

XML Data

DTDs,
IDs & IDREFs

DTDs, IDs & IDREFs

"Well-Formed" XML

Adheres to basic structural requirements

- Single root element
- Matched tags, proper nesting
- Unique attributes within elements

```
<?xml version="1.0" ?>
<!-- Bookstore with no DTD -->
<Bookstore>
- <Book ISBN="ISBN-0-13-713526-2" Price="85" Edition="3rd">
   <Title>A First Course in Database Systems</Title>
 - <Authors>
   - <Author>
      <First_Name>Jeffrey</First_Name>
       <Last Name>Ullman</Last Name>
     </Author>
   - <Author>
       <First Name>Jennifer</First Name>
      <Last Name>Widom</Last Name>
     </Author>
   </Authors>
 </Book>
- <Book ISBN="ISBN-0-13-815504-6" Price="100">
   <Remark>Buy this book bundled with "A First Course" -- a great deal!
   <Title>Database Systems: The Complete Book</Title>
   Authores
```

DTDs, IDs & IDREFs

"Valid" XML

Adheres to basic structural requirements

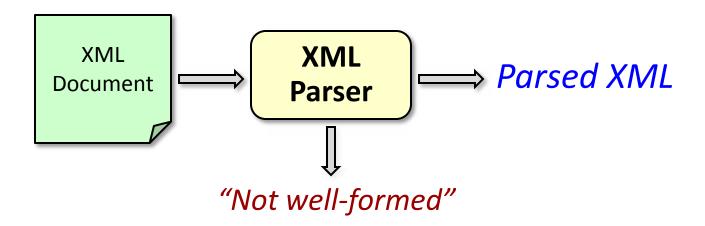
- > Also adheres to content-specific specification
 - Document Type Descriptor (DTD)
 - XML Schema (XSD)

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   <Remark>Buy this book bundled with "A First Course" -- a great deal!
   <Title>Database Systems: The Complete Book</Title>
```

"Valid" XML

Adheres to basic structural requirements

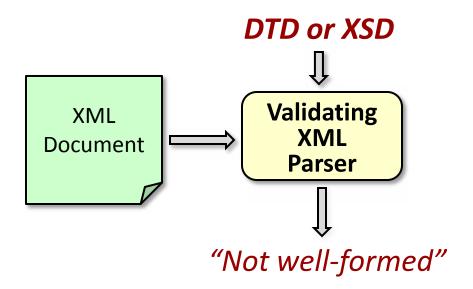
➤ Also adheres to content-specific specification



"Valid" XML

Adheres to basic structural requirements

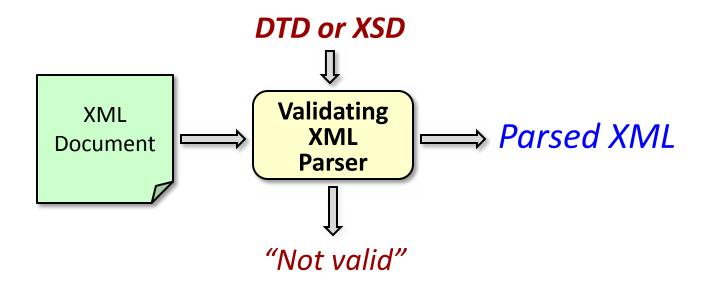
➤ Also adheres to content-specific specification



"Valid" XML

Adheres to basic structural requirements

➤ Also adheres to content-specific specification



DTDs, IDs & IDREFs

Document Type Descriptor (DTD)

- Grammar-like language for specifying elements, attributes, nesting, ordering, #occurrences
- Also special attribute types <u>ID and IDREF(S)</u>
 pointers

DTD/XSD versus none (well-formed)

```
+ DTD/XSD
Programs can assume structure
                                        Benefits of
C55/X5L
 Specification - data exchange
 Documentation
                          - DTD/XSD
                                        Benefits of "no typing"
Flexibility, ease of change
DTDS can be messy - irregular
XSDs
```