

Algorithms and Data Structures

Summer Semester 2022

For discussion on Tuesday, May 17, 2022

1. Write a recursive function to find the maximum value in a list of numbers in Python.
2. Write a recursive function that outputs all the subsets of a set without repeating any subsets. (You may assume that your function is called with a list of unique elements.)
3. Write a recursive function which solves the “Tower of Hanoi”-Puzzle.

Hint: The input should be in the form of three lists, one for the source peg, one for the helper peg, and one for the destination peg, e.g.

```
s = [4, 3, 2, 1]
h = []
d = []
```

At the end of the puzzle, all the “disks”, i.e., the numbers in the list, should have moved from the source peg to the destination peg.

The move of a single “disk” from source to destination can be done via the following line of Python code:

```
d.append(s.pop())
```