Linear Search

Wednesday, 22 March 2023 1:02 PM

It is a simple method to find an item in an array. lets say we have 1D array containing ages of your classmates, and you want to find out if one of them is 16 years old.

Here is how Linear Search works on 1D array:

1. Start at the first item in the array
2. Check if the item is equal to the age you are searching for, i.e 16.
3. If the item is equal to 16, you found your classmate and the search is complete.
4. If the item is not equal to 16, move to the next item in the array.
5. Repeat steps 2-4 until you find the 16-years-old classmate, or reach the end of the array.

If you reached the end of the array and haven't found an item in a single-dimensional array by checking each item one by one, then there is no-one in the 1D array with that age

Here is a simple pseudocode to perform the Linear Search:

```
// DECLARE variables and arrays.
DECLARE  AgeArr : ARRAY [ 1 : 10]  OF  INTEGER

CONSTANT  ArrLen ← 10
 DECLARE  AgeReq, i  : INTEGER.
 DECLARE  AgeFound  : BOOLEAN

// INITIALISATION
 AgeArr ← [ 12, 14, 15, 16, 17 , 18, 19, 20, 21, 22]
 AgeFound ← FALSE
 AgeReq ← 0

// INPUT TO SEARCH FOR.
OUTPUT "Enter age to find in array: "
 INPUT AgeReq

// PROCESS TO FIND AGE IN ARRAY
FOR i ← 1 TO ArrLen
     IF  AgeArr[i] = AgeReq THEN
         AgeFound ← TRUE
         OUTPUT "The required age is found at: ", i
         // IF you like to break loop then use EXIT FOR
     END IF
NEXT

// LET USER KNOW IF THE REQUIRED AGE IS NOT FOUND
IF AgeFound = FALSE THEN OUTPUT "Required age is not found!!"
```