Assignment 9 – Group: Francisco, Victor, Bruno, Yasser

**Exercise 37**

**Analysis:**

INPUT: n - integer

OUTPUT: result - string

INTERNAL DATA: i, t – integers

PROCEDURE:

Get the user input for some positive number, verify if the number is bigger than 1, because we need to work with positive numbers and the number 1 is not prime. if n=2, write that it is prime, else create a loop between (number-1) and 2 with jumps of -1, where the input number is divided by all of these numbers in the loop, if the reminder = 0 for any of them, add an increment in the variable t. if t <> 0, result = “It is not prime, else result=”It is prime”. Display the result.

**PSEUDOCODE:**

VARIABLES:

n – int (input)

i – int (temporary)

t – int (temporary)

result – string (output)

START

WRITE “ Enter with the number to verify”

READ n

IF n<1 THEN WRITE “Number not accepted, please try again a number bigger than 1”

END IF

IF n=2 THEN WRITE “The number IS PRIME”

ELSE

FOR i=(n-1) TO 2 JUMP -1

IF n%i = 0 THEN t++ END IF

END FOR

IF t<> 0 THEN result = “The number is NOT PRIME”

ELSE result = “The number IS PRIME”

WRITE result

END IF

END

**TRACE TABLE**

Example when n = 7

|  |  |  |  |
| --- | --- | --- | --- |
| **Input(n)** | **reminder** |  |  |
| *7* | *n%i* | t | i |
|  |  | 0 |  |
|  | 1 | 0 | 6 |
|  | 2 | 0 | 5 |
|  | 3 | 0 | 4 |
|  | 1 | 0 | 3 |
|  | 1 | 0 | 2 |

t = 0 🡪 the number IS PRIME

Example when n = 8

|  |  |  |  |
| --- | --- | --- | --- |
| **Input(n)** | **output** |  |  |
| *8* | *n%i* | t | i |
|  |  | 0 |  |
|  | 1 | 0 | 7 |
|  | 2 | 0 | 6 |
|  | 3 | 0 | 5 |
|  | 0 | 1 | 4 |
|  | 2 | 0 | 3 |
|  | 0 | 2 | 2 |

t <> 0 🡪 the number is NOT PRIME