23/03/15

# Shell Sort.

O()

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 40 | 80 | 35 | 75 | 60 | 57 | 34 | 90 | 70 | 45 |

Gap= lenght/2=5 🡪 Nivel 5

[1] 40,57

[2] 80,34

[3] 35,90

[4] 75,70

[5] 60,45

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 40 | 34 | 35 | 70 | 45 | 57 | 80 | 90 | 75 | 60 |

Gap=Gap/2=2.5≈

[1] 40, 35, 45, 80, 75 🡪 [1] 35, 40, 45, 75, 80

[2] 34, 70, 57, 90, 60 🡪 [2] 34, 57, 60, 70, 90

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 35 | 34 | 40 | 57 | 45 | 60 | 75 | 70 | 80 | 90 |

Gap = Gap/2=1

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 34 | 35 | 40 | 45 | 57 | 60 | 70 | 75 | 80 | 90 |

# Radix Sort

O(Kn)

07125, 21171, 00120, 43589, 73641, 31475, 51455, 60433

|  |  |
| --- | --- |
| 0: 00120 | 5: 07125, 51455, 31475 |
| 1: 21171, 73641 | 6: X |
| 2: X | 7: X |
| 3: 60433 | 8: X |
| 4: X | 9: 43589 |

00120, 21171, 73641, 07125, 51455, 31475, 43589

# Búsqueda lineal:

O(n)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5 | 3 | 1 | 2 | 4 |

# Búsqueda Binaria:

* Arreglo Ordenado

# Búsqueda por Hash

O(1) hasta O(n)

|  |  |
| --- | --- |
| 1 |  |
| 2 | Basura |
| 3 | Casa |
| 4 | Carro |
| 5 | Dado |

F(x): Función de Hash

A 🡪 1

B 🡪 2

C 🡪 3

Colisiones!!! D 🡪 4

# Algoritmo de Hash

MD5

SHA-1

SHA-2

Passwords

|  |
| --- |
| Casa |

--- f(x) 🡪   
 <-/---

MDS-SUM

Suma los hashes y los suman