

# AULA3: Exercício teórico métodos de ordenação quadrática

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## Exercices

1.1 (0,75) Execute o passo-a-passo dos algoritmos seleção, inserção e bolha nos seguintes elementos:

$\{22, 35, 2, 1, 13, 7\}$

1.1.1 Seleção:

$i = 0$ 

22	35	2	1	13	7
----	----	---	---	----	---

$i = 1$ 

1	35	2	22	13	7
---	----	---	----	----	---

$i = 2$ 

1	2	35	22	13	7
---	---	----	----	----	---

$i = 3$ 

1	2	7	22	13	35
---	---	---	----	----	----

$i = 4$ 

1	2	7	13	22	35
---	---	---	----	----	----

$i = 5$ 

1	2	7	13	22	35
---	---	---	----	----	----

1.1.2 Inserção:

*Inicio*

22	35	2	1	13	7
----	----	---	---	----	---

$i = 1$ 

22	35	2	22	13	7
----	----	---	----	----	---

=> 

22	35	2	1	13	7
----	----	---	---	----	---

$i = 2$ 

22	35	2	1	13	7
----	----	---	---	----	---

=> 

22	2	35	1	13	7
----	---	----	---	----	---

=> 

2	22	35	1	13	7
---	----	----	---	----	---

$i = 3$ 

2	22	35	1	13	7
---	----	----	---	----	---

=> 

2	22	1	35	13	7
---	----	---	----	----	---

=> 

2	1	22	35	13	7
---	---	----	----	----	---

=> 

1	2	22	35	13	7
---	---	----	----	----	---

$i = 4$ 

1	2	22	35	13	7
---	---	----	----	----	---

=> 

1	2	22	13	35	7
---	---	----	----	----	---

=> 

1	2	13	22	35	7
---	---	----	----	----	---

=> 

1	2	13	22	35	7
---	---	----	----	----	---

$i = 5$ 

1	2	13	22	35	7
---	---	----	----	----	---

=> 

1	2	13	22	7	35
---	---	----	----	---	----

=> 

1	2	13	7	22	35
---	---	----	---	----	----

=> 

1	2	7	13	22	35
---	---	---	----	----	----

*Fin*

1	2	7	13	22	35
---	---	---	----	----	----

### 1.1.3 Bolha:

*Inicio*

22	35	2	1	13	7
----	----	---	---	----	---

$i = 0$ 

22	35	2	1	13	7
----	----	---	---	----	---

$\Rightarrow$ 

22	35	2	1	7	13
----	----	---	---	---	----

$\Rightarrow$ 

22	35	2	1	7	13
----	----	---	---	---	----

$\Rightarrow$ 

22	35	1	2	7	13
----	----	---	---	---	----

$\Rightarrow$ 

22	1	35	2	7	13
----	---	----	---	---	----

$\Rightarrow$ 

1	22	35	2	7	13
---	----	----	---	---	----

$i = 1$ 

1	22	35	2	7	13
---	----	----	---	---	----

$\Rightarrow$ 

1	22	35	2	7	13
---	----	----	---	---	----

$\Rightarrow$ 

1	22	35	2	7	13
---	----	----	---	---	----

$\Rightarrow$ 

1	22	2	35	7	13
---	----	---	----	---	----

$\Rightarrow$ 

1	2	22	35	7	13
---	---	----	----	---	----

$i = 2$ 

1	2	22	35	7	13
---	---	----	----	---	----

$\Rightarrow$ 

1	2	22	35	7	13
---	---	----	----	---	----

$\Rightarrow$ 

1	2	22	7	35	13
---	---	----	---	----	----

=> 

1	2	7	22	35	13
---	---	---	----	----	----

$i = 3$ 

1	2	7	22	35	13
---	---	---	----	----	----

=> 

1	2	7	22	13	35
---	---	---	----	----	----

=> 

1	2	7	13	22	35
---	---	---	----	----	----

$i = 4$ 

1	2	7	13	22	35
---	---	---	----	----	----

*Fin*

1	2	7	13	22	35
---	---	---	----	----	----

**1.2 (0,25) Faça um resumo/comparativo dos três algoritmos (seleção, inserção e bolha).**

	Seleção	Inserção	Bolha
Melhor caso	$O(n^2)$	$O(n)$	$O(n^2)$
Pior caso	$O(n^2)$	$O(n^2)$	$O(n^2)$
Estável	Não	Sim	Sim

Table 1: Comparativo dos três algoritmos quadráticos