CS472 Midterm Exam Topics

1/1/2019

Lecture 01 HTTP and HTML:

1. IP, TCP, multiplexing TCP ports
2. HTTP request and response messages
3. **HTML5 page structure etc**
4. meta element (charset, favorites icon, keywords, description, etc)
5. Relative URL, Absolute URL
6. **Block elements(p, h1~h6, hr, section, article, header, ul, ol, table, etc)**
7. **Inline element(br, img, a, em)**
8. Comment <!-- -->

Lecture 02 Basic CSS:

1. Add CSS for a HTML Page (external .css file<link>, internal <style>, inline style attribute)
2. **Why internal/embedding style sheet isn't good?**
3. CSS rule syntax (selector, property, value)
4. CSS properties for color, font(Size Units), text, list-style-type
5. **Style conflict, which rule wins**
    a. **Cascade vs inheritance vs specificity**
    b. CSS reset code (resets page to consistent baseline)
6. **Selector: HTML element selector(type selector), group selector, class selector, id selector, context selector, attribute selector**, TagName.className/#id, pseudo-class, pseudo-element

Lecture 03 CSS Layout:

1. **Box model(content-box, border-box)**
2. **Dimensions, borders, padding, margin**
3. Center block element, center inline element horizontally
4. **Details/differences between block elements and inline elements**
5. Vertical align
6. **display: inline, block, none, inline-block**
7. visibility vs display
8. **position: static, relative, absolute, fixed**
9. **float/clear/overflow**
10. **responsive design**
    a. **media queries and meta viewport**
    b. **flexbox and grid layout**

Lecture 04 Forms:

1. HTML Forms
    a. Get vs post
2. input: text, password, radio, checkbox, label, hidden, submit
3. select, textarea
4. placeholder, title , pattern, required, password attributes on inputs
5. input pattern attribute
6. Regular expressions and validation of input values
   | {} \ * + ? {min, max}
   [], [a-z], [A-Z0-9] \d

Lecture 05 JavaScript Intro

1. **JavaScript types and basic syntax**: Boolean, Number, String, Array, Comment, Null/undefined, semicolon,etc
2. **Meaning of loosely-typed**
3. **Block scope, const and let**
4. Effect of undeclared variables
5. Logical operations: ==,===,"1"+1, "A"-"A"
6. Truthy, falsey, and implicit conversions
7. null and undefined
8. String, Arrays – basic use
9. Array.map, Array.filter, Array.reduce
10. **Function declaration vs function expression**
11. Semicolon insertion
12. **Invoke versus declare a function**

Lecture 06 JavaScript Environment

1. **How is DOM related to HTML, JavaScript, window, document**
2. **Linking to a JavaScript file: script/when does it run?**
3. **Obtrusive/unobtrusive JavaScript and style – attach event handler, css**
4. Common errors
5. **Is window.onload a property or a method or both?**
6. **Difference of: okButton.onclick = okayClick(); and okButton.onclick = okayClick;**
7. Event handlers and anonymous functions
8. DOM elements
9. **Inner HTML hacking**
10. **Unobtrusive styling**
11. **Asynchronous & Callbacks: setTimeout, setInterval**
12. First class functions
13. Strict mode

Lecture 07 Scope:

1. **Implicit global**
2. **Scope(Lexical, hoisting)**
3. **Best practice for var, let, const**
4. **2 phases of JavaScript compiler**
5. **Execution context and scope chain**
6. **Closures and free variables**
    a. **Closures for callbacks and saving state info**
    b. **Closures for namespace protection**
7. Overloading?
8. Arguments
9. **Rest parameters and spread operator**
10. **Arrow functions**
11. **Map, filter, reduce**
12. **Looping: For in, for of, forEach, …**

Lecture 08 this and revealing module and inheritance:

1. **Create object (object literal)**
2. **Method versus function**
3. **this keyword: in methods, in functions**
    a. **self pattern and arrow function**
    b. **call,apply,bind**
    c. **function borrowing**/currying
4. **Module Pattern (IIFE) – syntax, what's the problem it solves and how?**
    a. **ES6 scope solution**
5. **revealing module pattern, public and private methods and properties**
6. **inheritance**
    a. **prototypal inheritance**,
    b. **Object.create(),**
    c. **Function Constructor**
    d. **Keyword 'new'**
    e. **__proto__ and .prototype**
    f. **How is functionality extended to all object instantiations with function constructors and prototypes**

Lecture 09 jQuery:

1. window.onload vs $(document).ready(), $(function(){});
2. **node identification**
    a. **jQuery selectors**
    b. **context identification**

    c. **jQuery function versus jQuery object versus DOM elements**
    d. traversing dom tree
3. modify dom nodes
    a. **looping with $().each and $.each**
    b. **chaining**
    c. **get/set CSS classes and unobtrusive styling**
4. create new nodes
    a. innerHTML hacking
    b. append, prepend, before, after
5. **4 signatures of jQuery function**

Lecture 10 Events:

1. **Event handlers and events**
2. **Unobtrusive assignment of event handlers**
3. **event object**(methods: preventDefault() , stopPropagation() , stopImmediatePropagation())
4. keyword this in event handlers
5. **event bubbling**
    a. preventDefault
    b. stopPropagation
    c. stopImmediatePropagation
    d. event delegation
6. **callbacks, concurrency and event loop**