

## **The story: Witch Saga: Return of The Coder!**

Somewhere far far away, there is a village which is controlled by a dark and cunning witch.

Coincidentally, this witch is also a die-hard programmer.

The witch has power to control death and life of the villager.

The witch will kill a number of villagers each year.

Since the witch is a die hard programmer, she follow a specific rule to decide the number of villagers

she should kill each year.

On the 1st year she kills 1 villager

On the 2nd year she kills  $1 + 1 = 2$  villagers

On the 3rd year she kills  $1 + 1 + 2 = 4$  villagers

On the 4th year she kills  $1 + 1 + 2 + 3 = 7$  villagers

On the 5th year she kills  $1 + 1 + 2 + 3 + 5 = 12$  villagers

And so on...

The villagers are furious with the witch and want to get rid of her and there is one way to get rid of her.

The witch will only leave if there is a brave programmer in the villager who can create a program to solve this problem:

If given two people whose age of death and year of death are known, find the average number of

people the witch killed on year of birth of those people

Example:

Given:

Person A: Age of death = 10, Year of Death = 12

Person B: Age of death = 13, Year of Death = 17

Answer:

Person A born on Year =  $12 - 10 = 2$ , number of people killed on year 2 is 2.

Person B born on Year =  $17 - 13 = 4$ , number of people killed on year 4 is 7.

So the average is  $(7 + 2)/2 = 4.5$

If you give invalid data (i.e. negative age, person who born before the witch took control) the program should return -1.

So, if a villager who can create a program to solve the problem, the witch will leave, and the killing

will be stopped.

There was one programmer who was able to solve the problem, but the witch did not like the code because the code was messy and make her angry.

She then proceeded to kill the programmer. Now the villagers know that they also need to make the code clean and structured.

Now you are asked by the villager to make the code by previous programmer cleaner and beautifully

structured.

Note that the witch loves OOP and math very much. And also note that year is started since the witch take control of the village.

Since you're on your own, it will be much safer to write unit test. Plus point if you do it.

- Host your code in GitHub. Send us the link.
- Plus point if you can publish your code.  
Example: using <https://pages.github.com/> or <https://www.heroku.com/free>