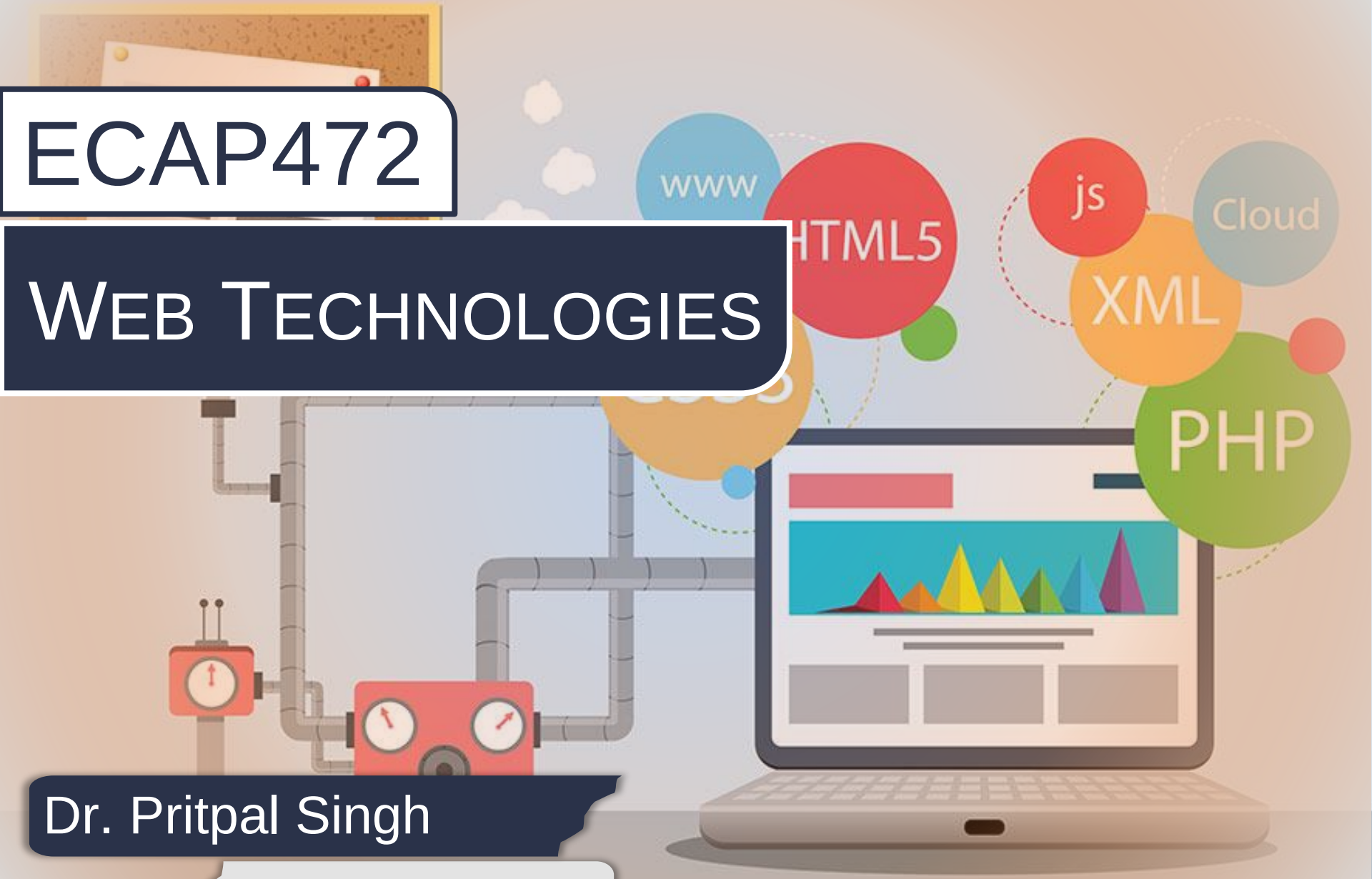
ECAP472

Web Technologies



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Learning Outcomes

After this lecture, you will be able to

- Understand concept of For In Loop and For of loop.
- Understand concept of break and continue statements.

The For In Loop

- The JavaScript for in statement loops through the properties of an Object:
- Syntax

```
for (key in object) {
  // code block to be executed
}
```

Example

```
const person = {fname:"John", lname:"Doe", age:25};

let text = "";

for (let x in person) {

  text += person[x];

}
```

Example Explained

- The for in loop iterates over a person object
- Each iteration returns a key (x)
- The key is used to access the value of the key
- The value of the key is person[x]

JavaScript For Of

- The JavaScript for of statement loops through the values of an iterable object.
- It lets you loop over iterable data structures such as Arrays, Strings, Maps, NodeLists, and more

Syntax

```
for (variable of iterable) {
  // code block to be executed
}
```

- variable - For every iteration the value of the next property is assigned to the variable. Variable can be declared with const, let, or var.
- iterable - An object that has iterable properties.

Looping over an Array

- Example

```
const cars = ["BMW", "Volvo", "Mini"];


let text = "";
for (let x of cars) {
  text += x;
}
```

JavaScript Break and Continue

- The break statement "jumps out" of a loop.
- The continue statement "jumps over" one iteration in the loop.

The Break Statement

- The break statement can also be used to jump out of a loop:
- Example

```
for (let i = 0; i < 10; i++) {
  if (i === 3) { break; }
  text += "The number is " + i + "<br>";
}
```

In the example, the break statement ends the loop ("breaks" the loop) when the loop counter (i) is 3.

The Continue Statement

- The continue statement breaks one iteration (in the loop), if a specified condition occurs, and continues with the next iteration in the loop.
- This example skips the value of 3:
- Example

```
for (let i = 0; i < 10; i++) {
  if (i === 3) { continue; }
  text += "The number is " + i + "<br>";
}
```

JavaScript Sets

- A JavaScript Set is a collection of unique values.
- Each value can only occur once in a Set
- You can create a JavaScript Set by:
- Passing an Array to new Set()
- Create a new Set and use add() to add values
- Create a new Set and use add() to add variables

Essential Set Methods

Method	Description
new Set()	Creates a new Set
add()	Adds a new element to the Set
delete()	Removes an element from a Set
has()	Returns true if a value exists in the Set
forEach()	Invokes a callback for each element in the Set
values()	Returns an iterator with all the values in a Set

The new Set() Method

- Pass an Array to the new Set() constructor:
- Example
- // Create a Set
- const letters = new Set(["a","b","c"]);

Create a Set and add values:

- // Create a Set
- const letters = new Set();
- // Add Values to the Set
- letters.add("a");
- letters.add("b");
- letters.add("c");

What are the uses of JavaScript?

- JavaScript is a light-weight object-oriented programming language that is used by several websites for scripting the webpages. It is an interpreted, full-fledged programming language. JavaScript enables dynamic interactivity on websites when it is applied to an HTML document.

What are the uses of JavaScript?

- JavaScript helps the users to build modern web applications to interact directly without reloading the page every time. JavaScript is commonly used to dynamically modify HTML and CSS to update a user interface by the DOM API. It is mainly used in web applications.

1. Web Applications

- As day-by-day there is a continuous improvement in the browsers, so JavaScript gained popularity for making robust web applications. We can understand it by taking the example of Google Maps. In Maps user just requires to click and drag the mouse; the details are visible just by a click. There is a use of JavaScript behind these concepts.

Web Development

- JavaScript is commonly used for creating web pages. It allows us to add dynamic behavior to the webpage and add special effects to the webpage. On websites, it is mainly used for validation purposes. JavaScript helps us to execute complex actions and also enables the interaction of websites with visitors. Using JavaScript, it is also possible to load the content in a document without reloading the webpage.

Mobile Applications

- Now a day's mobile devices are broadly used for accessing the internet. Using JavaScript, we can also build an application for non-web contexts. The features and uses of JavaScript make it a powerful tool for creating mobile applications.
- The React Native is the widely used JavaScript framework for creating mobile applications. Using React Native, we can build mobile applications for different operating systems. We do not require writing different codes for the iOS and Android operating systems. We only need to write it once and run it on different platforms

Game

- JavaScript is also used for creating games. It has various libraries and frameworks for creating a game. The game can either be a 2D or 3D. Some JavaScript game engines such as PhysicsJS, Pixi.js help us to create a web game.

Presentations

- JavaScript also helps us to create presentations as a website. The libraries, such as RevealJs, and BespokeJs, can be used to create a web-based slide deck. They are easier to use, so we can easily make something amazing in a short time.

Server Applications

- A large number of web applications have a server-side to them. JavaScript is used to generate content and handle HTTP requests. JavaScript can also run on servers through Node.js. The Node.js provides an environment containing the necessary tools required for JavaScript to run on servers.

Web Servers

- A web server can be created by using Node.js. Node.js is event-driven and not waits for the response of the previous call. The servers created using Node.js are fast and don't use buffering and transfer chunks of data. The HTTP module can be used to create the server by using the createServer() method. This method executes when someone tries to access the port 8080. As a response, the HTTP server should display HTML and should be included in the HTTP header

Practical

That’s all for now…