ECE 358 Assignment

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June 5, 2016

1. The tight lower bound for the largest-sized routing table across all the n routers is 2. This is because a router in this IP network forwards packets between exactly 2 subnetworks. That means it has to be able to lookup at least two different subnet prefixes to know how to forward the datagram to each of the two subnetworks.

2.
```
def decision(P, k):
    P' = P
    for i <- 0 to P'.size() - 1:
        for j <- i + 1 to P'.size() - 1:
            if mergeable(P'[i], P'[j]):
                P'.add(merge(P'[i], P'[j]))
                P'.remove(P'[i])
                P'.remove(P'[j])
                i <- 0
                j <- 0
    return P'.size() <= k
```