

Foundation of Computer Science — FM2

Assignment 1a on all videos from the course *Algorithmic Thinking, Part 1*
(see weeks 1 and 3)

1. Which of the following choices is the tightest upper bound for the functions
 - (a) $f(n) = \frac{1}{2}n(n + 1)$,
 - (b) $f(n) = \frac{1}{2^n}$,
 - (c) $f(n) = \frac{n^2}{1+n}$, $O(n)$, $O(n^3)$, $O(1)$ or $O(n^2)$?
2. Is $f(n) = n \log n$ of order $O(n^2)$? Is $f(n)$ also $\Omega(n^2)$?
3. Demonstrate the BFS algorithm by computing the distances of all nodes to node a .

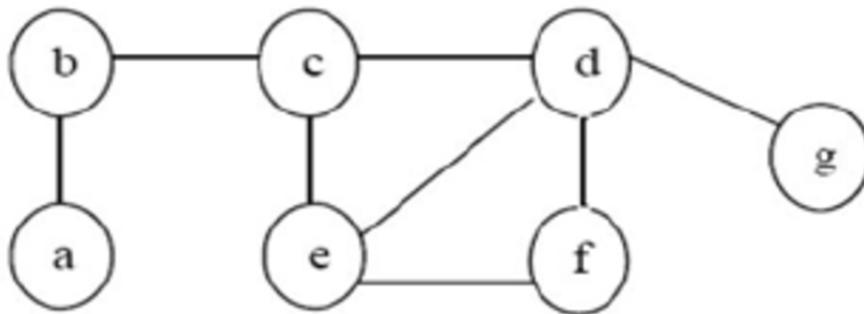


Figure 1: Graph von G