

What is XML?

XML (eXtensible Markup Language)	A flexible text format used to store and transport data, designed to be both human-readable and machine-readable
Key features	Platform-independent
	Designed for information exchange
	Hierarchical structure with custom tags

1. DTD Declaration

External DTD file:

```
<!DOCTYPE root element SYSTEM "file.dtd">
```

Internal DTD file:

```
<!D OCTYPE root_e lement [
    <!-- DTD declar ations go here -->
]>
```

SYSTEM: Points to an external DTD file.

Root Element & Hierarchy

Every XML document has one root element that holds the entire structure.

```
<!ELEMENT candy_store (category _chocolate, category gummy?)>
```

Entities

&	&
<	<
>	>
'	'
"	"

<!ENTITY copy " Copyright SweetWorld 2023">

Called in the XML document with `©`.

Parameter Entities

Reusable definitions within a DTD.

Allows complex content to be reused in multiple elements.

```
<!ENTITY % product " (price, manuf acturer?, images?,
    descri ption?, nutrit ion al_ inf o?) ">

<!-- ELEMENT chocolate bar %product;-->
```

Element Occurrence

What is a DTD?

DTD (Document Type Definition)	Defines the structure and rules for an XML document. It ensures that the XML follows a specific schema.
Key features	Elements
	Attributes
	Entities

2. Element Declarations

```
<!ELEMENT element name (content)>
```

```
<!ELEMENT element name EMPTY>
```

Example with sub-elements:

```
<!ELEMENT candy_ types (choco late, gummy,  
hard c and y)>
```

Example with text content:

```
<!ELEMENT description (#PCDATA TA)>
```

EMPTY: If the element has no content

PCDATA: Parsed Character Data is text that will be parsed by the XML parser. Tags inside are treated as markup and entities will be expanded.

CDATA: (Unparsed) Character data is text which is not parsed further in an XML document.

Tags inside are not treated as markup and entities will not be expanded.

Attributes

```
<!A TTLIST elemen t_name attribute _name type sta
tus>
```

Status:

#REQUIRED	must be present
#IMPLIED	optional
#FIXED	fixed value

Types: CDATA (any character string)

Enumerations (predefined values)

Example:

```
<!A TTLIST candy chocol ate _flavor CDATA #REQUIRE
D sugar_content
  CDATA #REQUI RED>
```

Attributes: chocolate flavor, sugar content

Element: candy

?	Optional, zero or one occurrence
*	Optional, zero, one, or more occurrences
+	At least one occurrence
,	Elements must appear in the given order
	Either one element or the other
<pre><!ELEMENT nutrit ion al_info (calor ies?, fat_cont ent?, sugar_ con ten t?)></pre> <p>Calories, fat_content, and sugar_content are optional.</p>	



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