Day-6

Learned XML

XML stands for Extensible Markup Language. It's a way of encoding data in a format that's both human-readable and machine-readable. Think of it like a filing system with clear labels for all your documents.

<?xml version="1.0" encoding="UTF-8"?>

Here's a breakdown of what XML is and how it works:

- **Structure over Content:** Unlike HTML, which focuses on how to display information, XML focuses on the structure and meaning of data. It uses tags to define different parts of the data, similar to how headings and paragraphs structure a document.
- **Customizable Tags:** XML doesn't have predefined tags like HTML. You create your own tags to describe your specific data. This makes XML flexible and adaptable to any kind of information.
- **Machine-Readable:** The use of tags makes XML data easy for computers to understand. Programs can parse the tags and extract the relevant information efficiently.
- **Human-Readable:** XML is also designed to be readable by humans. The tags and structure make it easy to understand the meaning and organization of the data.

Why Use XML?

XML is widely used for various reasons:

- **Data Exchange:** XML provides a standardized way to exchange data between different systems and applications, regardless of the platform or software used.
- **Data Storage:** XML is a popular format for storing structured data because it's flexible and easy to archive.
- **Configuration Files:** Many software programs use XML files to store configuration settings.

Examples of XML in Action:

- **Product Information:** Online stores might use XML to exchange product information with suppliers or other platforms.
- **News feeds:** News websites can use XML to provide summaries of their articles to other websites or applications.
- **E-books:** Some e-books use XML to store the content and structure of the text.

In a nutshell, XML is a versatile tool for structuring, storing, and exchanging data. It bridges the gap between human-understandable information and machine-readable formats.

Example of XML Document

XML documents uses a self-describing and simple syntax:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<note>
  <to>Tove</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
```

The first line is the XML declaration. It defines the XML version (1.0) and the encoding used (ISO-8859-1 = Latin-1/West European character set).

The next line describes the root element of the document (like saying: "this document is a note"):

```
<note>
```

The next 4 lines describe 4 child elements of the root (to, from, heading, and body).

```
<to>Tove</to>
<from>Jani</from>
<heading>Reminder</heading>
<body>Don't forget me this weekend!</body>
```

And finally the last line defines the end of the root element.

```
</note>
```

XML documents must contain a **root element.** This element is "the parent" of all other elements.

The elements in an XML document form a document tree. The tree starts at the root and branches to the lowest level of the tree.

All elements can have sub elements (child elements).