Augment the Study

-Finding our lower bound-

Has to be:
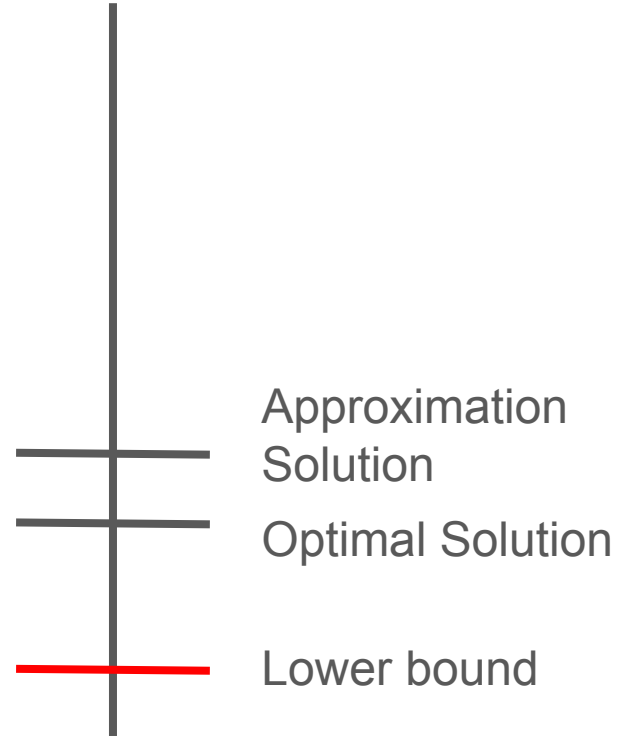
Lower Bound cost ≤ Optimal cost ≤ Approx cost

Poly time   Exp time   Poly time

It is important because it provides a baseline so we
know how close our approximation is to our optimal

Approximation
Solution

Optimal Solution

Lower bound

How to get our lower bound – 1 tree bound

Step 1 - pick a root
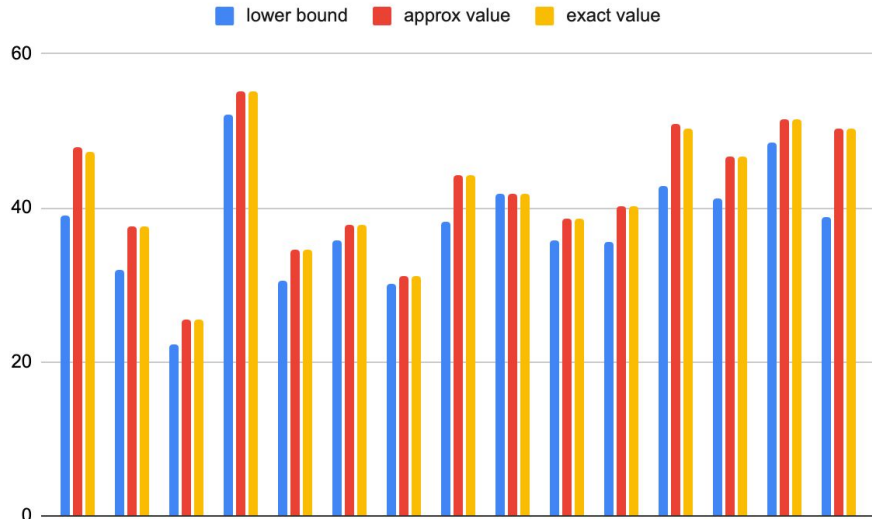
Step 2 - build an MST with on all nodes except the root

Step 3 - add the two cheapest edges incident to the root
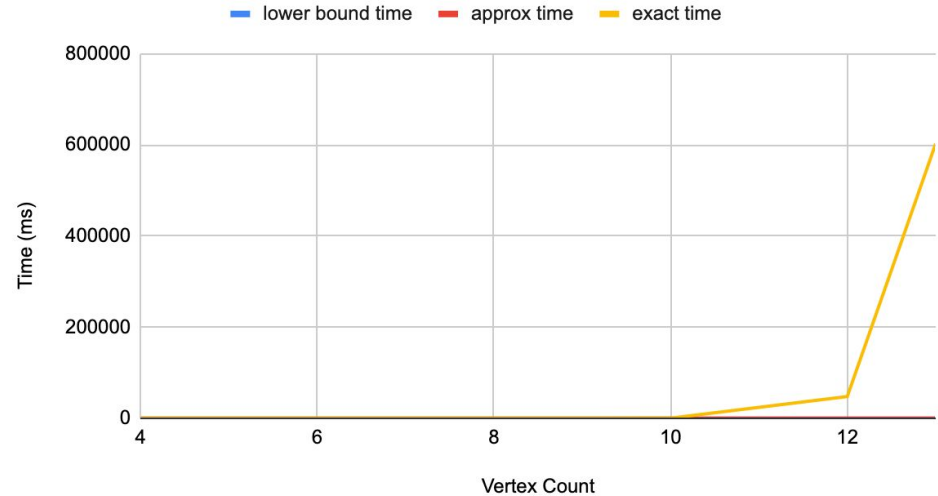
Runtime $O(n^2 \log n)$
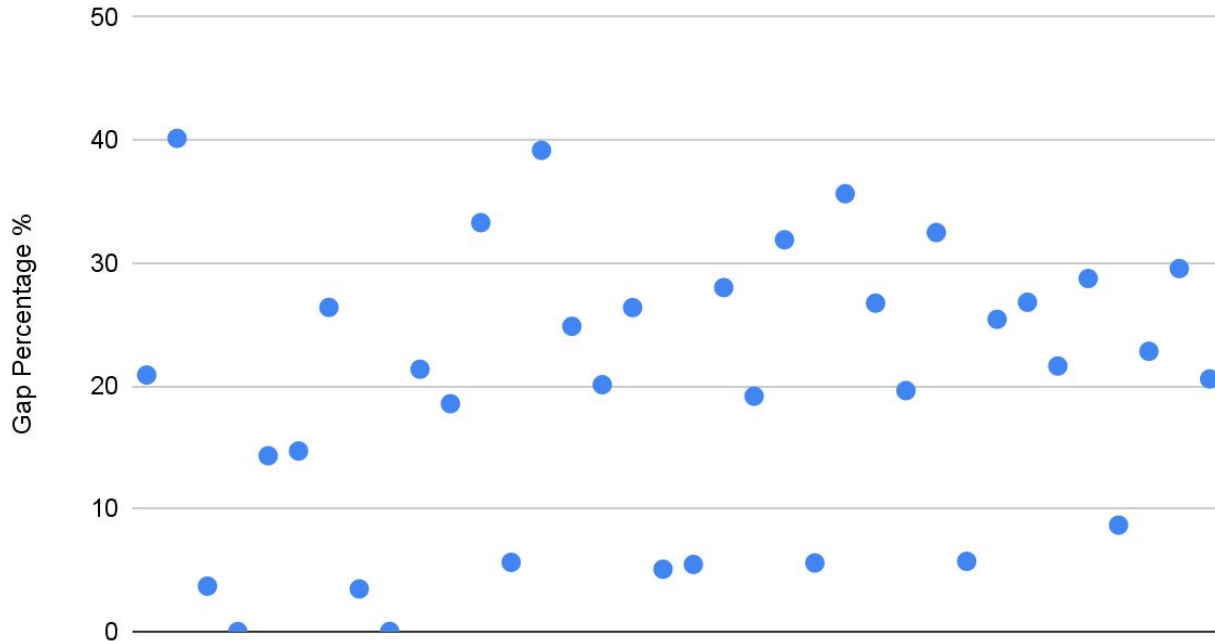
Comparing - lower bound / approx / exact-

vertices, lower bound time, approx time and exact time

Comparing values - Gap Percentage

Gap Percentage Lower Bound vs Approximation

= (approx - lower) / lower

The average:
19.9%

What does this mean?

Thank you