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Paint 2D
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<https://cs.iupui.edu/~achittic/games/graphicsDemo/graphicsDemo.html>
<https://github.com>

Paint 2D is program that allows you to draw various shapes on a HTML page. It uses a 600px by 600px HTML canvas tag. It uses JavaScript to allow you to draw free-hand, straight lines, circles, rectangles, and spirals. It also has a clear button to clear the canvas (drawing area). To free draw click and hold the mouse while moving it. To make a line, circle, or square hold the mouse and release when you have your desired size. To make a spiral click and hold mouse down and it will draw lines from the original click to where you move the cursor.

Global Variables/Constants

- canvas-the canvas element
- con-context of canvas
- xDown- initial x coordinate when mouse is down; set by catchMouse()
- yDown- initial y coordinate when mouse is down; set by catchMouse()
- xCoord- an x-axis coordinate; set by getCoords()
- yCoord- an y-axis coordinate; set by getCoords()
- radius- distance from (xDown, yDown) to (xCoord, yCoord); set by getCoords()
- width- xCoord – xDown; for Rectangle; set by getCoords()
- height- yCoord – yDown; for Rectangle; set by getCoords()
- mouseDown- setInterval event; set onmousedown; clear onmouseup
- shape- determines draw method to call onmousedown; set by setShape()
- image- canvas image; set in catchMouse
- offsetX- x-axis offset; constant(-100)
- offsetY- y-axis offset; constant(-25)

General methods:

- init()
 - gets the canvas element and context
 - checks for mouse down (calls catchMouse), and mouse up (calls release)
- catchMouse(e)
 - sets xDown, yDown with offset
 - if click was in canvas sets initial values for xCoord, yCoord, radius, width, height
 - saves the canvas image
 - sets the mouseDown interval (20)
 - sends to appropriate shape function at interval
- release(e)
 - clears the mouseDown interval
- getCoords(e)
 - sets xCoord, yCoord, radius, width, height
 - based on current position of cursor
- setShape()
 - sets shape, sends to set buttons
- setButtons()
 - makes currently selected shape button green and others red

- `clean()`
 - clears the canvas
 - puts previous image o canvas
- `checkBounds()`
 - returns true if click is within canvas
 - returns false otherwise
- `border()`
 - Draws a rainbow gradient border using `createLinearGradient()`, `fillStyle`, `fillRect()`.
 - Draws the title and author with `font`, `fillStyle`, `fillText()`.

Drawing methods:

- `freeDraw()`
- `line()`
- `circle()`
- `rectangle()`
- `spiral()`
- `clearScreen()`
 - clears screen