What is XML and what are its characteristics?

XML stands for Extensible Markup Language, which is a markup language used for structuring, storing and transmitting data. Its main characteristics include being human-readable, platform-independent, and extensible.

What is the syntax of XML? Explain its different components

1. The syntax of XML consists of the following components:
- Declaration: It is the first line of an XML document that specifies the version and encoding used in the document.
- Tags: XML documents consist of tags, which are enclosed in angle brackets. There are two types of tags - opening tags and closing tags.
- Elements: An element is made up of an opening tag, content and a closing tag. The content can contain other elements or text.
- Attributes: Attributes provide additional information about an element and are specified within the opening tag.
- Namespace: Namespace is used to avoid naming conflicts between elements in different XML vocabularies.
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What is the root element in an XML document? Is it case sensitive?

3. The root element is the top-level element in an XML document and is the parent element of all other elements. The name of the root element is case sensitive.

Explain the different sections of an XML document.

4. An XML document consists of two main sections:
- Document Prolog Section: This section contains the XML declaration and other optional declarations such as a document type declaration or namespace declaration.
- Document Element Section: This section contains the root element and all its child elements.

What are the rules for declaring an XML document?

5. The rules for declaring an XML document are:
- The XML declaration must be the first line of the document and must specify the version and encoding used in the document.
- The root element must be enclosed in angle brackets and must have a closing tag.
- All elements must be properly nested.
- Attribute values must be enclosed in quotes.
- XML is case sensitive, so element and attribute names must be written in the correct case.