Lecture 5:
Social Media and E & M-Commerce

CSS 200 - Intro to Information Systems

Module 1

- What is an information system?
- Where do we use information systems?
- What is the difference between Data, Information and Knowledge?

What is an information system?

- An information system is a combination of technology, people, and processes that work together to collect, store, manage, and share data. It helps organizations make decisions, solve problems, and improve efficiency by providing accurate and timely information.

Where do we use information systems?

- Information systems are used in various sectors like business, education, and healthcare to support daily operations and long-term planning. They include hardware, software, databases, and networks, all designed to process and distribute information to users who need it.

What is the difference between Data, Information and Knowledge?

- Data refers to raw, unorganized facts or figures that by themselves have no meaning. For example, numbers, dates, or a list of names are considered data.
- Information is what you get when data is processed, organized, or structured in a way that adds context and meaning. For instance, data about sales figures organized in a report becomes information that can be used to understand business performance.
- Knowledge goes a step further and is the understanding or insight gained from analyzing information. It involves interpreting information and applying it to make decisions or solve problems, such as using sales information to predict future trends or improve strategies.

Module 2

- Explain the role of Enterprise Architecture in IT Governance
- Networking Devices: Hub, Repeater, Switch, Router, Gateway

Understanding Enterprise Architecture in IT Governance

What is Enterprise Architecture (EA)?

- Think of EA as a framework for how an organization's IT (technology) and business processes work together. It helps visualize and organize the different components like systems, data, and processes.

What is IT Governance?

- IT Governance is like a set of rules and guidelines that ensure the organization's IT supports its goals. It helps make sure that technology is used wisely and responsibly.

How Does EA Help with IT Governance?

- Alignment with Business Goals: EA ensures that IT projects and initiatives align with what the business wants to achieve. It's like making sure everyone is moving toward the same goal.
- Standardization: EA helps create standard processes and systems across the organization. This consistency makes it easier to manage and reduces confusion.
- Risk Management: By providing a clear view of all IT components, EA helps identify potential risks (like security issues) and allows organizations to plan ahead to avoid them.
- Informed Decision-Making: EA gives leaders a comprehensive view of technology and business processes, enabling them to make better decisions about where to invest and how to improve.
- Performance Measurement: EA often includes metrics that help track how well IT is performing. This allows organizations to see what's working and what isn't.

How Does EA Help with IT Governance?

- Managing Change: As businesses evolve, EA provides guidance on how to introduce new technologies or processes smoothly, reducing disruption.
- Improved Communication: EA acts as a common language that helps different parts of the organization communicate better, making collaboration easier.
- Regulatory Compliance: EA helps organizations ensure they are following laws and regulations related to technology, making it easier to prove compliance when needed.
- Resource Optimization: By identifying overlapping technologies or processes, EA helps organizations use their resources more effectively, saving time and money.
- Long-term Planning: EA encourages looking ahead and planning for future technology needs, ensuring the organization remains adaptable and sustainable.

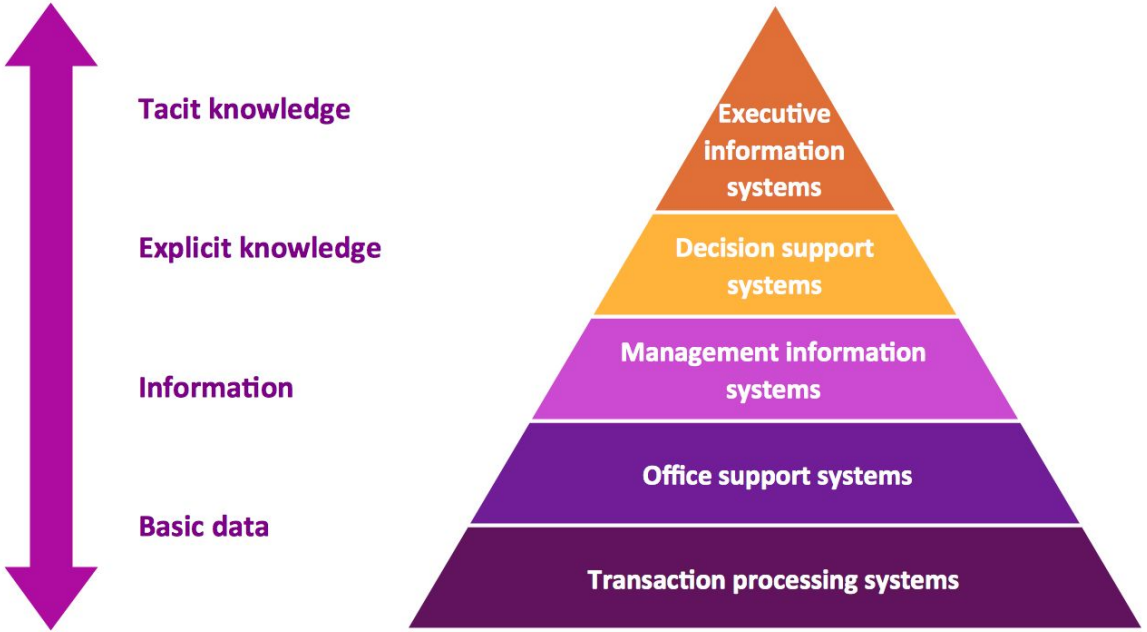
Networking Devices

- Network Definition: A network is a group of connected devices that share data and resources. These networks can vary in scale, from small home setups to global enterprise systems.
- Hub: Broadcasts data to all connected devices. It lacks intelligence, sending data to everyone instead of the intended recipient.
- Switch: Intelligently forwards data only to the intended device within a local network, reducing congestion and allowing full-duplex communication.
- Router: Connects different networks and determines the best path for data between them using IP addresses. Essential for internet connectivity.
- Repeater: Amplifies and retransmits weak signals to extend network range. Operates at the physical layer.
- Gateway: Acts as a translator between different networks, enabling communication by converting protocols.

Module 3

- Explain the role and objectives of Customer Relationship Management (CRM) and Supply Relationship Management (SRM).
- Transaction Processing Systems (TPS)
- Office Automation Systems (OAS)
- Management Information Systems (MIS)
- Decision Support Systems (DSS)
- Executive Information Systems (EIS)

Types of Information Systems Overview



Hierarchy of Information Systems: From Data to Knowledge

- Transaction Processing Systems (TPS): These systems handle basic data, primarily concerned with the day-to-day transactions of an organization. They are foundational, dealing with large volumes of operational data like sales, inventory, and payroll.
- Office Support Systems (OSS): These systems help with the daily operations within an office environment, such as document management, communication (e.g., email), and basic collaboration tools.
- Management Information Systems (MIS): At this level, systems are used to convert raw data from transaction systems into more structured information. MIS provides middle management with reports and summaries, supporting routine decision-making.
- Decision Support Systems (DSS): These systems are used for more complex decision-making, offering tools for data analysis, forecasting, and simulation. DSS helps in processing explicit knowledge, giving managers insights to make informed decisions on non-routine matters.
- Executive Information Systems (EIS): At the top of the hierarchy, these systems are designed for top-level executives. They focus on summarizing and presenting key performance indicators and strategic information, often dealing with tacit knowledge (unwritten, intuitive knowledge) that guides high-level decision-making.

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Summary

System	Purpose	Users	Key Features	Example
TPS	Handle routine, high-volume transactions	Operational staff (clerks, cashiers)	Structured, repetitive, real-time processing	POS systems, payroll systems
OAS	Automate routine office tasks	Clerical staff, knowledge workers	Productivity software (word processing, emails, etc.)	Microsoft Office suite
MIS	Provide reports for decision-making	Middle management	Summarized reports from structured data	Sales management systems
DSS	Support decision-making with data analysis	Managers, analysts	Analytical tools, "what-if" analysis, simulations	Forecasting, investment systems
EIS	Provide top-level information for executives	Executives, senior managers	High-level summaries, real-time dashboards	Executive dashboards

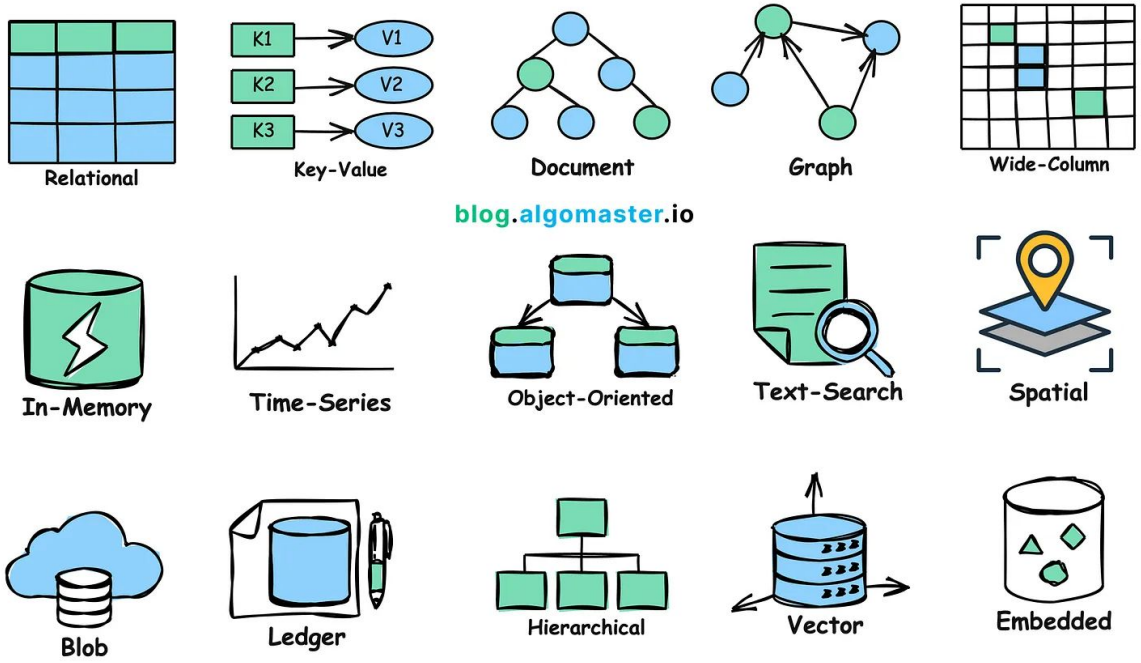
Module 4

- Microsoft Access
- Relational Databases (RDBMS)
- Key-Value Store
- Document Databases
- Graph Databases
- Object-Oriented Databases
- Hierarchical Databases

Database vs. Database Management System (DBMS)

- A Database and a Database Management System (DBMS) are closely related terms, but they serve different purposes:
- A database is a structured set of data. The data can be structured or unstructured and stored in various formats like tables, documents, and key-value pairs. It could be anything from a simple shopping list to a picture gallery or the vast amount of information in a corporate network.
- A Database Management System (DBMS) is software used to interact with a database. It provides an interface for users or applications to manipulate data, making the handling of large amounts of data more efficient and less error-prone. A DBMS oversees core administrative tasks such as data storage, retrieval, security, and query processing.

Different Types Of Databases



Summary

Database Type	Data Structure	Use Cases	Advantages	Examples
Relational Databases	Tables with rows and columns, structured relationships (SQL-based)	Enterprise applications, banking, e-commerce platforms	Data integrity, complex queries	MySQL, PostgreSQL, Oracle DB
Key-Value Store	Key-value pairs	Caching, session, storage, real-time data processing	Simple, fast retrieval, highly scalable	Redis, DynamoDB
Document Databases	Semi-structured documents	Content management, real-time analytics, IoT	Flexible schema, fast reads/writes, good for evolving data	MongoDB, Couchbase,Apache Couchbase
Graph Databases	Graphs, nodes, edges, properties	Social networks, recommendation systems, knowledge graphs	Efficient traversal of connected data, flexible querying	Neo4j, Amazon Neptune
Object-Oriented Databases	Objects (similar to OOP languages)	Object-oriented applications, multimedia databases	Seamless OOP integration, efficient object management	ObjectDB, db4o
Hierarchical Databases	Tree-like structure (parent-child relationships)	Organizational charts, file systems	Efficient for one-to-many relationships	IBM IMS, Windows Registry

What will we cover today?

- MLO 1: Build HTML pages using codepen.io editor.
- MLO 2: Evaluate M-Commerce websites.

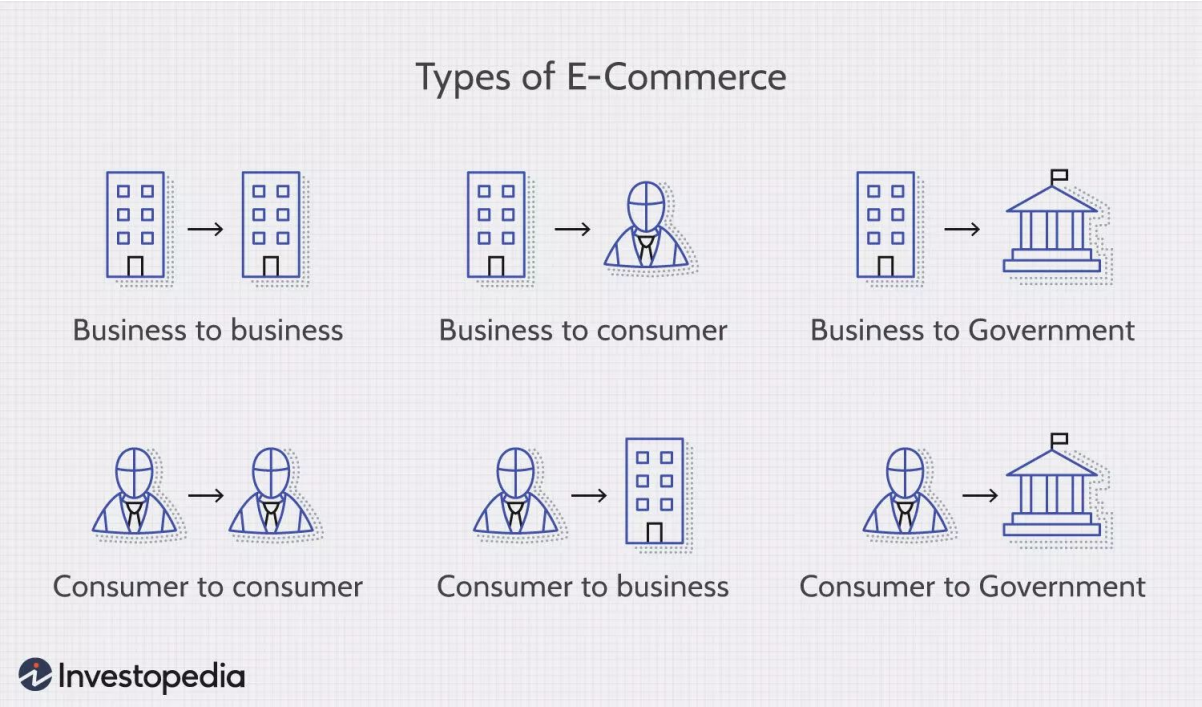
What is ecommerce?

- Ecommerce or "electronic commerce" is the trading of goods and services online. The internet allows individuals and businesses to buy and sell an increasing amount of physical goods, digital goods, and services electronically.

How does ecommerce work?

- Ecommerce works by connecting sellers with customers and allowing exchanges to take place online. It can work in many different ways and take many forms. Here's a general overview of how the process can look:
  1. The seller chooses online selling channels, like a website or social media, and promotes products or services for sale.
  2. Customers find the products or services and place orders.
  3. A payment processor enables the exchange of the goods or services electronically via payment options like credit cards or digital currencies.
  4. The customer receives a confirmation email or SMS along with a printable receipt.
  5. If the transaction is for goods, the seller ships the products and sends the customer a tracking number via email or SMS. If the transaction is for a service, the service provider can reach out to schedule and complete the service.

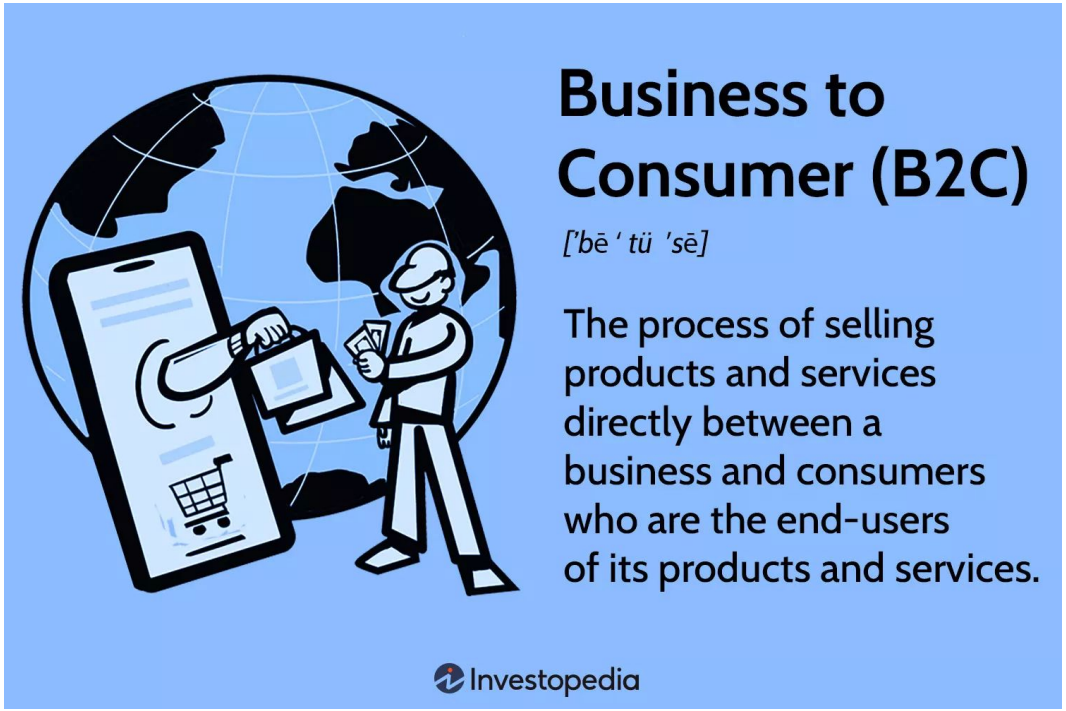
Types of e commerce



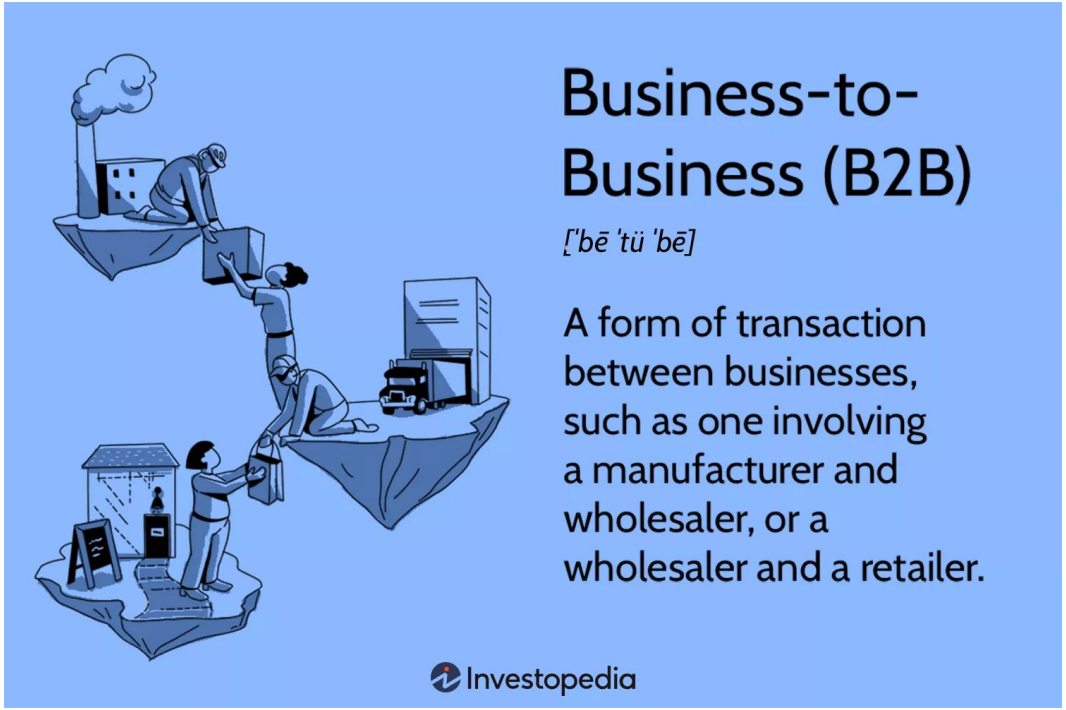
What types of e commerce are there?

- **B2C**: Businesses sell to individual consumers, sometimes called the “end customer.”
- **B2B**: Businesses sell to other businesses. Often the buyer resells products to the consumer.
- **C2C**: Consumers sell to other consumers. Businesses create online shopping destinations to connect customers.
- C2B: Consumers sell to businesses. C2B businesses allow customers to sell to other companies.
- B2G: Businesses sell to governments or government agencies.
- C2G: Consumers sell to governments or government agencies.
- G2B: Governments or government agencies sell to businesses.
- G2C: Governments or government agencies sell to consumers.

Business to Consumer (B2C)



Business to Business (B2B)



Customer to Customer (C2C)

C2C / B2C / B2B Comparison

Characteristic	C2C	B2C	B2B
Definition	Transaction between consumers	Transactions between businesses and consumers	Transactions between businesses
Target Audience	Individual consumers	General public	Other businesses or organizations
Platform Type	Marketplaces or auction sites	Retail websites	Wholesale platforms or direct sales
Example Business	eBay	Amazon	Alibaba

Introduction to HTML

- What is HTML?
  - HTML stands for HyperText Markup Language. It's the language used to create web pages.
  - HyperText refers to links that connect web pages.
  - Markup Language means that it uses tags to define elements within a document.
- What does HTML do?
  - It structures content on the web. It DOESN'T style or control how the content looks (that's CSS).
  - HTML is the foundation of any web page. It organizes text, images, links, and other content into a coherent structure.

Basic HTML Syntax

- HTML Tags:
  - HTML is built around elements that are represented by tags. Tags are written inside angle brackets (`< >`).
    - Example: `<p>This is a paragraph.</p>`
  - Most HTML tags have both an opening and a closing tag. The closing tag includes a forward slash (`</tag>`).
  - Example: `<h1>This is a heading</h1>`
- Some tags, like `<img>` (image), are self-closing (do not need a closing tag).

Basic HTML Syntax

- Attributes:
  - Attributes provide additional information about an element. They are written inside the opening tag and usually come in pairs of name and value.
    - Example: `<img src="image.jpg" alt="description">`
    - `src` is the image source, `alt` provides alternative text in case the image fails to load.

Key HTML Elements

- Headings:
  - HTML offers six levels of headings, from **<h1>** to **<h6>**. The higher the number, the smaller the heading.
    - Example: **<h1>Main Heading</h1>**, **<h2>Subheading</h2>**

Key HTML Elements

- Paragraphs:
  - The `<p>` tag is used for paragraphs of text. This is a block-level element, meaning it starts on a new line.
    - Example: `<p>This is a paragraph of text.</p>`

Key HTML Elements

- Links:
  - Links are created using the `<a>` (anchor) tag, with an href attribute that specifies the link's destination.
    - Example: `<a href="https://www.example.com">Visit Example</a>`

Key HTML Elements

- The `<img>` tag is used to display images on a webpage. It is a self-closing tag, meaning there is no separate closing tag.
  - Example: `<img src="image.jpg" alt="A description of the image">`
    - The `alt` attribute provides alternative text for the image, which is useful for accessibility or if the image doesn't load.

Key HTML Elements

- Lists:
  - **U**nordered List (bullets): Use `<ul>` with `<li>` for list items.
    - Example

```
<ul>
    <li>Item 1</li>
    <li>Item 2</li>
</ul>
```

Key HTML Elements

- Lists:
  - **O**rdered List (numbers): Use `<ol>` with `<li>`
    - Example

```
<ol>
    <li>Item 1</li>
    <li>Item 2</li>
</ol>
```

Key HTML Elements

- Div and Span:
  - `<div>` is used as a container for block-level content. It doesn't affect how content looks by itself but is often used for layout purposes.
    - Example

```
<div>This is a section of the page</div>
```

  - `<span>` is used for inline content. It's great for styling small parts of text without starting a new line.
    - Example

```
<span style="color: red;">This text is red</span>
```

HTML Document Structure

```
<!DOCTYPE html>
<html lang="en"
<head>
    <meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>My Web Page</title>
</head>
<body>
    <h1>Hello World</h1>
    <p>This is a sample webpage.</p>
</body>
</html>
```

HTML Document Structure - Breakdown

- **`<!DOCTYPE html>`**: This tells the browser that the document is an HTML5 document.
- **`<html>`**: The root element, everything on your webpage goes inside this.
- **`<head>`**: Contains meta information about the document (e.g., title, character encoding).
- **`<title>`**: The title of the page (this appears in the browser tab).
- **`<body>`**: This contains the actual content of the webpage (what users see).

HTML Document Structure - Meta Tags

- Meta tags are used inside the **<head>** to give metadata about the page. This is information about the page, not visible to users.
  - Example: **<meta name="description" content="This is a description of my webpage.">**
  - Another common one: **<meta charset="UTF-8">** (ensures the correct character encoding).

Forms in HTML

- The Form Element
  - HTML forms are used to collect user inputs. Form are created using the <form> tag.

```
<form action="/submit" method="POST">
    <input type="text" name="username"
placeholder="Enter your name">
    <input type="submit" value="Submit">
</form>
```

Forms in HTML

- Input Elements
  - Text: `<input type="text">` for single-line input.
  - Password: `<input type="password">` for hidden characters (e.g., password fields).
  - Radio Buttons: `<input type="radio">` for single-choice options.
  - Checkbox: `<input type="checkbox">` for multiple choices.
  - Submit Button: `<input type="submit">` submits the form.

Introduction to CSS

- What is CSS?
  - CSS stands for Cascading Style Sheets. It's used to style and layout web pages.
- What does CSS do?
  - CSS controls the appearance of HTML elements, such as colors, fonts, layout, and spacing.
  - Separates the structure (HTML) from the presentation (CSS).

Basic CSS Syntax

- CSS Rule Structure:
  - A CSS rule is made up of selectors and declarations.
  - Selector: Determines which HTML element(s) to style.
  - Declaration: Specifies the properties and their values.
    - Example:

```
h1 {
    color: blue;
    font-size: 24px;
}
```

Basic CSS Syntax

- Breakdown:
  - `h1` is the selector, targeting all `<h1>` elements.
  - Inside the curly braces `{}`, we have declarations. Each declaration has a property (`color`) and a value (`blue`).
  - Declaration are separated by semicolons (`;`).

Two ways to add CSS to HTML

- Inline CSS: Using the style attribute directly within an HTML element.
  - `<p style="color: red;">This is red text.</p>`
- Internal CSS: Adding styles within a `<style>` tag inside the HTML document's `<head>`.
  - Example:

```
<style>
p {
    color: red;
}
</style>
```

Text Properties

- Color: Sets the color of text.
  - Example: `color: blue;`
- Font-family: Specifies the font.
  - Example: `font-family: Arial, sans-serif;`
- Font-size: Sets the size of the text.
  - Example: `font-size: 18px;`
- Text-align: Aligns text left, center, or right.
  - Example: `text-align: center;`

Box Model

- HTML elements are considered as boxes. The box model includes:
  - Content: The main content inside an element.
  - Padding: The space inside the element around the content.
    - Example: `padding: 10px;`
  - Border: A line around the padding.
    - Example: `border: 1px solid black;`
  - Margin: The space outside the element.
    - Example: `margin: 20px;`

Backgrounds

- Background-color: Sets the background color of an element.
    - Example: `background-color: lightblue;`
- Background-image: Sets the background image.
    - Example:

```
body {
    background-image: url('background.jpg');
}
```

CodePen

- CodePen is an online code editor and social development environment that allows users to write, test, and showcase their HTML, CSS, and JavaScript code.