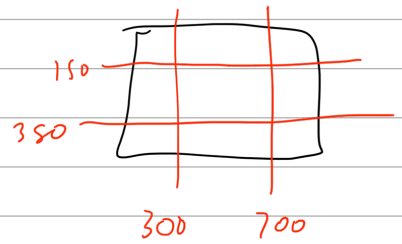
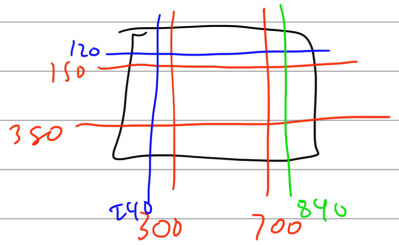
Algo 1: Divide the image into 9 sections & swap sections

flat earth
- zoom
- pan



0.8 = scale → zoom out

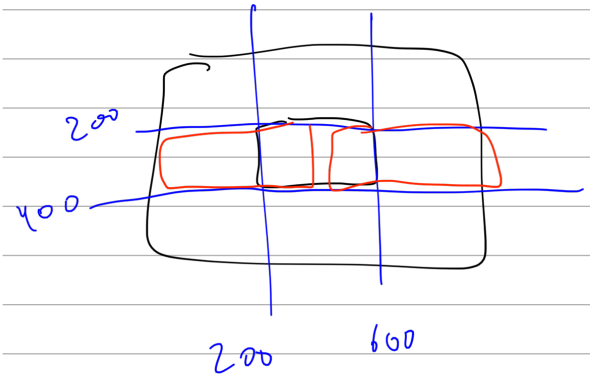
1.2 → zoom in



top = scale * 150
= 120

left = scale * 300
= 240

right = (1 - scale) * 700 + 700
= 840
or if zoom in w/ scale = 1.2



600

only works for centered

& bottom | 700(2 - scale)
(2 - scale) | = 560 ✓

equal.

800

go RIGHT

$r = \min(800, r + 200)$
$l = r - 400$

$r = \{400, 600, 800\}$
$l = \{0, 200, 400\}$

go LEFT

$l = \max(0, l - 200)$
$r = l + 400$

$l = \{0, 200, 400\}$
$r = \{400, 600, 800\}$

go DOWN

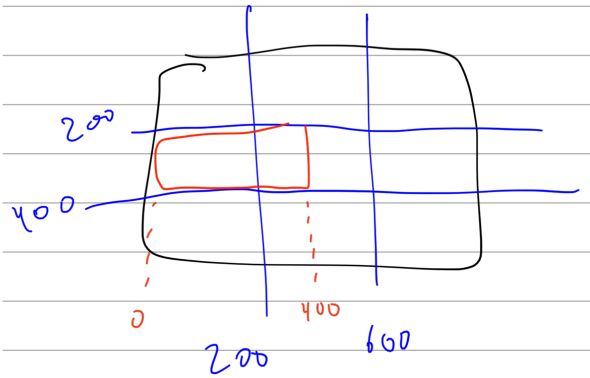
$b = \min(600, b + 200)$
$t = b - 200$

$t = \{0, 200, 400\}$
$b = \{200, 400, 600\}$

go UP

$t = \max(0, t - 200)$
$b = t + 200$

$b = \{200, 400, 600\}$
$t = \{0, 200, 400\}$



600

scale = 1.4 cannot go this high since overlap

$l, r = 0, 400$

$l = l + r - (2 - scale) * r \Rightarrow l = 160$
$r = (2 - scale) * r \Rightarrow r = 240$

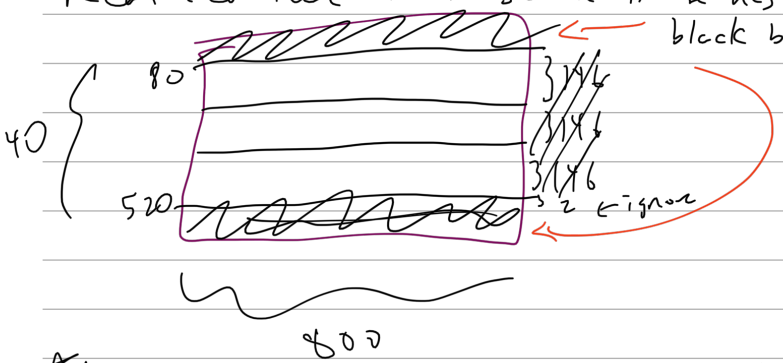
$t, b = 200, 400$

$t = t + b - (2 - scale) * b \Rightarrow t = 36$
$b = (2 - scale) * b \Rightarrow$ ~~X~~ overlap!

800

$200 + 400 - (240) = 360$

Realized here that source image has black bars!



scale = 1.2

$l, r = 0, 400$

$l = l + r - (2 - scale) * r \Rightarrow l = 80$

$r = (2 - scale) * r \Rightarrow r = 320$

$t, b = 200, 400$

$t = t + b - (2 - scale) * b \Rightarrow t = 240$

$b = (2 - scale) * b \Rightarrow b = 320$

Algo 2: Just limit the boundaries (80, 520) & (0, 800) & crop an image of "screen size" & shift that around.