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Relation 1:                {(4, 4), (1, 1), (3, 3), (2, 2)}
Relation 1 is reflexive:   True
Reflexive closure of relation 1: {(4, 4), (1, 1), (3, 3), (2, 2)}
Relation 2:                {'c', 'c'}, ('a', 'a')}
Relation 2 is reflexive:   False
Reflexive closure of relation 2: {'d', 'd'), ('c', 'c'), ('a', 'a'), ('b', 'b')}

Relation 3:                {(4, 4), (1, 2), (3, 3), (2, 1)}
Relation 3 is symmetric:   True
Symmetric closure of relation 3: {(4, 4), (1, 2), (3, 3), (2, 1)}
Relation 4:                {(1, 2), (3, 3)}
Relation 4 is symmetric:   False
Symmetric closure of relation 4: {(1, 2), (2, 1), (3, 3)}

Relation 5:                {'d', 'd'), ('b', 'c'), ('a', 'b'), ('a', 'c')}
Relation 5 is transitive:   True
Transitive closure of relation 5: {'d', 'd'), ('b', 'c'), ('a', 'b'), ('a', 'c')}
Relation 6:                {(2, 2), (3, 1), (1, 1), (1, 3), (3, 2)}
Relation 6 is transitive:   False
Transitive closure of relation 6: {(3, 3), (1, 2), (2, 2), (3, 1), (1, 1), (1, 3), (3, 2)}

Relation 7:                {(2, 3), (1, 1), (2, 2)}
Relation 7 is an equivalence relation: False
Reasons:                    ['Not reflexive', 'Not symmetric']
Relation 8:                {'b', 'c'), ('c', 'b'), ('b', 'b'), ('c', 'c'), ('a', 'a')}
Relation 8 is an equivalence relation: True
Reasons:                    ['Reflexive, symmetric, and transitive']

Relation 9:                {(4, 4), (1, 2), (3, 3), (2, 2), (1, 1), (4, 1), (4, 2)}
Relation 9 is a poset:      True
Reasons:                    ['Reflexive, antisymmetric, and transitive']
Relation 10:               {(0, 1), (1, 2), (0, 0), (1, 1), (0, 3), (2, 0), (0, 2), (3, 3), (2, 2), (1, 0), (1, 3)}
Relation 10 is a poset:     False
Reasons:                    ['Not antisymmetric', 'Not transitive']

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