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**Algorithm 3.1.43** List insertion based on linear search for a sorted list.

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1: procedure LINEAR_INSERT( $x$ : object;  $a_1, a_2, \dots, a_n$ : sorted list of
   objects)
2:    $i \leftarrow 1$ 
3:   while ( $i \leq n$ ) and ( $x > a_i$ ) do                                 $\triangleright$  Find the index for  $x$ 
4:      $i += 1$ 
5:   end while
6:   if  $x \leq a_i$  then                                                 $\triangleright$  Make room for  $x$ 
7:     for  $k = (n + 1)$  to  $(i - 1)$  do
8:        $a_k \leftarrow a_{k-1}$ 
9:     end for
10:  end if
11:   $a_i \leftarrow x$ 
12:  return  $a_1, a_2, \dots, a_{n+1}$ 
13: end procedure
```

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