CORMEN Excercises 2.1 in LaTeX

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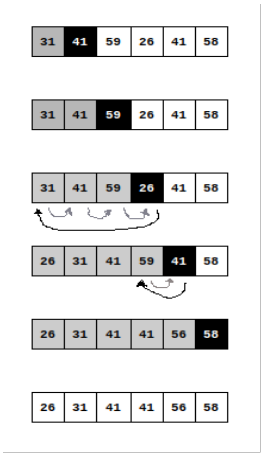
September 12, 2018

1 Insertion Sort sobre un arreglo dado

La siguiente es la ilustración de la ejecución de Insertion sort para el arreglo dado:



2 Reescribir Insertion Sort en orden decreciente.

Algorithm 1 Insertion Sort decremental

```
1:  procedure INSERTION-SORT(A)                    ▷ A is the given array
2:      j ← 2
3:      while j < A.length do
4:          key = A[j]
5:          i = j − 1
6:          while i > 0andA[i] > key do
7:              A[i + 1] = A[i]
8:              i = i − 1
9:          A[i + 1] = key
10:         j = j + 1
```

3 Busqueda Lineal + Invariante de Loop

Algorithm 2 Linear Search / loop invariant

```
    procedure LINEAR-SEARCH(A, x)
2:      v = NIL
        i = 0
4:      while i < A.length do
            IL : No hay indice j < i tal que A[j] == x
6:          if A[i] == x then
                v = i
8:          i = i + 1
        IL:Se encontro un j < A.length, tal que A[j] == x o en su defecto no
    existe en el arreglo
10:     return v
```

4 Suma Binaria

Algorithm 3 Suma de numeros en representación binaria

```
procedure BINARYSUM(A, B)
    c = 0
    C = [n]
    for i = n to 1 do
        C[i + 1] = (A[i] + B[i] + c)(mod2)
        if A[i] + B[i] + c > 1 then
            c = 1
        else
            c = 0
    C[1] = c
    return C
```