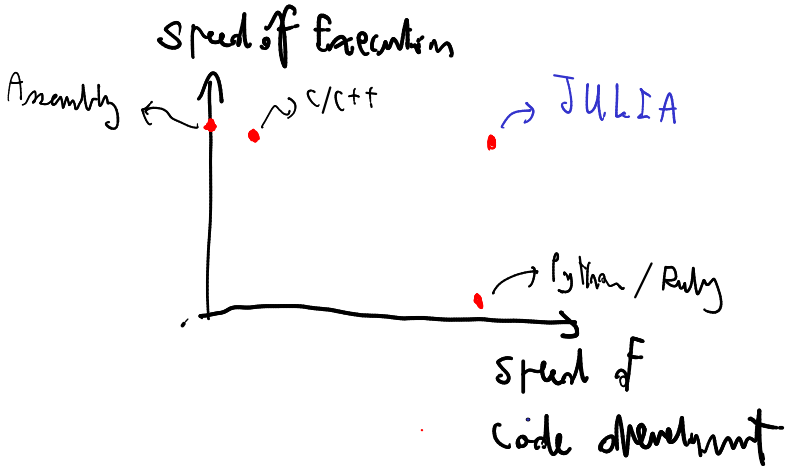
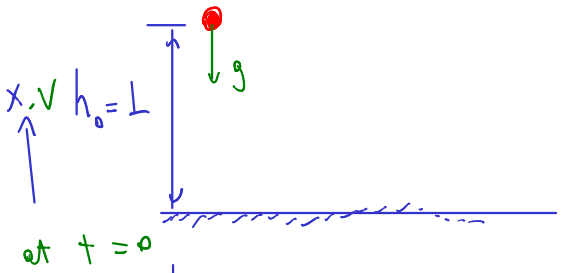


The physics of a bouncing ball



at $t = 0$

$X = h_0$

$V = 0$

$V(t) = -gt$

$X(t) = \int V(t)\, dt$

$= \int -g\, t\, dt = -\frac{1}{2} g t^2 + C$

$X(0) = \frac{1}{2} g (0)^2 + C = h_0 \Rightarrow C = h_0$

$X(t) = h_0 - \frac{1}{2} g t^2$

What matters?

1. Color doesn't matter at all
2. Weight might have some effect, but we will ignore
3.

CAUTION!
ARE WE MISSING something

The bounce!

It happens when $x(t) = 0$

$V_a = -k \cdot V_b$ $\quad 0 < k < 1$

after before