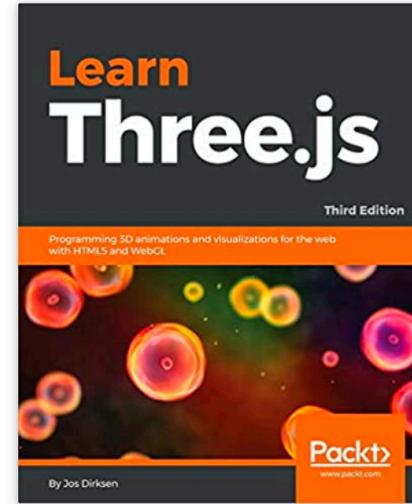


COMPUTER GRAPHICS



* Adapted from CISC 3326 lecture by Michael Mandel

INTRODUCTION TO CANVAS DRAWING

Based on [CS 307 lecture 2a](#)

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Topics for today

- Covered last time
 - The HTML5 <canvas> element
 - Drawing rectangles
 - Drawing paths
- Drawing arcs in paths
- Setting properties of path segments
- Transformations and saving and restoring state

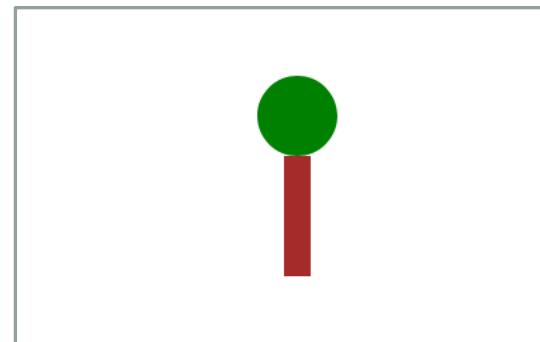
Topics for today

- Exercises
 - draw a tree
 - draw a house
 - draw a village

EXERCISES

Exercise 1: Drawing a tree

- Start from this [codepen](#)
 - Note that there is a function flipY() that changes the coordinate so the positive y direction is up
- Write the function
`drawTreeAt(ctx,x,y,height,width,radius)`
 - `drawTreeAt(ctx,200,50,90,20,30);` should draw





Exercise 2: A Projected House

- Click on the tiny fork button on the bottom right to make a copy of your codepen
- Add a function drawHouseAt(ctx, x, y, width, height, dx, dy)
 - `drawHouseAt(ctx,200,50,30,40,10,6);`
 - should draw:





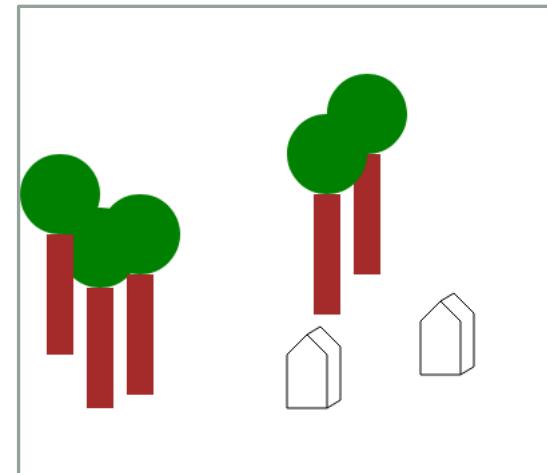
Exercise 2: A Projected House

- See if you can use a `translate(x,y)` transformation
 - Write a function `drawHouse(ctx, width, height, dx, dy)` that draws a house at the origin



Exercise 3: Houses in a Forest

- Click on the tiny fork button on the bottom right to make a copy of your codepen
- Use the drawTreeAt() and drawHouseAt() functions
 - draw many houses and trees scattered about
 - like this:





Summary

- Drawing in a 2D coordinate system isn't so bad.
- Achieve effects using methods on a *context* object.
- Code using functions to achieve higher-level effects
- Parameterize the functions
 - e.g. a function to draw a tree with a given width and height.

Summary

- Make the functions be *generic* , e.g. a house with its origin at the lower left.
- Use transformations to translate the generic objects.

Questions?

