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ANALYSIS

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INPUT:

OUTPUT:

ARRAY\_FIB[I]: POSITION I FROM ARRAY OF INTEGER

INTERNAL DATA:

CONSTANTS:

TOTAL: INTEGER

VARIABLES:

I: INTEGER;

PROCEDURE:

- FOR LOOP STARTS I = 0 TO CONSTANT ‘TOTAL’, INCREMENTING BY 1 THEN THE CODE DO:

- TEST IF I IS EQUAL 0 OR 1

IF TRUE = ARRAY\_FIB[I] = 1

IF FALSE:

- TEST IF I = 2

IF TRUE: ARRAY\_FIB[I] = 2

IF FALSE:

ARRAY\_FIB = ARRAY\_FIB[I-1] + ARRAY\_FIB[I-2]

- WRITE i

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PSEUDOCODE

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CONSTANTS:

TOTAL: INTEGER

VARIABLES:

N: INTEGER

PRIME: BOOLEAN;

START:

|  |  |
| --- | --- |
| 1. | CONST INT TOTAL = 100 |
| 2. | ARRAY\_FIB[TOTAL] = 0 |
| 3. | FOR LOOP i FROM 0 TO TOTAL whit INC in 1 |
| 4. | IF (I == 0 OR I == 1) THEN |
| 5. | ARRAY\_FIB[I] = 1; |
| 6. | ELSE IF (I == 2) THEN |
| 7. | ARRAY\_FIB[I] = 2; |
| 8. | ELSE |
| 9. | ARRAY\_FIB[I] = ARRAY\_FIB[I-1] + ARRAY\_FIB[I-2]; |
| 10. | END IF |
| 11. | WRITE ARRAY\_FIB[I]; |
| 12. | END FOR LOOP |

END;

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TRACE TABLE

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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | TOTAL | I | ARRAY\_FIB[I-1] | ARRAY\_FIB[I-2] | ARRAY\_FIB[I] = ARRAY\_FIB[I-1] + ARRAY\_FIB[I-2]; | OUTPUT |
| ARRAY\_FIB[I] |
| 1. | CONST INT TOTAL = 100 | 100 | 0 |  |  | 1 | 1 |
| 2. | ARRAY\_FIB[TOTAL] = 0 | 100 | 1 |  |  | 1 | 1 |
| 3. | FOR LOOP i FROM 0 TO TOTAL whit INC in 1 | 100 | 2 |  |  | 2 | 2 |
| 4. | IF (I == 0 OR I == 1) THEN | 100 | 3 | 2 | 1 | 3 | 3 |
| 5. | ARRAY\_FIB[I] = 1; | 100 | 4 | 3 | 2 | 5 | 5 |
| 6. | ELSE IF (I == 2) THEN | 100 | 5 | 5 | 3 | 8 | 8 |
| 7. | ARRAY\_FIB[I] = 2; | 100 | 6 | 8 | 5 | 13 | 13 |
| 8. | ELSE | 100 | 7 | 13 | 8 | 21 | 21 |
| 9. | ARRAY\_FIB[I] = ARRAY\_FIB[I-1] + ARRAY\_FIB[I-2]; | 100 | 8 | 21 | 13 | 34 | 34 |
| 10. | END IF | 100 | 9 | 34 | 21 | 55 | 55 |
| 11. | WRITE ARRAY\_FIB[I]; | 100 | 10 | 55 | 34 | 89 | 89 |
| 12. | END FOR LOOP | 100 | 11 | 89 | 55 | 144 | 144 |
|  |  | 100 | 12 | 144 | 89 | 233 | 233 |
|  |  | 100 | 13 | 233 | 144 | 377 | 377 |
|  |  | 100 | 14 | 377 | 233 | 610 | 610 |
|  |  | 100 | 15 | 610 | 377 | 987 | 987 |
|  |  | 100 | 16 | 987 | 610 | 1597 | 1597 |
|  |  | 100 | 17 | 1597 | 987 | 2584 | 2584 |
|  |  | 100 | 18 | 2584 | 1597 | 4181 | 4181 |
|  |  | 100 | 19 | 4181 | 2584 | 6765 | 6765 |
|  |  | 100 | 20 | 6765 | 4181 | 10946 | 10946 |

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