

# Programming fundamentals with Python

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# Programming fundamentals with Python

<https://slides.com/pepegar/pfp-4/live>

# Algorithms

Algorithms describe the sequence of steps to solve a problem

Problem: How does one assemble IKEA furniture?

# Algorithms

# Algorithms

Problem: How do you search a word in The Dictionary?

# Sorting Algorithms

Sorting algorithms study the most performant way of sorting all elements in a sequence

# Sorting Algorithms



# Search Algorithms

Search algorithms try to find whatever you're looking for in the most performant manner

# Search Algorithms

Can you apply the algorithm you thought of for searching in a dictionary to search in something bigger like... All posts in Facebook?

# Ranking Algorithms

Ranking algorithms try to measure the importance of different nodes in a graph

# Ranking Algorithms

Pagerank. How did google ranked their webpages? (circa 1998)

# Ranking Algorithms

H-Index. How does scientific community measure the importance of a researcher?

# Shortest path

Shortest path algorithms try to find the... well, the shortest path between two nodes in a graph

# Shortest path

Six degree problem

# Shortest path

Erdos number

Bacon number

Erdos - Bacon number



# Shortest path

# Algorithm complexity

There are two units which we measure when checking the complexity of an algorithm: Time and Space

# Algorithm complexity