**New Features**

HTML5 introduces a number of new elements and attributes that can help you in building

modern websites. Here is a set of some of the most prominent features introduced in

HTML5.

**New Semantic Elements:**

These are like <header>, <footer>, and <section>.

**Forms 2.0:**

Improvements to HTML web forms where new attributes have been introduced for
 <input> tag.

**Persistent Local Storage:**

To achieve without resorting to third-party plugins.

**WebSocket :**

A next-generation bidirectional communication technology for web applications.

**Server-Sent Events:**

HTML5 introduces events which flow from web server to the web browsers and

they are called Server-Sent Events (SSE).

**Canvas:**

This supports a two-dimensional drawing surface that you can program with

JavaScript.

**Audio & Video:**

You can embed audio or video on your webpages without resorting to third-party

plugins.

**Geolocation:**

Now visitors can choose to share their physical location with your web application.

# HTML5 Canvas

## What is HTML Canvas?

The HTML <canvas> element is used to draw graphics, on the fly, via JavaScript.

The <canvas> element is only a container for graphics. You must use JavaScript to actually draw the graphics.

Canvas has several methods for drawing paths, boxes, circles, text, and adding images.

## Canvas Examples

A canvas is a rectangular area on an HTML page. By default, a canvas has no border and no content.

The markup looks like this:

<canvas id="myCanvas" width="200" height="100"></canvas>

Note: Always specify an id attribute (to be referred to in a script), and a width and height attribute to define the size of the canvas. To add a border, use the style attribute.

Here is an example of a basic, empty canvas:
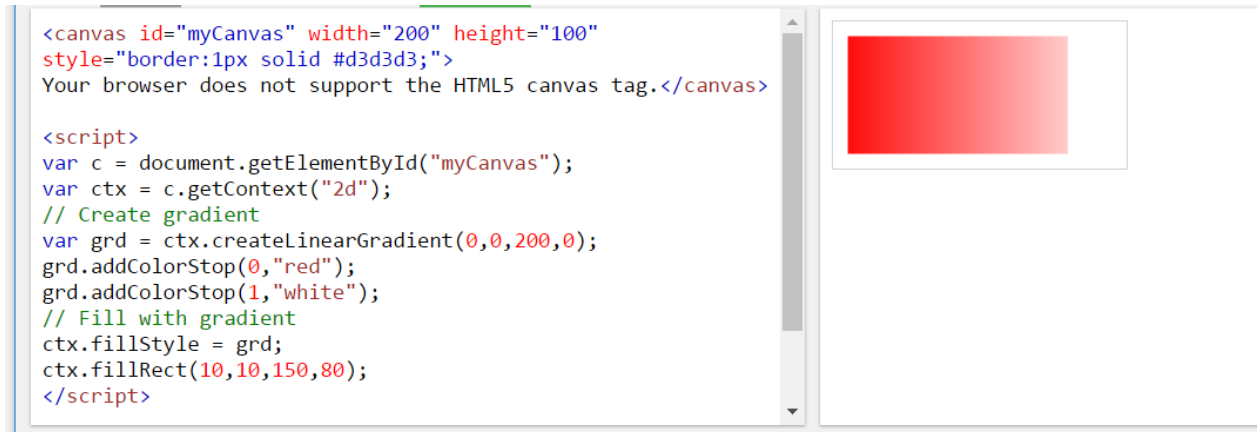
```
<!DOCTYPE html>
<html>
<body>

<canvas id="myCanvas" width="200" height="100"
style="border:1px solid #000000;">
Your browser does not support the HTML5 canvas tag.
</canvas>

</body>
</html>
```

Draw a Line

```
<!DOCTYPE html>
<html>
<body>
<canvas id="myCanvas" width="200" height="100"
style="border:1px solid #d3d3d3;">
Your browser does not support the HTML5 canvas tag.</canvas>
<script>
var c = document.getElementById("myCanvas");
var ctx = c.getContext("2d");
ctx.moveTo(0,0);
ctx.lineTo(200,100);
ctx.stroke();
</script>
</body>
</html>
```

## Draw a Circle

```
<!DOCTYPE html>
<html>
<body>
<canvas id="myCanvas" width="200" height="100"
style="border:1px solid #d3d3d3;">
Your browser does not support the HTML5 canvas tag.</canvas>
<script>
var c = document.getElementById("myCanvas");
var ctx = c.getContext("2d");
ctx.beginPath();
ctx.arc(95,50,40,0,2*Math.PI);
ctx.stroke();
</script>
</body>
</html>
```

## Stroke Text

```
<!DOCTYPE html>
<html>
<body>
<canvas id="myCanvas" width="200" height="100"
style="border:1px solid #d3d3d3;">
Your browser does not support the HTML5 canvas tag.</canvas>

<script>
var c = document.getElementById("myCanvas");
var ctx = c.getContext("2d");
ctx.font = "30px Arial";
ctx.strokeText("Hello World",10,50);
</script>
</body>
</html>
```

## Draw Linear Gradient

```
<canvas id="myCanvas" width="200" height="100"
style="border:1px solid #d3d3d3;">
Your browser does not support the HTML5 canvas tag.</canvas>

<script>
var c = document.getElementById("myCanvas");
var ctx = c.getContext("2d");
// Create gradient
var grd = ctx.createLinearGradient(0,0,200,0);
grd.addColorStop(0,"red");
grd.addColorStop(1,"white");
// Fill with gradient
ctx.fillStyle = grd;
ctx.fillRect(10,10,150,80);
</script>
```

# HTML5 Video

## Playing Videos in HTML

Before HTML5, a video could only be played in a browser with a plug-in (like flash).

The HTML5 <video> element specifies a standard way to embed a video in a web page.
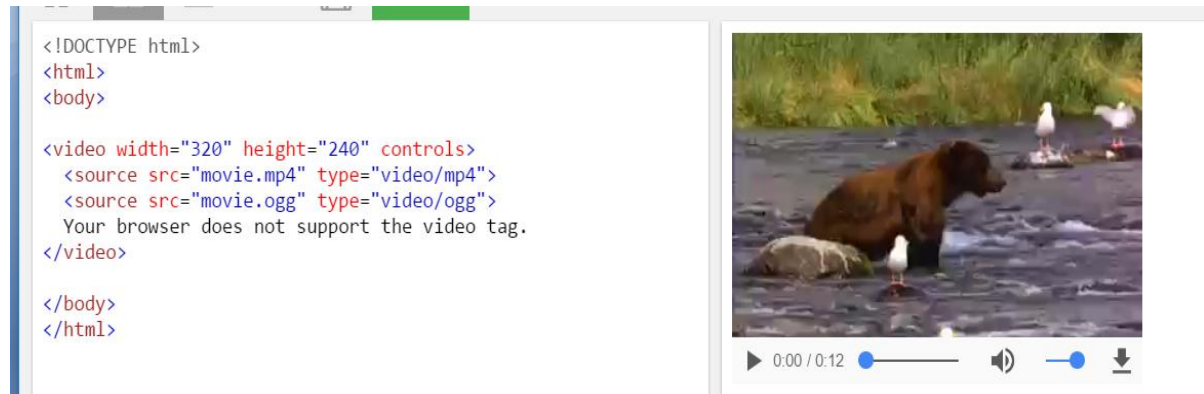
## How it Works

The **controls** attribute adds video controls, like play, pause, and volume.

It is a good idea to always include **width** and **height** attributes. If height and width are not set, the page might flicker while the video loads.

The **<source>** element allows you to specify alternative video files which the browser may choose from. The browser will use the first recognized format.

The text between the <video> and </video> tags will only be displayed in browsers that do not support the <video> element.

Prof. Ankita Chauhan
CE dept.
MBICT

```
<!DOCTYPE html>
<html>
<body>

<video width="320" height="240" controls>
  <source src="movie.mp4" type="video/mp4">
  <source src="movie.ogg" type="video/ogg">
  Your browser does not support the video tag.
</video>

</body>
</html>
```

# HTML <video> Autoplay

To start a video automatically use the **autoplay** attribute:

Example

```
<video width="320" height="240" autoplay>
 <source src="movie.mp4" type="video/mp4">
 <source src="movie.ogg" type="video/ogg">
Your browser does not support the video tag.
</video>
```

# HTML5 Audio

## The HTML <audio> Element

To play an audio file in HTML, use the **<audio>** element:

## HTML Audio - How It Works

The **controls** attribute adds audio controls, like play, pause, and volume.

The **<source>** element allows you to specify alternative audio files which the browser may choose from. The browser will use the first recognized format.

The text between the <audio> and </audio> tags will only be displayed in browsers that do not support the <audio> element.

```
<!DOCTYPE html>
<html>
<body>

<audio controls>
  <source src="horse.ogg" type="audio/ogg">
  <source src="horse.mp3" type="audio/mpeg">
Your browser does not support the audio element.
</audio>

</body>
</html>
```

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