Algorithmics	Student information	Date	Number of session
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Activity 1. Algorithm of Prim

The algorithm I have implemented has a complexity $O(n^3)$ because it has a while loop and inside that loop, I use a for loop that would be n^2 but inside that for I call a function that has complexity O(n), so in total the complexity of my algorithm would be n^3.

n	T Prim (seconds)
256	1.58
512	14.99
1024	175.88
2048	1426.15
4096	OoT

Now let's calculate if the times we have obtained match the complexity. To do that we are going to use the following formula:

$$t2 = \frac{n2^3}{n1^3} \cdot t1$$

1. For n1 = 256, n2 = 512 and t1 = 1.58

$$t2 = \frac{512^3}{256^3} \cdot 1.58 = 12.4$$

2. For n1 = 512, n2 = 1024 and t1 = 14.99

$$t2 = \frac{1024^3}{512^3} \cdot 14.99 = 119.92$$

3. For n1 = 1024, n2 = 2048 and t1 = 175.88

$$t2 = \frac{2048^3}{1024^3} \cdot 175.88 = 1407.04$$

As we can see the times, we have obtained matched the complexity $O(n^3)$.