IT252 Homework 3

Recursion Practice Problems: Write a **recursive program** for each of the following problems. (*Writing pseudo-code is enough, though you can try to code them too!*)

i. To print the reverse of a string S[1 .. n].
ii. To print all possible permutations of a string S[1 .. n].
iii. To print the *powerset* (all the possible subsets) of a given set S.
iv. To print a subset of a set of integers S whose sum is equal to a given integer k. For e.g. if S = {-3, 4, -10, 8, 20} and k = 14, print {4, -10, 20}. Print NIL if no such subset exists.
v. To print the length of the longest common subsequence of two arbitrary arrays A[1 .. m] and B[1 .. n]. A common subsequence of A and B is both a subsequence of A and a subsequence of B. (*A subsequence is a sequence that can be derived from another sequence by deleting some elements without changing the order of the remaining elements. For e.g. for the sequence <a,b,c,d,e,f>, <a,c,e> and <b,c,f> are two possible subsequences.*)

Problem 2. [DPV] Chapter 2. Exercises 2.1, 2.3, 2.4, 2.5, 2.12, 2.14

Problem 3. [KT] Chapter 5. Exercise 1.

Problem 4. [KT] Chapter 5. Exercise 2.