

What is data structure ?

- Organizes and stores data
- Each has strengths and weaknesses

What is the best data structure ?

It depends on:

- what data will be stored
- how application will need to access data
- operacje na danych

What is an algorithm ?

Search algorithms

Sort algorithms

Recursion

Algorithm describes steps that need to be done to finish some task

There can be many algorithms to do same task

There can be many implementations of the same algorithm

Big-O notation

Time complexity - we are interested in how many steps does it take to run algorithm

- we are looking on the worst case
- We don't consider constants when we are coming up with big O value
- The most important is N which is influencing the number of steps
- When the time complexity is increasing linear fashion its linear time complexity

Big-O values (best to worst)

$O(1)$		Constant	(O of one)
$O(\log n)$		Logarithmic	(O of $\log n$)(log based 2)
$O(n)$		Linear	(O of n)
$O(n \log n)$		$n \log$ -start n	(O of $n \log n$)
$O(n^2)$		Quadratic	(O n^2)

