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Discrete Structures

3/3/20

Programming Practicum 4: Clockwork Fibonacci

The question asked me to write a program that would find the first 40 Fibonacci numbers and list the ones that are divisible by 5 and 7.

I used the code provided by Dr. Evert.

I assumed that the program would be fairly easy considering you just have find the numbers then divide.

**import** java.util.ArrayList;

**public** **class** Main {

**public** **static** **void** main(String[] args) {

//Write a program that finds the first 40 Fibonacci numbers.

ArrayList<Integer> fibNumbers = **new** ArrayList<>();

fibNumbers.add(0);

//System.out.println(fibNumbers.get(fibNumbers.size() - 1));

fibNumbers.add(1);

//System.out.println(fibNumbers.get(fibNumbers.size() - 1));

*populateFibNumbers*(fibNumbers);

//List all numbers evenly divisible by 5.

**int** DivisibleBy = 5;

System.***out***.println("Divisble by :" + DivisibleBy);

*printFibNumbersDivisibleBy*(fibNumbers,DivisibleBy);

//List all numbers evenly divisible by 7.

DivisibleBy = 7;

System.***out***.println("Divisble by :" + DivisibleBy);

*printFibNumbersDivisibleBy*(fibNumbers,DivisibleBy);

//List all numbers evenly divisible by 5 and 7.

System.***out***.println("Divisble by 5 and 7:");

*printFibNumbersDivisibleByFiveAndSeven*(fibNumbers);

}

**private** **static** **void** printFibNumbersDivisibleByFiveAndSeven(ArrayList<Integer> fibNumbers) {

**for**(**int** index = 0; index < fibNumbers.size(); index++)

{

**if**(fibNumbers.get(index) % 5 == 0 && fibNumbers.get(index) % 7 == 0 )

{

System.***out***.print(fibNumbers.get(index) + ", ");

}

}

}

**private** **static** **void** printFibNumbersDivisibleBy(ArrayList<Integer> fibNumbers, **int** DivisbleBy) {

**for**(**int** index = 0; index < fibNumbers.size(); index++)

{

**if**(fibNumbers.get(index) % DivisbleBy == 0)

{

System.***out***.print(fibNumbers.get(index) + ", ");

}

}

}

**private** **static** **void** populateFibNumbers(ArrayList<Integer> fibNumbers) {

**int** fibFounCount = 2;

**int** fibHuntLimit = 41;

**while**(fibHuntLimit > fibFounCount)

{

fibNumbers.add(fibNumbers.get(fibNumbers.size() - 1) + fibNumbers.get(fibNumbers.size() - 2) );

//System.out.println(fibNumbers.get(fibNumbers.size() - 1));

fibFounCount++;

}

}

}

Divisble by :5

0, 5, 55, 610, 6765, 75025, 832040, 9227465, 102334155, Divisble by :7

0, 21, 987, 46368, 2178309, 102334155, Divisble by 5 and 7:

0, 102334155,

I believe this is correct because the code output is correct and there are no errors.