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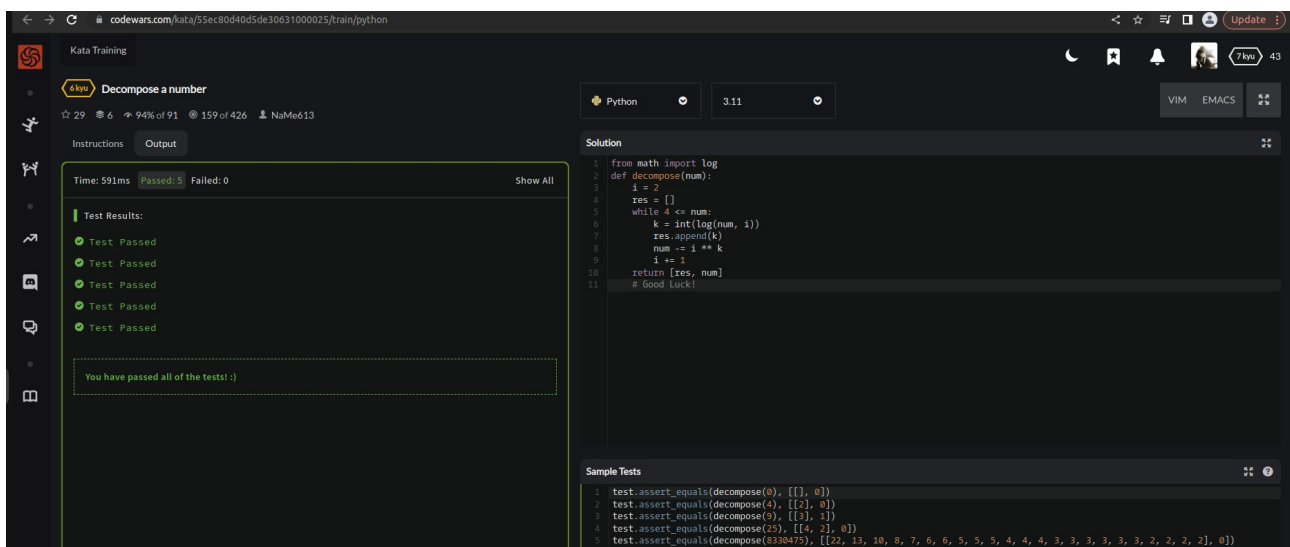
Decompose a number

DESCRIPTION:

Decompose a number `num` into an array (tuple in Haskell, array of arrays `long[][]` in C# or Java) of the form `[[k1,k2,k3...], r]`, `([k1,k2,k3...], r)` in Haskell, `[[k1,k2,k3...], [r]]` in C# or Java) such that:

1. each kn is more than one
2. eack kn is maximized (first maximizing for 2 then 3 then 4 and so on)
3. and 2k1 + 3k2 + 4k3 + ... + nkn-1 + r = num

SOLUTION:

EXPLANATION:

We're asked to calculate the total decompose a number into array. So therefore, to decomposing an array in our python function we'll take a positive integer num as an input, and returns a list containing two elements. Scanario of algo is based on firstly by:

a) Initializing i to 2, and an empty list res to store the exponents of the powers.
b) While num is greater than or equal to 4. Compute the largest exponent k such that i**k is less than or equal to num, using the logarithm function. Append k to the list res.
c) Subtract i**k from num to update its value.
d) Increment i by 1 to move to the next consecutive integer.
e) Return the list res and the remaining value of num.