DS and OOP

Lab3

Question

Fibonacci sequence is obtained by starting with 0 and 1 and then adding the two last numbers to get the next one.

f(0)=1, f(1)=1, f(n)=f(n-1)+f(n-2)

i	0	1	2	3	4	5	6	7	8	9
$Fib(i)$	0	1	1	2	3	5	8	13	21	34

Question

Please represent the number by “Fibonacci Base”.

**Note that no two consecutive Fibonacci numbers can be used!!

(表達式中不可有兩個Fibonacci number相連)

For example,

6=5+1=1*f(5) + 0*f(4) + 0*f(3) + 1*f(2) ⟶ 1001

~~6=3+2+1=1*f(4) + 1*f(3) + 1*f(2) ⟶ 111~~ (~~This is not the answer, because~~ there are two consecutive “1”)

More Example

10 = 1*8 + 0*8 + 0*3 + 1*2 + 0*1

= 1*f(6) + 0*f(5) + 0*f(4) + 1*f(3) + 0*f(2)

=> 10010

17 = 1*13 + 0*8 + 0*5 + 1*3 + 0*2 + 1*1

= 1*f(7) + 0*f(6) + 0*f(5) + 1*3 + 0*2 + 1*1

=>100101

File format

input file format:

# of testing data

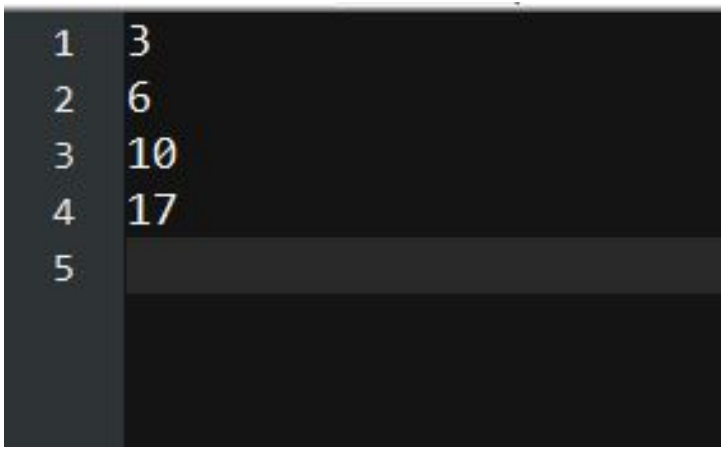
[positive integer]

output format:

Fibonacci Base Binary Sequence

Example

3 testing data



output:

1001 //用cout印出來即可

10010

100101

Requirements

1. Read from command line and output to stdout
2. Use your workstation to run your code

Reference

Putty:
https://help.cs.nctu.edu.tw/help/index.php/HOWTO_-_%E4%BD%BF%E7%94%A8PuTTY%E7%99%BB%E5%85%A5%E7%B3%BB%E4%B8%8A%E5%B7%A5%E4%BD%9C%E7%AB%99

Filezilla:
https://help.cs.nctu.edu.tw/help/index.php/HOWTO_-_%E9%80%A3%E4%B8%8A%E7%B3%BB%E4%B8%8A%E5%B7%A5%E4%BD%9C%E7%AB%99%E7%9A%84_FTP

Command line:
http://crasseux.com/books/ctutorial/argc-and-argv.html

Hint

Construct the Fibonacci sequence first.

Then check form the largest Fibonacci number.

Good Luck!