**Question:**

Design a class Perfect to check if a given number is a perfect number or not.

Class Name: Perfect

Data Members:

num -> to store the number.

Member Methods:

Perfect (int nn): parameterized constructor to initialize the data member num = nn;

int sum\_of\_factors(int i): returns the sum of the factors of the number(num), excluding itself, using a recursive technique.

Void check(): checks weather the given number is perfect by invoking the function sum\_of\_factors() and display the result with an appropiate message.

Specify the class Perfect giving details of the constructor int

sum\_of\_factors(int) and void check. Define a main() function to create object and call the functions accordingly.

**Algorithm:**

1. **Start**
2. Define a class Perfect with one instance variable num.
3. Define a constructor for the class that takes an integer nn as input. Set num to nn.
4. Define a method sum\_of\_factors that takes an integer i as input:
   * 1. If i equals num, return 0.
     2. If num is divisible by i, return the sum of i and the result of sum\_of\_factors called with i+1.
     3. Otherwise, return the result of sum\_of\_factors called with i+1.
5. Define a method check:
   * 1. Compute a as the result of sum\_of\_factors called with 1.
     2. If a equals num, print that num is a perfect number.
     3. Otherwise, print that num is not a perfect number.
6. In the main method:
   * 1. Create a Scanner object sc.
     2. Prompt the user to enter a number.
     3. Read an integer x from the user.
     4. Create a Perfect object obj with x.
     5. Call the check method of obj.
     6. Close the scanner.
7. **End**

**Variable Description Table**

|  |  |  |
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| **Variable Name** | **Variable Type** | **Variable Description** |
| num | Integer | The number input by the user. |
| i | Integer | The number used in the recursive function sum\_of\_factors to calculate the sum of the factors of num. |
| a | Integer | The result of the sum\_of\_factors function, i.e., the sum of the factors of num. |
| x | Integer | The number input by the user in the main method. |
| obj | Class | An instance of the Perfect class. |
| sc | Scanner | A Scanner object used to read input from the user. |