# HTML5 Notes for Web Development

## 1. Introduction to HTML5

HTML5 is the latest version of HTML, designed to improve web development by introducing new elements, attributes, and APIs. It enhances multimedia, interactivity, and structure.

## 2. New Semantic Elements

HTML5 introduces semantic elements that improve readability and SEO:  
 - <header>: Defines a page or section header.  
 - <nav>: Represents navigation links.  
 - <section>: Groups related content.  
 - <article>: Represents independent content.  
 - <aside>: Contains related secondary content.  
 - <footer>: Represents the footer of a page or section.

## 3. HTML5 Forms Enhancements

HTML5 improves forms with new input types and attributes:  
 - New Input Types: email, url, number, range, date, color.  
 - New Attributes: required, placeholder, autofocus, pattern, min, max.

## 4. Multimedia Support

HTML5 supports multimedia without external plugins:  
 - <audio>: Embeds audio files.  
 - <video>: Embeds videos with playback options.  
 - <track>: Provides text tracks for subtitles.

## 5. Canvas and SVG

For graphics and animations:  
 - <canvas>: Used for drawing graphics via JavaScript.  
 - SVG (Scalable Vector Graphics): Vector-based image format.

## 6. HTML5 APIs

HTML5 introduces various APIs to enhance functionality:  
 - Geolocation API: Retrieves user location.  
 - Web Storage API: Stores data locally (sessionStorage, localStorage).  
 - Web Workers: Runs scripts in the background.  
 - WebSockets: Enables real-time communication.

## 7. Responsive Web Design

Techniques to make websites mobile-friendly:  
 - Viewport Meta Tag: Ensures correct scaling on different devices.  
 - Media Queries: Adjusts styles based on screen size.

## 8. Accessibility and Best Practices

HTML5 encourages best practices for better accessibility and performance:  
 - Use semantic elements for SEO and readability.  
 - Ensure cross-browser compatibility.  
 - Optimize images and resources for performance.  
 - Validate HTML using the W3C Validator.