Problem 1

now exploring edge(3,5)

the parent is [1, 2, 3, 4, 3, 6, 7, 8, 9]

MST now is [(3, 5)]

union structure {1, 2, 3(5), 4, 6, 7, 8, 9}

----

now exploring edge(4,6)

the parent is [1, 2, 3, 4, 3, 4, 7, 8, 9]

MST now is [(3, 5), (4, 6)]

union structure {1, 2, 3(5), 4(6), 7, 8, 9}

----

now exploring edge(3,4)

the parent is [1, 2, 3, 3, 3, 4, 7, 8, 9]

MST now is [(3, 5), (4, 6), (3, 4)]

union structure {1, 2, 3(4(6), 5), 7, 8, 9}

----

now exploring edge(2,9)

the parent is [1, 2, 3, 3, 3, 4, 7, 8, 2]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9)]

union structure {1, 2(9), 3(4(6), 5), 7, 8}

----

now exploring edge(4,5)

the parent is [1, 2, 3, 3, 3, 4, 7, 8, 2]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9)]

union structure {1, 2(9), 3(4(6), 5), 7, 8}

----

now exploring edge(6,9)

the parent is [1, 3, 3, 3, 3, 3, 7, 8, 2]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9)]

union structure {1, 3(2(9), 4(6), 5), 7, 8}

----

now exploring edge(5,9)

the parent is [1, 3, 3, 3, 3, 3, 7, 8, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9)]

union structure {1, 3(2(9), 4(6), 5), 7, 8}

----

now exploring edge(1,6)

the parent is [3, 3, 3, 3, 3, 3, 7, 8, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6)]

union structure {3(1, 2(9), 4(6), 5), 7, 8}

----

now exploring edge(4,8)

the parent is [3, 3, 3, 3, 3, 3, 7, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8)]

union structure {3(1, 2(9), 4(6), 5, 8), 7}

----

now exploring edge(1,5)

the parent is [3, 3, 3, 3, 3, 3, 7, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8)]

union structure {3(1, 2(9), 4(6), 5, 8), 7}

----

now exploring edge(1,8)

the parent is [3, 3, 3, 3, 3, 3, 7, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8)]

union structure {3(1, 2(9), 4(6), 5, 8), 7}

----

now exploring edge(7,8)

the parent is [3, 3, 3, 3, 3, 3, 3, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8), (7, 8)]

union structure {3(1, 2(9), 4(6), 5, 7, 8)}

----

now exploring edge(5,7)

the parent is [3, 3, 3, 3, 3, 3, 3, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8), (7, 8)]

union structure {3(1, 2(9), 4(6), 5, 7, 8)}

----

now exploring edge(5,6)

the parent is [3, 3, 3, 3, 3, 3, 3, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8), (7, 8)]

union structure {3(1, 2(9), 4(6), 5, 7, 8)}

----

now exploring edge(6,7)

the parent is [3, 3, 3, 3, 3, 3, 3, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8), (7, 8)]

union structure {3(1, 2(9), 4(6), 5, 7, 8)}

----

now exploring edge(3,7)

the parent is [3, 3, 3, 3, 3, 3, 3, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8), (7, 8)]

union structure {3(1, 2(9), 4(6), 5, 7, 8)}

----

now exploring edge(2,4)

the parent is [3, 3, 3, 3, 3, 3, 3, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8), (7, 8)]

union structure {3(1, 2(9), 4(6), 5, 7, 8)}

----

now exploring edge(2,3)

the parent is [3, 3, 3, 3, 3, 3, 3, 3, 3]

MST now is [(3, 5), (4, 6), (3, 4), (2, 9), (6, 9), (1, 6), (4, 8), (7, 8)]

union structure {3(1, 2(9), 4(6), 5, 7, 8)}