Wesley Harmon

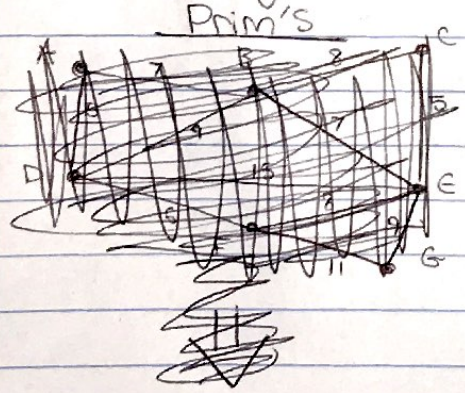
Quiz 6

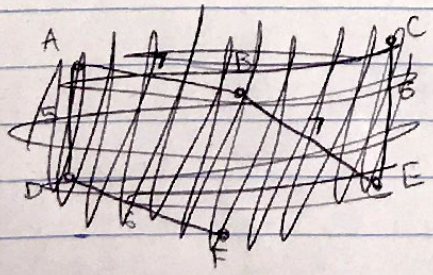
It's important to note that between the 2 algorithms, Prim's & Kruskal's, Prim's will begin to outperform Kruskal's as the number of edges begins to significantly outnumber the number of vertices, so as the graph becomes significantly more dense w/ more edges than vertices, Prim's algorithm will the fastest. As the graph becomes more sparse, Kruskal's algorithm will actually take the advantage because it uses a simpler data structure when implemented optimally, Kruskal's will keep track of the forest during the algorithm by only storing vertices w/ their pair, whereas Prim's stores a vertex-edge to keep track.

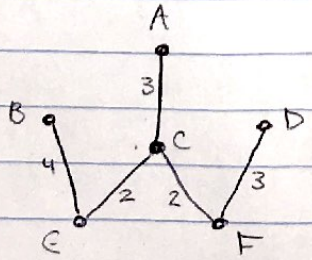
*ALSO: a tree that consists of all the same weight yields the potential for each algorithm to give a different Minimum Spanning Tree.

Here's an example where the 2 algorithms produce different graphs:

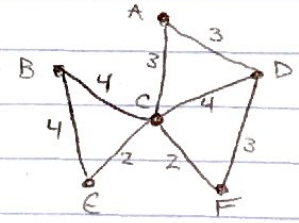
Prim's

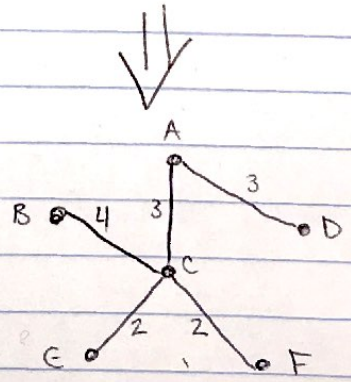






Kruskal's





Both are valid but the difference came about when Kruskal's would choose A —3— D after C / E 2, C 2 F was formed while Prim's C —3— A after C / E 2, C 2 F. This is because Kruskal's can form a forest/ Prim's must always be connected