Lab # 5

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CPSC 1150 - 003

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Department: CSIS

Program Bank Account

File Name: Lab5.java

Purpose: Get all number from 0 to n which is palindrome and prime number

Input: N number

Output: Number from 0 to n, which is both palindrome and prime number

Technical Information:

Compiler: Java SDK 17.0.1

Computer: Intel i5 3.70GHz, 16GB RAM

Operating System: Window 10

Language: Java

Program Logic (Pseudocode)

isPalindrome START

1. Init test\_number = 0, temp\_number = number
2. While temp\_number != 0
   1. Take last digit of temp\_number and add to the bottom of test\_number
   2. Remove last digit of temp\_number
3. If test\_number == number, then return true
4. Else return false

END

isPrime START

1. If number == 1, then return false
2. If number == 2, then return true
3. For int index = 2; index < sqrt(number); index++
   1. If number % index == 0, then return false
4. Return true

END

PS: To reduce the time of checking prime number, when if number % index == 0, then the remain of number / index will in range to number. And the same as when , if number % index == 0 then the remain of number / index will be in range 2 to .

main START

1. Init number
2. Init valid = false
3. Do
   1. Get number from input
   2. If number > 1, then valid = true
4. While not valid

END

Generate your test cases based on the specifications in your lab assignment. Follow following format for each test case: (Refer to external document of your first lab)

*purpose*

*input*

*output*

*expected value*

*passed or failed*

Test Cases:

**Test valid number #1**

Input:

Input number: 5

Output:

2 3 5

Expect:

2 3 5

PASSED

**Test valid number #2**

Input:

Input number: 50

Output:

2 3 5 7 11

Expect:

2 3 5 7 11

PASSED

**Test valid number #3**

Input:

Input number: 999

Output:

2 3 5 7 11 101 131 151 181 191 313 353 373 383 727 757 787 797 919 929

Expect:

2 3 5 7 11 101 131 151 181 191 313 353 373 383 727 757 787 797 919 929

PASSED

**Test invalid number #1**

Input:

Input number: 1

Output:

Please input number which is greater than 1.

Expect:

Please input number which is greater than 1.

PASSED

**Test invalid number #2**

Input:

Input number: -1234567

Output:

Please input number which is greater than 1.

Expect:

Please input number which is greater than 1.

PASSED