

Actually, most of the algorithms are alike, eventhough they are hsd forbdifferent purposes.

One of the most popular algorithms is '[Brute-force search](#)'. This algorithm is used to find one certain element in an array by going the the whole array. It is not that effective, but a correct result is guaranteed with this method. The main disadvantage of this algorithm is its execution time when the array length is massive. For example, to find a right 4-digit password you will have to go through 9! combinations.

It is better not to use brute-force algorithm, eventhough it is much easier to design such an algorithm.

Here is a code explanation of why you should not use it:

```
BruteForce(needed_num):
    for elem in range(0, 9999):
        if elem == needed_num:
            return elem
```

If there are any information given about element of array that is needed to be found, it is preferred to use other algorithms like '[branch and bound method](#)' (also known as 'BB', BnB or 'B&B').

If we return to example with 4-digit password:

Let's imagine that we have to figure out a 4-digit password and we also know that it starts with '6'. If we use brute-force algorithm, it will go though every sing combination all the way from '0000' to '9999' (or needed combination if we put up `break` command). On the other hand, if we use B&B method, we would not iterate through combinations that does not start with '6'. So, we have just cut out 9/10 of combinations and saved a huge amount of time.

B&B method also works with other conditions. For example, we have to find a 4-digit number which value > 6000. That means that the first digit has to be 6 or greater. An algorithm will iterate through every combination from '6000' until a needed one.

Code example for B&B method (4-digit password problem):

```
BnB(clause_num, needed_num):
    for elem in range(clause_num, 9999):
        if elem == needed_num:
            return elem
```