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Assignment: HW_06

Ans:2)) Each time I will add the edge with the following steps:

1. I will run the modified function edge_complete(u,v) to check, if the edge (u,v) completes negative cycle or not.
2. If it does, then I will not populate the corresponding entry in the matrix.
3. Otherwise, I will insert a random weight from [-w, w] at corresponding position.
4. After the graph is completed, I will check whether the random graph has a negative cycle using Bellmen-Ford algorithm.
5. If it does, I will delete the allocated memory and call the random_grapgh function again.

Ans:3)) Bellmen-Ford Algorithm running time is:

1. O(VE), Where V is the number of vertices and E is the number of edges.

   If V = E = n, then time = n^2O(n^2)

2. For complete graph it will take O(VE)
   Where E = (V(V-1))/2
   Say V=E=n, then it will take time: n^3O(n^3)