

## Homework Assignment 4

# Data Structures and Algorithms I, WT 2021

Due: 12.11.2021

1. (14 Points) A  $d$ -ary heap is like a binary heap, but nonleaf nodes have  $d$  children instead of 2 children.
  - a. How would you represent a  $d$ -ary heap in a array?
  - b. What is the height of a  $d$ -ary heap of  $n$  elements in terms of  $n$  and  $d$ ? Justify your answer.
  - c. Give an efficient implementation of `HEAPIFY` in a  $d$ -ary max-heap. Analyze its running time in terms of  $d$  and  $n$ .