Java & DSA - ASSIGNMENT - DAY 17

Please practice the following activities

1. Given an array of non-negative integers, and a value *sum*, determine if there is a subset of the given set with sum equal to given *sum*.

   Input:

   N = 6

   arr[] = {3, 34, 4, 12, 5, 2}

   sum = 9

   Output: 1

   Explanation: Here there exists a subset with

   sum = 9, 4+3+2 = 9.

2. Given a number N. Find the minimum number of squares of any number that sums to N. For Example: If N = 100 , N can be expressed as (10*10) and also as (5*5 + 5*5 + 5*5 + 5*5) but the output will be 1 as minimum number of square is 1 , i.e. (10*10).

   Input: N = 6

   Output: 3

   Explanation = 1 * 1 + 1 * 1 + 2 * 2 = 6

3. Given an array of N integers arr[] where each element represents the max length of the jump that can be made forward from that element.

Find the minimum number of jumps to reach the end of the array (starting from the first element). If an element is 0, then you cannot move through that element. Return -1 if you can't reach the end of the array.

Input:

N = 11

arr[] = {1, 3, 5, 8, 9, 2, 6, 7, 6, 8, 9}

Output: 3

Explanation:

First jump from 1st element to 2nd element with value 3. Now, from here we jump to 5th element with value 9, and from here we will jump to the last.

4. Given a number N. Find the minimum number of operations required to reach N starting from 0.

   You have 2 operations available:

      1. Double the number
      2. Add one to the number

   Input:

   N = 8

   Output: 4

   Explanation: 0 + 1 = 1, 1 + 1 = 2,

   2 * 2 = 4, 4 * 2 = 8

5. Given an infinite supply of each denomination of Indian currency { 1, 2, 5, 10, 20, 50, 100, 200, 500, 2000 } and a target value N.

   Find the minimum number of coins and/or notes needed to make the change for Rs N.

   Input: N = 43

Output: 20 20 2 1

Explanation:

Minimum number of coins and notes needed to make 43.