

580: Algorithms

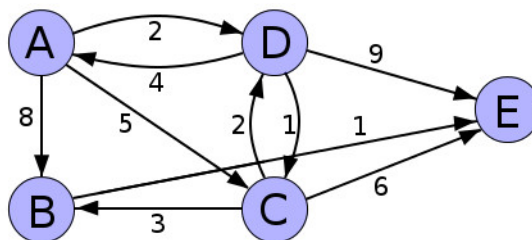
Tutorial: Graph Algorithms

1. Compute a minimum spanning tree for the graph below using Kruskal's algorithm. List the edges in the order they are added to the tree, and the weight of the tree after each iteration. Whenever there is a choice of edges, pick the edge  $\{u, v\}$  that contains the lowest vertex id.

## Assignment Project Exam Help

<https://eduassistpro.github.io/>

2. Compute a minimum spanning tree for the same graph using Prim's algorithm starting at vertex 5. List the vertices in the order they are added to the tree, and the weight of the tree after each iteration. Whenever there is a choice of vertices, pick the vertex with the lowest id.
3. Compute the shortest (lowest weight) path from  $A$  to each vertex of the graph below using the Bellman–Ford algorithm. In each pass through the graph, use the order  $B, C, D, E, A$  to determine the next vertex  $u$  for which all edges  $(u, v)$  should be relaxed. List the estimated distance and the parent for each vertex after each pass.



4. Compute the shortest (lowest weight) path from  $A$  to each vertex of the same graph using Dijkstra's algorithm. List the estimated distance and the parent for each vertex after each iteration of the algorithm.