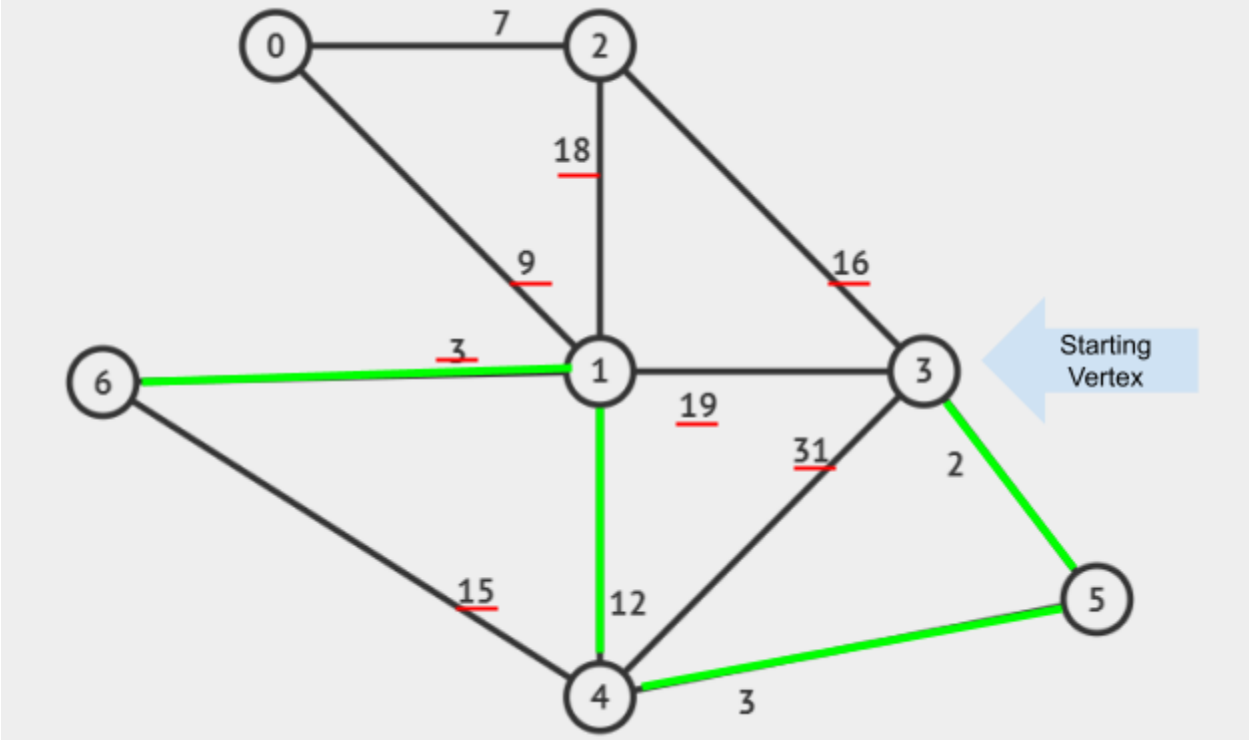
Select edge 12 to add to our minimum spanning tree



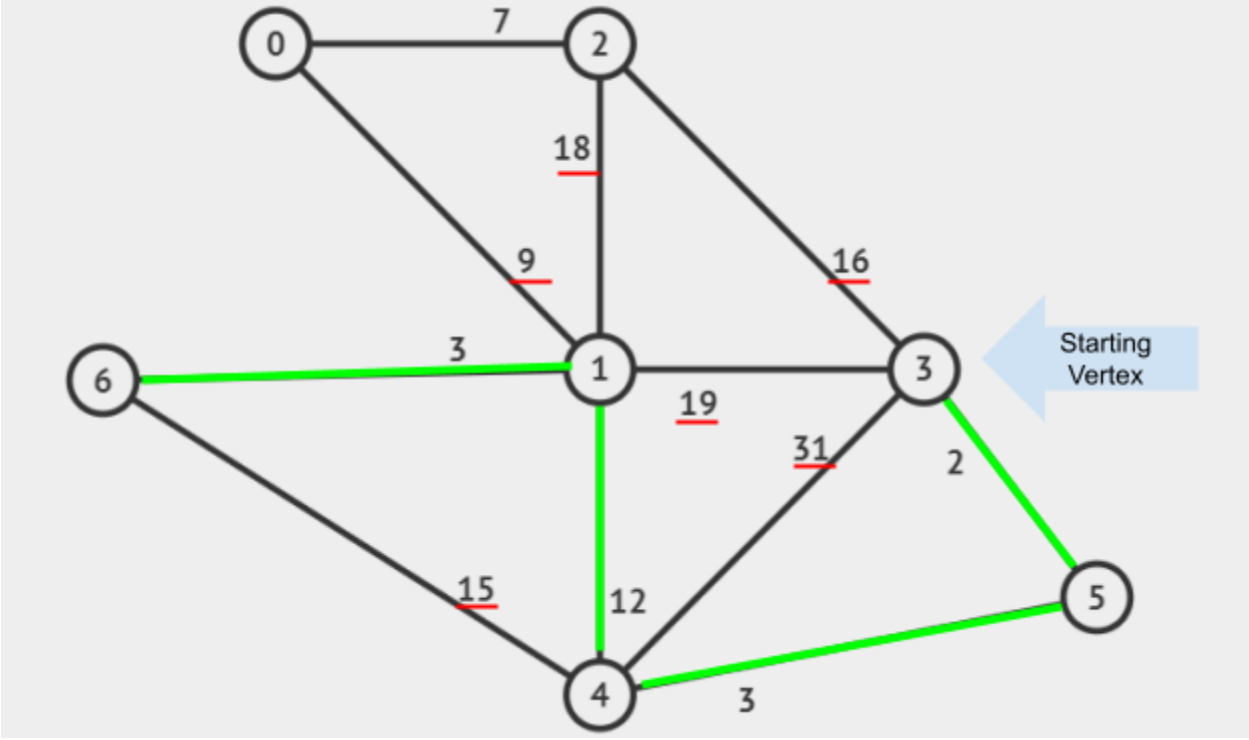
Remove 12 from our edge weights list as we have already used it
Add vertex 1
Edge Weights: 31, 16, 19, 15, 3, 9, 18, 19



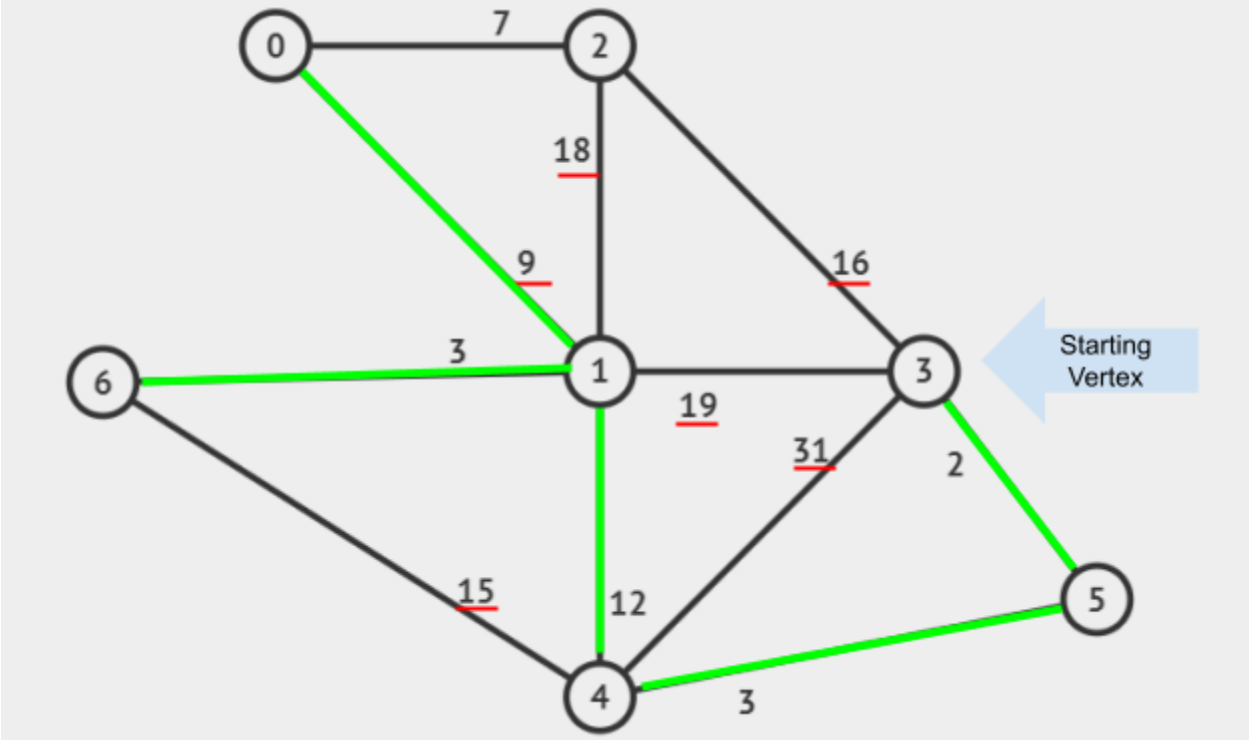
Select edge 3 to add to our minimum spanning tree



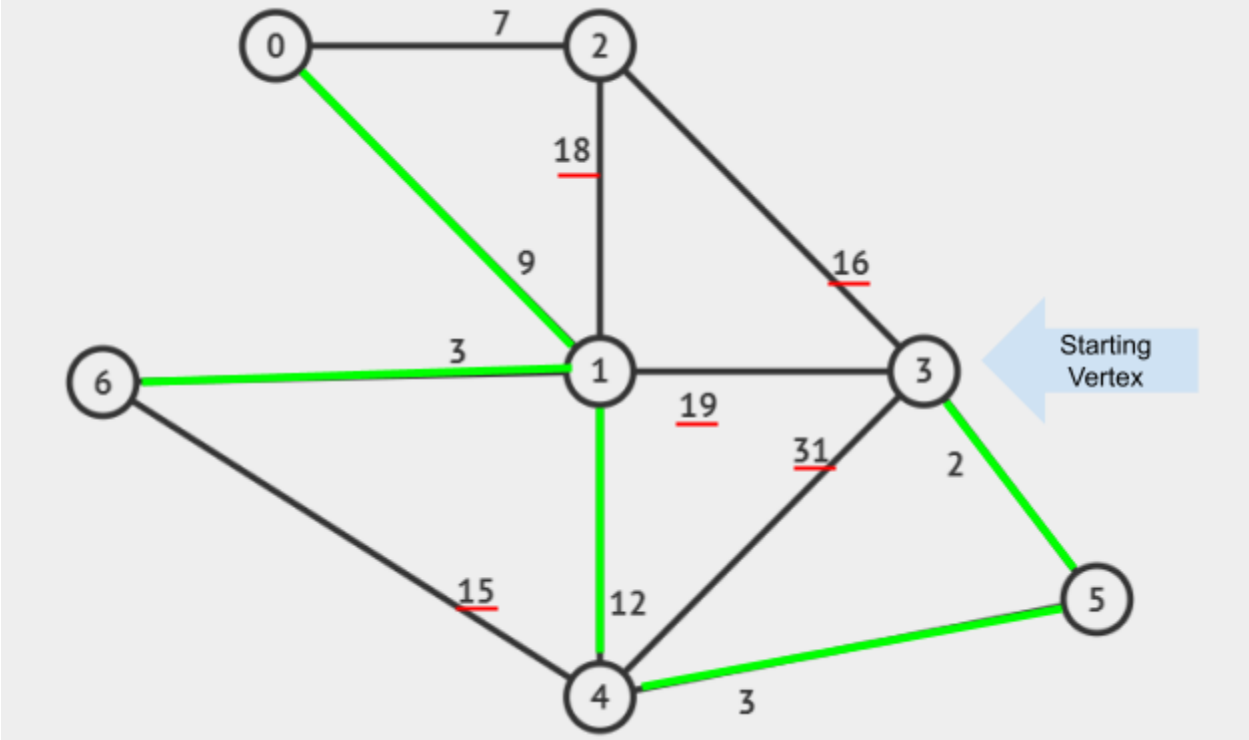
Remove 3 from our edge weights list as we have already used it
Add vertex 6 (doesn't add any new edges to list)
Edge Weights: 31, 16, 19, 15, 9, 18, 19



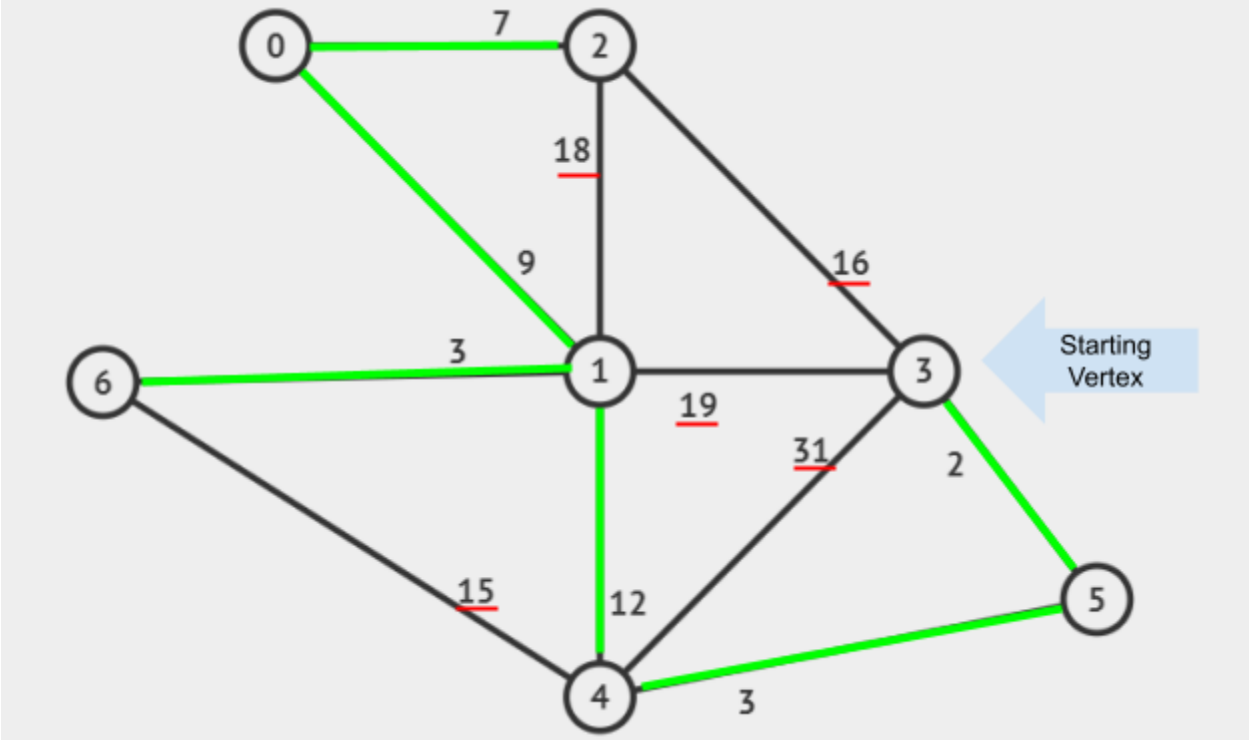
Select edge 9 to add to our minimum spanning tree



Remove 9 from our edge weights list as we have already used it
Add vertex 0
Edge Weights: 31, 16, 19, 15, 18, 19, 7



Select edge 7 to add to our minimum spanning tree



All vertices are visited, so the edges in green are in our minimum spanning tree