Data Structures - Lab Worksheet

Recursion

The following exercises will take you through classic problems that have elegant solutions when recursion is involved.

Start by [downloading the provided coding canvas for recursion](#).

Exercise 1 - Exponentiation

Complete function `power` in file `q1-power.py`

This function computes the exponentiation of a value by another value.

Exercise 2 - Palindrome Assessment

Complete function `isPalindrome` in class `q2-palindrome.py`

This function assesses whether an input String is indeed a palindrome.

Exercise 3 - Binary Search

Complete function `search` in file `q3-binary-search.py`

This function uses a binary search to determine whether an ordered list/array contains a specified value.

Exercise 4 - Towers of Hanoi

Complete function `hanoi` in file `q4-hanoi.py`

Exercise 5 - All Possible Combinations

Complete function `generateBillboard` in file `q5-billboard.py`

This function enumerates and displays all possible casts (combinations) of celebrities from a specified list that can appear on the billboard of a movie with a given number of lead roles.

Exercise 6 - MergeSort

Complete functions `merge` and `mergeSort` in file `q6-mergesort.py`