DTD and XML schema

DTD – Document Type Definition

Defines elements and their structure

-subelements

-content

-attributes

Own syntax

A computer code with text

Description automatically generated with medium confidence

Empty element

<!ELEMENT Person EMPTY>

Subelements

<!ELEMENT Person ( Name,Address)>

Optional elements(zero or more occurrences)

<!ELEMENT Person (Name,Address?)>

Subelements with zero or more occurrences

<!ELEMENT Person (Name,Address,Phone\*)>

Subelements with one or more occurrences

<!ELEMENT Person(Name,Address,Phone+)>

Elements with text content

<!ELEMENT Person (#PCDATA)>

Element with any type of content

<!ELEMENT Person ANY>

DTD – attributes

Attributes are defined per element type

One or more attributes can be defined in the same ATTLIST

Compulsary attribute

<!ATTLIST Person pnr CDATA #REQUIRED>  
Optional attributes

<!ATTLIST Person length CDATA #IMPLIED>

Optional attribute with default data

<!ATTLIST Person birthplace CDATA “Stockholm”>

XML schema

Defines elements and their structure

Subelements

Content

Attributes

Data types

Number of occurrences

Complex sequence rules

Uses XML syntax

XML schema is XML based language

XML schema document

Namespace

<http://www.w3.org/2001/XMLSchema>

Root element

Schema

Defines

Elements

Attributes

Types

XML schema document

Namespace

Root element schema

Attribut elementFormDefault

Qualified

Unqualified(default)

XML schema-element

Element element defines elements

Attribute name – defines element’s name

Attribute type or content defines element’s type

Elements maybe following types

Base type (string,integer,date,etc)

<element name=”Firstname” type=”String”/>

Type defined somewhere else

<element name=”Firstname” type=”MyType”/>

Type defined in the content

<element name=”Firstname”>

Attribute name defines attribute’s name

Attribute type defines attribute’s type

Attribute use defines whether attribute is optional

XML Schema - types

Base types – string, integer, date, etc.

Custom types – complexType » when there are subelements or attributes

simpleType » constraining a base type

XML schema – simpleType

<xs:simpleType name=”weekday”>

<xs:restriction base=”xs:string”>

XML schema -complexType

May contain one of the following

simpleContent – content of element shall be base type(text node)

content of element based on another complexType

all – defines elements in unspecified order

choice -defines alternative subelements

sequence – defines sequence of subelements

A screenshot of a computer program

Description automatically generated

JSON JSON schema

JSON

Javascript Object Notation

Standard since 2013

Javascript(ECMAScript)

Similar to SSD expressions

Case sensitive

Indentation and formatting are ignored

Used in

-integrations

-data transfer to JS applications

JSON values

Object (basically a map)

Array (comma separated list of values)

String

Number

True

False

JSON example