Dijkstra's Algorithm vs. Bellman Ford Algorithm Analysis

After conducting the trials and putting the data into a visual graph, it is easy to see that Dijkstra's Algorithm is much faster than Bellman Ford. As the number of vertices and the number of edges in the sample graph increases, the runtime of Bellman Ford increases at a much quicker rate than Dijkstra's algorithm does. As shown in the book as well as in the slides, the main edge-relaxing loop in the Bellman Ford Algorithm runs in O(|V| * |E|), which makes the entire algorithm run in this time. The run time of Dijkstra's algorithm, as explained in the book as well as in the class lecture, is O(|E| + |V|log|V|), which is why Dijkstra's algorithm is so much quicker than Bellman Ford for large values of E and V, as seen below.