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01 introduction

Introduction to Mathematics and Diagrams

This chapter introduces mathematical notation and diagram rendering in our PDF book.

Mathematical Equations

Here's an inline equation: $E = mc^2$

And here's a display equation:

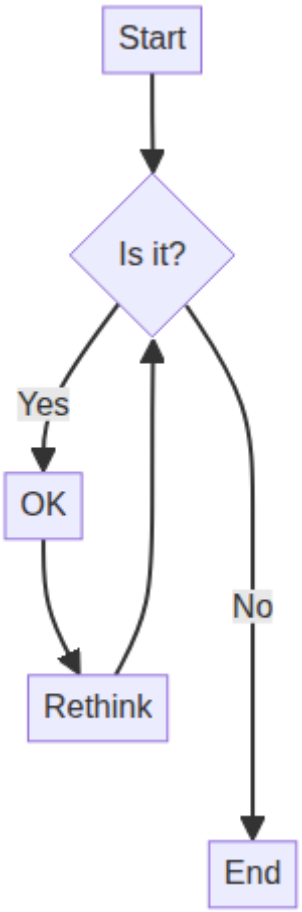
$$\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi}$$

The quadratic formula is given by:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Mermaid Diagram Example

Here's a simple flowchart:



More Math Examples

Euler's formula: $e^{i\pi} + 1 = 0$

The Pythagorean theorem:

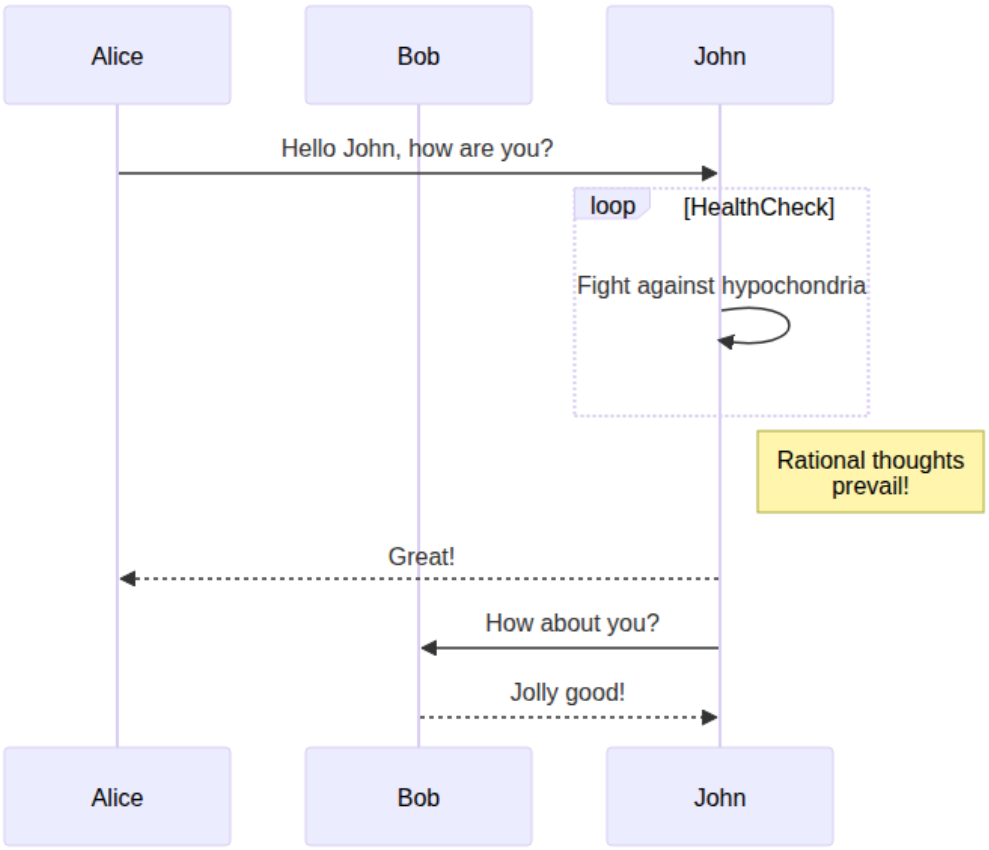
$$a^2 + b^2 = c^2$$

02 advanced

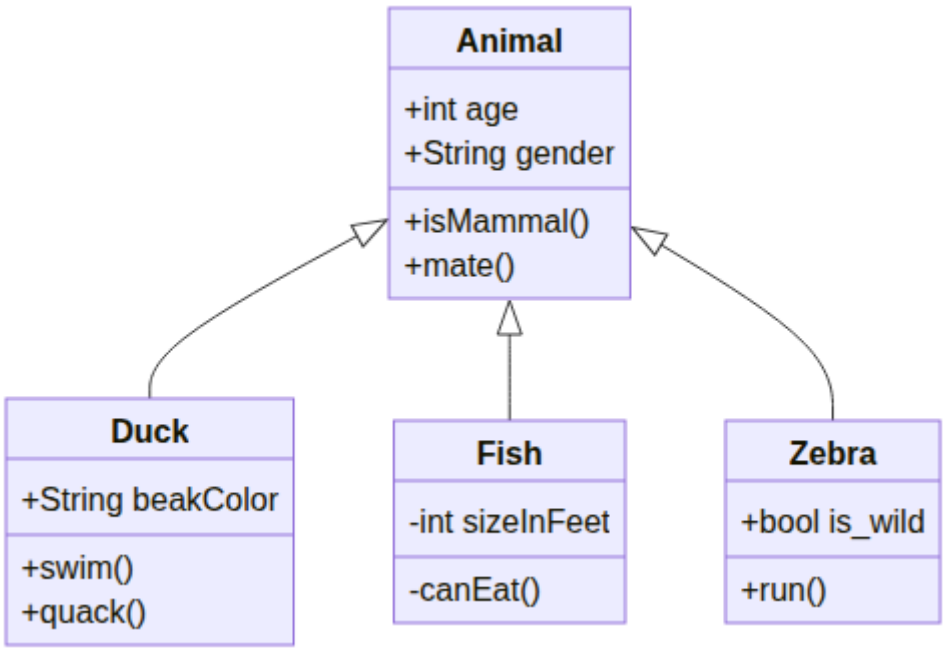
Advanced Diagrams

This chapter shows more complex mermaid diagrams.

Sequence Diagram



Class Diagram



Mathematics in Context

When analyzing algorithms, we often use Big O notation: $O(n \log n)$

The sum of a geometric series:

$$\sum_{i=0}^{n} ar^i = a\frac{1 - r^{n+1}}{1 - r}$$