

## Laboratory practice No. 2: *Brute force o Exhaustive search*

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### 3) Practice for final project defense presentation

**3.1** There are two methods, one the main and the other auxiliary, the auxiliary method is responsible for traversing the graph so that it finds the shortest path by stopping at each node and seeing its successors which has less this is creating a succession of paths and the Algorithm finds the least of them, apart from the list of visited which serves to go through the nodes only once, although they can also be taken out of the array to create other paths.

**3.2**  $O((v-1)!)$

**3.3** Being 50 clients, that is 50 vertices we would have that the time of this algorithm is estimated in  $O((50-1)!)$   
 $=O(49!)$

Since all vertices are traversed and you return to the top of the page, but it is not counted by the same input node.

**3.4** Backtracking was the data structure used for the nRein problem, since this data structure gives us all the correct results as results. What the algorithm does is create as a branch tree, in which the boxes are going to be selected where the queens are going to be positioned so that none is attacked with another.

**3.5**  $O(n^2)$

**3.6**

int sol is the number of solutions

ArrayList nullies is the array that stores the coordinate pairs

Pair pair are the pairs of each position of the arrayList nullies

Int row is the row of the coordinate

Int col is the column of the coordinate

Int Board is the board where Queens are stored

Int squares are the number of bad squares that the user want to place on the board

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#### 4) Practice for midterms

##### 4.1

###### 4.1.1

if(actual > maximo);

###### 4.1.2

$O(n^2)$

##### 4.2

###### 4.2.1

order(arr, i);

###### 4.2.2

$O(n^2)$

##### 4.3

###### 4.3.1

If(j == m) return i-j;

###### 4.3.2

Else return txt.length()-1;

###### 4.3.3

$O(nm)$

##### 4.4

###### 4.4.1

int rem = temp%10

###### 4.4.2

b)  $O((n-m)\log_{10}n)$

##### 4.5

###### 4.5.1

for (int j = i+1; j < n; j++)

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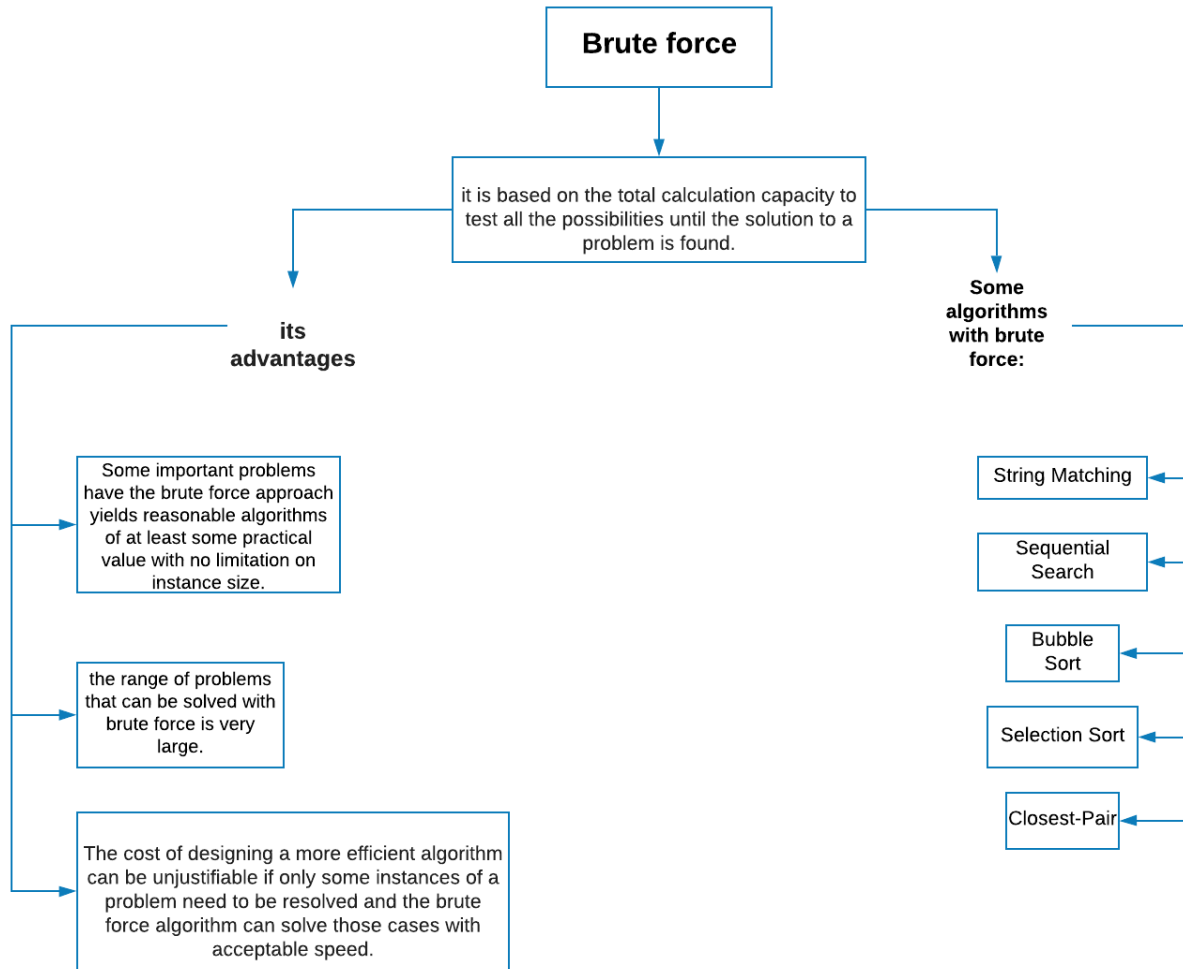
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#### 4.5.2

*Can = can || right == left*

#### 5) Recommended reading (optional)



#### 6) Team work and gradual progress (optional)

##### 6.1 Meeting minutes

7

<b>work hours/day</b>	<b>21/02/2019</b>	<b>23/02/2019</b>	<b>24/02/2019</b>

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**ESTRUCTURA DE DATOS 2**  
**Código ST0247**

<b>2.</b>	<b><i>working valeria and santiago</i></b>		
<b>5hr</b>		<b><i>working valeria and santiago</i></b>	
<b>5hr</b>			<b><i>working valeria and santiago</i></b>

**6.2** History of changes of the code. These modifications are made in a code shared for US.

<b><i>modifier / day</i></b>	<b><i>21/02/2019</i></b>	<b><i>23/02/2019</i></b>	<b><i>24/02/2019</i></b>
<b><i>Santiago</i></b>	<b><i>1:21pm modification time</i></b>	<b><i>2:35pm modification time</i></b>	<b><i>12:30pm modification time 2:27pm modification time</i></b>
<b><i>Valeria</i></b>	<b><i>2:42pm modification time</i></b>	<b><i>3:32pm modification time 4:03pm modification time</i></b>	<b><i>5:36pm modification time</i></b>

### 6.3 History of changes of the report

<b><i>modifier / day</i></b>	<b><i>21/02/2019</i></b>	<b><i>23/02/2019</i></b>	<b><i>24/02/2019</i></b>
<b><i>Santiago</i></b>	<b><i>3:01pm modification time</i></b>	<b><i>6:20pm modification time</i></b>	<b><i>1.34pm modification time 1:50pm modification time 4:28pm modification time 7:27pm modification time</i></b>
<b><i>Valeria</i></b>	<b><i>12:35pm modification time 1:48pm modification time</i></b>	<b><i>12:02pm modification time 2:43pm modification time 3:35pm modification time 5:48pm</i></b>	<b><i>2:57pm modification time</i></b>

ESTRUCTURA DE DATOS 2  
Código ST0247

		<i>modification time</i>	
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