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

**Exercise 36**

**a)**

**Analysis:**

INPUT: --

OUTPUT: seq - array

INTERNAL DATA: i , n – integer

PROCEDURE:

create a new array (seq) with 8 positions and a integer n=0. Create a loop of numbers between 1 and 8 with jumps of 1, for each iteration seq[i] = n+5 and n receive a new value n = seq[i].

**PSEUDOCODE:**

VARIABLES:

seq – array[1,8] of int (output)

i – int (temporary)

n – int (temporary)

START

seq = new array of 8 positions

n = 0

FOR i=1 TO 8 JUMP 1

seq[i] = n+5

n = seq[i]

END FOR

FOR i=1 TO 8 JUMP 1

WRITE seq[i]

END FOR

END

**TRACE TABLE**

|  |  |  |
| --- | --- | --- |
| **output** |  |  |
| *seq[i]* | n | i |
|  | 0 |  |
| n+5 = 5 | 5 | 0 |
| n+5 = 10 | 10 | 1 |
| n+5 = 15 | 15 | 2 |
| n+5 = 20 | 20 | 3 |
| n+5 = 25 | 25 | 4 |
| n+5 = 30 | 30 | 5 |
| n+5 = 35 | 35 | 6 |
| n+5 = 40 | 40 | 7 |

**b)**

**Analysis:**

INPUT: --

OUTPUT: seq - array

INTERNAL DATA: i , n – integer

PROCEDURE:

create a new array (seq) with 7 positions and a integer n=1. Create a loop of numbers between 1 and 7 with jumps of 1, for each iteration seq[i] = n+2 and n receive a new value n = seq[i].

**PSEUDOCODE:**

VARIABLES:

seq – array[1,7] of int (output)

i – int (temporary)

n – int (temporary)

START

seq = new array of 7 positions

n = 1

FOR i=1 TO 7 JUMP 1

seq[i] = n+2

n = seq[i]

END FOR

FOR i=1 TO 7 JUMP 1

WRITE seq[i]

END FOR

END

**TRACE TABLE**

|  |  |  |
| --- | --- | --- |
| **output** |  |  |
| *seq[i]* | n | i |
|  | 1 |  |
| n+2 = 3 | 3 | 0 |
| n+2 = 5 | 5 | 1 |
| n+2 =7 | 7 | 2 |
| n+2 =9 | 9 | 3 |
| n+2 =11 | 11 | 4 |
| n+2 =13 | 13 | 5 |
| n+2 =15 | 15 | 6 |

**c)**

**Analysis:**

INPUT: --

OUTPUT: seq - array

INTERNAL DATA: i , n – integer

PROCEDURE:

create a new array (seq) with 7 positions and a integer n=90. Create a loop of numbers between 1 and 7 with jumps of 1, for each iteration seq[i] = n-10 and n receive a new value n = seq[i].

**PSEUDOCODE:**

VARIABLES:

seq – array[1,7] of int (output)

i – int (temporary)

n – int (temporary)

START

seq = new array of 7 positions

n = 90

FOR i=1 TO 7 JUMP 1

seq[i] = n-10

n = seq[i]

END FOR

FOR i=1 TO 7 JUMP 1

WRITE seq[i]

END FOR

END

**TRACE TABLE**

|  |  |  |
| --- | --- | --- |
| **output** |  |  |
| *seq[i]* | n | i |
|  | 90 |  |
| n-10 = 80 | 80 | 0 |
| n-10 = 70 | 70 | 1 |
| n-10 = 60 | 60 | 2 |
| n-10 = 50 | 50 | 3 |
| n-10 = 40 | 40 | 4 |
| n-10 = 30 | 30 | 5 |
| n-10 = 20 | 20 | 6 |

**d)**

**Analysis:**

INPUT: --

OUTPUT: seq - array

INTERNAL DATA: i , n – integer

PROCEDURE:

create a new array (seq) with 6 positions and a integer n=1. Create a loop of numbers between 1 and 6 with jumps of 1, for each iteration seq[i] = n\*i and n receive a new value n = seq[i].

**PSEUDOCODE:**

VARIABLES:

seq – array[1,7] of int (output)

i – int (temporary)

n – int (temporary)

START

seq = new array of 7 positions

n = 1

i=1

FOR i=1 TO 6 JUMP 1

seq[i] = n\*i

n = seq[i]

END FOR

FOR i=1 TO 6 JUMP 1

WRITE seq[i]

END FOR

END

**TRACE TABLE**

|  |  |  |
| --- | --- | --- |
| **output** |  |  |
| *seq[i]* | n | i |
|  | 1 |  |
| n\*i = 1 | 1 | 1 |
| n\*i = 2 | 2 | 2 |
| n\*i = 6 | 6 | 3 |
| n\*i = 24 | 24 | 4 |
| n\*i = 120 | 120 | 5 |
| n\*i = 720 | 720 | 6 |