

# Greedy Algorithms

In wall street, that iconic movie of the 1980s, Michael Douglas gets up in front of a room full of stockholders and proclaims,

**"Greed, ..., is good", Greed is right. Greed works."**

**Non-greedy:** playing chess

- A game like chess can be won only by *thinking ahead*. Greed does not work
- A player focussed entirely on immediate advantage (myopic) is easy to defeat.

**Greedy:** Playing Scrabble

***It is possible to do quite well by simply making whichever move seems best at the moment and not worrying about too much about future consequences.***

*Greed is good, ...Greed works.*

*(myopic: short-sighted)*

***The myopic behaviour is easy and convenient.***

**Characteristics of greedy algorithms**

- Build solutions piece by piece
- Always choose the next piece that offers the most obvious and immediate benefit.

**Notes:**

*Although greedy approach can be disastrous for some computational tasks, there are many for which it is optimal.*

*Since a greedy algorithm can be efficient in terms of running time, it can be used for the computationally expensive tasks when better algorithms are not known for the tasks.*

### ***What is greedy algorithm?***

An algorithm is greedy if it builds up a solution in small steps, choosing a decision at each step *myopically* to optimize some underlying criterion.