

# Algorithms and Order of Growth

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# Algorithms

- Social Media
- Facial Recognition
- E-Commerce
- Travel

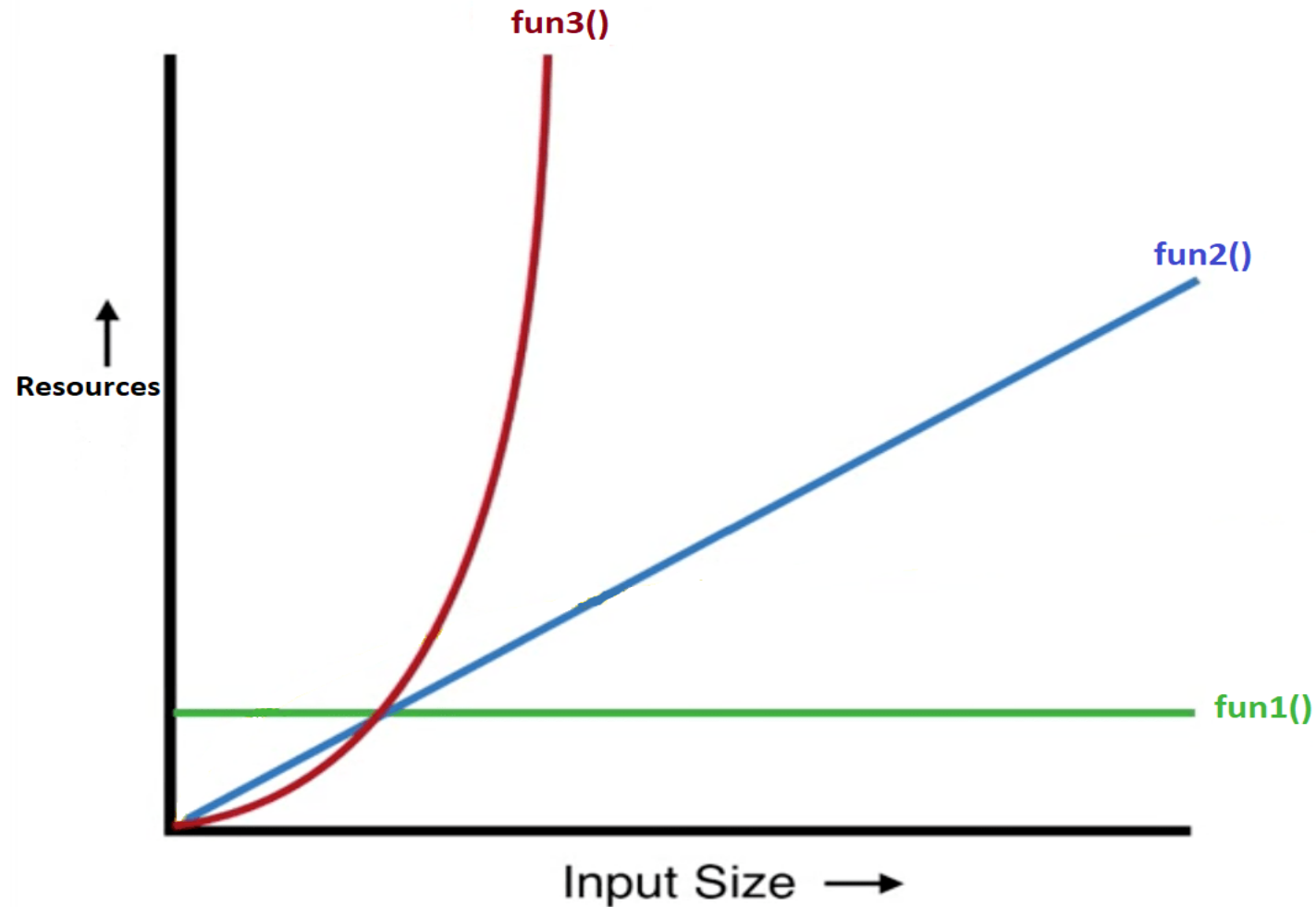


# Algorithms

- Why algorithm??
- Limited Resources
  - Time
  - Memory
- Which algorithm??
- Comparing relative speeds of algorithms
  - ~~Execution Time~~
  - ~~Statement count~~
  - Rate of growth of running time.



# Algorithms



# Logarithms

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# Order of Growth

# Order of Growth

- Direct Method
  - Ignore the lower order terms
  - Ignore the leading constant.
- $f(n) = 3n^2 + n + 8$
- $g(n) = 40n + 5$
- $f(n) = C_1 \log n + C_2$
- $g(n) = C_3 n + C_4 \log \log n + C_5$



# Order of Growth

