# Task 1: Prompt the user to enter an integer number. Then write methods to do the following:

**/4**

1. outputFactors() – a method that outputs all the factors of the number the user entered

store the user inputted number into a int value

declare array with size being the user input number

Output “the factors for the user inputted number is: “

Repeat the following user inputted number of times

If the remainder of the user inputted number and the trial number is 0, save the trial number into the factor array

Output the trial number

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1. sumOfFactors() – a method that outputs the sum of all the factors (use a return type method)

store the user inputted number into a int value

declare a integer called sumOfFactors and set it as 0

Repeat the following user inputted number of times

If the remainder of the user inputted number and the trial number is 0 add the number to sumOfFactors

Return sumOfFactors

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1. How can we make the above two methods more efficient?
2. Write a method that checks whether the number they input is a perfect number and output a message indicating whether it is perfect or not. (use a procedure)

**/4**

A perfect number is a number, where the sum of all factors except the number itself adds to be equal to the number.

Example: 6 is a perfect number, where the factors: 1+2+3=6

**/1**

store the user inputted number into a int value

run this value through the sumOfFactors method

if the sumOfFactors returns a value that is equal to the user inputted number,

output “user inputted number is a perfect number”

or else

output “user inputted number is not a perfect number”

1. Output all perfect numbers between 1 and 500

Create an array with 500 spots

Create a Boolean called perfectnumberboolean

Repeat the following 500 times

Run a trial number through the perfect number test method and store the returned Boolean in the variable perfectnumberboolean

If the perfectnumberboolean returns as true, output the number as a perfect number

perfectNumberTest Method:

declare Boolean yn

run the trial number through the sumOfNumbers method

if the return value is equal to the trial number set the Boolean yn as true

else, set the Boolean value as false

return the Boolean yn