Technische Universität München
Fakultät für Informatik
Lehrstuhl für Effiziente Algorithmen
Prof. Dr. Christian Scheideler
Jonas Pfoh

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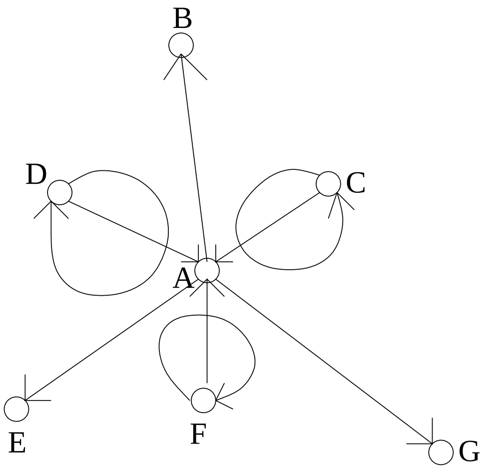
Effiziente Algorithmen und Datenstrukturen I

Aufgabe 1

Consider the de Bruijn class of Graphs and give the max degree, diameter, and expansion for this class of graphs.

Aufgabe 2

Consider the following graph:



Represent this graph as (a) an adjacency field, (b) an adjacency list, and (c) an adjacency matrix.

Aufgabe 3

Given an undirected graph $G = (V, E)$ where $V = \{a, b, c, d, e, f, g, h, i\}$ and E is represented by the following adjacency list:

$a : d, e, i$	$b : c, f, i$	$c : b, g, h$
$d : a, f, g, i$	$e : a$	$f : b, d$
$g : c, d, h$	$h : c, g$	$i : a, b, d$

a) Show the DFS-sequence of vertices and the DFS-number for each vertex starting from vertex d (work through each adjacency list from left to right).

b) Carry out a BFS starting at vertex d and show after each step what the queue looks like.