# MCAC 201: Design and Analysis of Algorithms

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# Example 1

Solve the given recurrence relation.

$$T(n) = \begin{cases} 1 & \text{if } n = 1 \\ \mathrm{T}(n-1) + 1 & \text{if } n > 1 \end{cases}$$

# Example 2

Solve the given recurrence relation.

$$T(n) = \begin{cases} 1 & \text{if } n = 1 \\ \mathrm{T}(n-1) + n & \text{if } n > 1 \end{cases}$$

# Example 3

Solve the given recurrence relation.

$$T(n) = \begin{cases} 0 & \text{if } n = 1 \\ \mathrm{T}\left(\frac{n}{2}\right) + 1 & \text{if } n > 1 \end{cases}$$

# Example 4

Solve the given recurrence relation.

$$T(n) = \begin{cases} 1 & \text{if } n = 1 \\ T\left(\frac{n}{2}\right) + n & \text{if } n > 1 \end{cases}$$

# Example 5

Solve the given recurrence relation.

$$T(n) = \begin{cases} 1 & \text{if } n = 1 \\ 2\ \mathrm{T}\left(\frac{n}{2}\right) + 1 & \text{if } n > 1 \end{cases}$$

# Example 6

Solve the given recurrence relation.

$$T(n) = \begin{cases} 0 & \text{if } n = 1 \\ 2\ \mathrm{T}\left(\frac{n}{2}\right) + n & \text{if } n > 1 \end{cases}$$