Pa2-6-2015

We have to transport a set of boxes from Katubedda to Kandy. By loading them onto trucks we have several trucks with the same CAPACITY (capacity =maximum number of boxes that can be loaded onto truck)

Given that there are “n” boxes and the truck capacity is “k” where 1<=n<=100000 and 1<=k<=20, our problem is to determine the number of trucks we will need to transportthe boxes, with each truck loaded with k or fewer boxes.

Here is the proposed algorithm (which doesn’t guarantee the minimum number of trucks for all cases) Divide the set of boxes in half , forming two smaller sets then continue dividing each of the small sets n half until we get sets that will fit on a truck. When we divide a set with an odd number of boxes into two sets, one f the resulting sets will have one box more than the other set. For example, suppose n=14 and k=3. First we divide 14 as 7+7. Then each set with 7 is divided as 4+3. Since k<4 we have to divide 4 further into 2+2 to fit in a truck. So we need 6 trucks as overall we have 6 box sets with box counts 3,2,2,3,3,2,2 which add upto 14.

Based on above algorithm develop a python program that takes as input n and k from a file and outputs the number of trucks needer. You may use recursion.

Sample input	Output
14 3	6
15 1	1
1024 5	256

(Made by Asitha Indrajith-17 batch)