Faculty of Information Engineering & Technology
The Networks Department
Course: Analysis and Design of Algorithms [CSEN707]
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Tutorial (3)

Question 1

Use a recursion tree to determine a good asymptotic upper bound on the recurrence $T(n) = 3T\left(\frac{n}{2}\right) + n$

Question 2

Use a recursion tree to determine a good asymptotic upper bound on the recurrence $T(n) = 7T\left(\frac{n}{3}\right) + n^2$

Question 3

Draw the recursion tree for $T(n) = 4T\left(\frac{n}{2}\right) + cn$, where c is a constant to provide a tight asymptotic bound.

Question 4

Use a recursion tree to determine a good asymptotic upper bound on the recurrence $T(n) = 2T\left(\frac{n}{2}\right) + \frac{1}{n}$

Question 5

Draw a recursion tree till level 2 of the recurrence $T(n) = T\left(\frac{n}{3}\right) + T\left(\frac{2n}{3}\right) + cn$