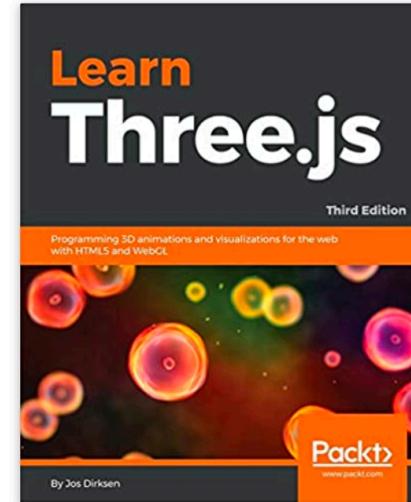


# COMPUTER GRAPHICS

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\* Adapted from CISC 3326 lecture by Michael Mandel

# INTRODUCTION TO CANVAS DRAWING

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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

# Homework

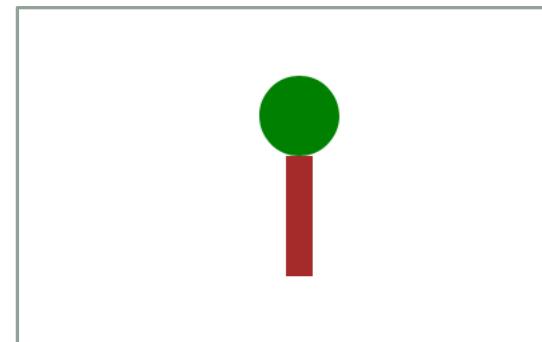
- Read Canvas tutorials:
  - [MDN Canvas Tutorial](#)
  - [HTML Canvas Graphics](#)

# EXERCISES

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# 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:





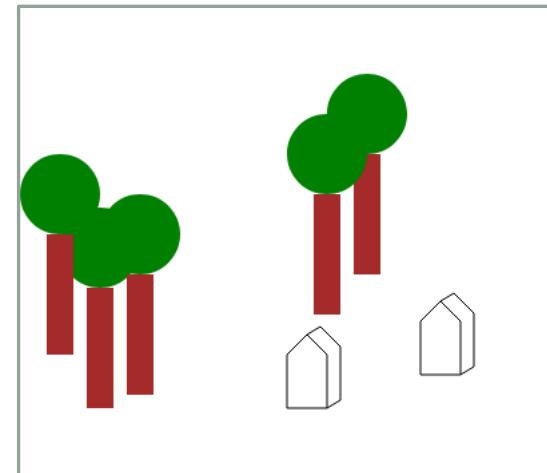
# Exercise 2: A Projected House

- 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?

