**HTML Notes (Basic to Advanced)**

**1. Introduction to HTML**

* **HTML (HyperText Markup Language)** is the standard language for creating web pages.
* **HTML 3.0** is not preferred by developers, developed by Dave Raggett.
* **2012-2014**: Most standard version of HTML used nowadays.
* **Purpose of HTML**: Defines the structure of a webpage and tells the browser what to display.

**2. Basic HTML Elements**

* **Headings (<h1> to <h6>)**: Used to define titles and subheadings.
* **Paragraph (<p>)**: Defines a block of text.
* **Links (<a href="URL"> )**: Creates hyperlinks.
* **Lists**: Ordered (<ol>) and unordered (<ul>) lists.
* **Images (<img src="URL">)**: Embeds images into a webpage.
* **Forms (<form>)**: Collects user input.

**3. HTML Structural Elements**

* **<div>**: Block-level element, used for grouping content.
* **<span>**: Inline element, used for styling specific parts of text.
* **<section> vs <span>**:
  + <section>: A block-level element used for grouping related content.
  + <span>: An inline element used for styling.
* **Inline vs. Block Elements**:
  + **Inline elements**: Do not start on a new line, take only as much width as necessary (e.g., <span>, <a>, <strong>).
  + **Block elements**: Start on a new line and take up full width (e.g., <div>, <p>, <h1>).

**4. Forms and Input Elements**

* **Form Elements**: <input>, <textarea>, <button>, <select>, <label>.
* **Input Types**: Text, password, radio, checkbox, date, file, etc.
* **Form Validation**: HTML5 provides built-in validation using attributes like required, pattern, maxlength, etc.

**5. HTML5 Advanced Features**

* **Semantic Elements**: <article>, <section>, <header>, <footer>, <nav>, <aside> improve readability and SEO.
* **Audio & Video**: <audio> and <video> tags allow embedding of media.
* **Canvas & SVG**: Used for graphics and animations in HTML5.
* **Local Storage & Session Storage**: localStorage and sessionStorage allow storing data in the browser.
* **Geolocation API**: Allows websites to access a user's location.
* **Drag and Drop API**: Enables drag-and-drop functionality in web applications.