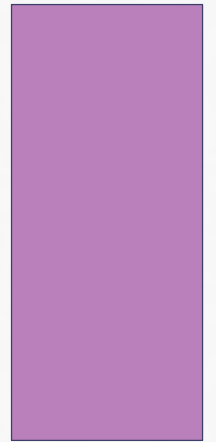


JAVASCRIPT TUTORIAL

BASICS AND ANIMATION



JAVASCRIPT BASICS

- JavaScript was invented by Brendan Eich, co-founder of the Mozilla Project, the Mozilla Foundation, and the Mozilla Corporation.



- It is a dynamically-typed programming language.



- JavaScript adds interactivity to websites (e.g. games, animation).
- It is installed on every modern web browser.

OBJECT-ORIENTED JAVASCRIPT

- OOP provides greater **flexibility** and **maintainability** in programming.
- **Simple JavaScript types:** numbers, strings, booleans, *null* and *undefined*
- **Everything else:** objects, i.e. set of name-value pairs (just like a dictionary in Python)
- **Custom JavaScript objects:** no classes in JavaScript

Example:

```
function Coffee(brand, origin) {  
    this.brand = brand;  
    this.origin = origin;  
}  
var coffee = new Coffee("Arabica", "Ethiopia");
```

PROTOTYPES

- Every JavaScript object has a prototype.
- The prototype is also an object.
- All JavaScript objects inherit their properties and methods from their prototype.

In previous example: the Coffee object inherits from Coffee.prototype

```
Coffee.prototype.brew = function(temperature) {  
    doSomething;  
};
```

HTML5 CANVAS

- An HTML5 element used to draw graphics on the fly, via scripting (usually JavaScript).
- It is container (canvas) for graphics.



- The JavaScript animation is implemented as gradual changing of DOM element styles or canvas objects.

JAVASCRIPT ANIMATION

- The process is split into pieces and each piece is called by a timer.
- The time intervals are very small; thus, the animation looks continuous.

```
var timer = setInterval(draw, 10);  
clearInterval(timer);
```

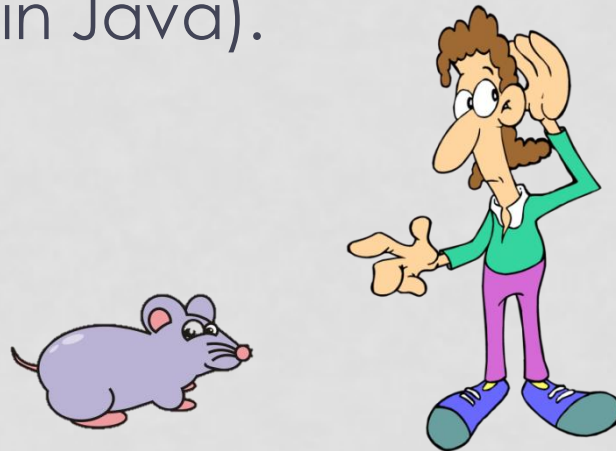
- Smaller intervals make the animation smoother but requires a faster browser. By default, delay is 10-15ms.

MOUSE EVENTS ON HTML5 CANVAS

- Set up listeners for mouse events.

```
canvas.addEventListener("mousemove",  
    .....onMouseMoveListener,  
    .....false);
```

- Listeners can be attached to the canvas or the window (just like in Java).



QUESTIONS





REFERENCES

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